ORAL ARGUMENT NOT YET SCHEDULED

Case No. 18-1114 (and consolidated cases)

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

State of California, et al.,

Petitioners,

v.

United States Environmental Protection Agency, et al.,

Respondent.

On Petition for Review of Final Action of the
United States Environmental Protection Agency

Opposition by the State Petitioners to Respondents' and Movant-Intervenors' Motions to Dismiss

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GLOSSARY OF ABBREVIATIONS

APA	Administrative Procedure Act
CARB	California Air Resources Board
EPA	Environmental Protection Agency
MTE Regulation	Mid-Term Evaluation Regulation
NHTSA	National Highway Traffic Safety Administration
Section 177	42 U.S.C. § 7507
Section 177 States	The States that have adopted California's emission standards pursuant to 42 U.S.C. § 7507
TAR	Draft Technical Assessment Report

INTRODUCTION

In 2012, the Environmental Protection Agency (together, with Acting Administrator Andrew Wheeler, "EPA") adopted greenhouse gas emission standards for model year 2017–2025 passenger vehicles and light-duty trucks. In its rulemaking, EPA committed to further evaluate the model year 2022–2025 standards utilizing a comprehensive and transparent process. After completing that review, EPA announced its final determination that the emission standards remained achievable, cost-effective and appropriate. Sixteen months later, however, EPA withdrew its determination and replaced it with a new determination that the standards "are not appropriate" and "should be revised." 83 Fed. Reg. 16,077 (Apr. 13, 2018) (the "Revised Determination"). Because EPA's action violates several important requirements in its own regulations and the Administrative Procedure Act (APA), the State Petitioners petitioned this Court for review.[1]

[1] The eighteen State Petitioners ("States") are the States of California (by and through its Governor Edmund G. Brown Jr., Attorney General Xavier Becerra and California Air Resources Board), Connecticut, Delaware, Illinois, Iowa, Maine, Maryland, Minnesota (by and through its Minnesota Pollution Control Agency and Minnesota Department of Transportation), New Jersey, New York, Oregon, Rhode Island, Vermont and Washington, the Commonwealths of Massachusetts, Pennsylvania (by and through its Department of Environmental Protection and Attorney General Josh Shapiro) and Virginia, and the District of Columbia.

The justiciability issues raised in EPA and Movant-Intervenors' motions to dismiss mischaracterize the Revised Determination as nothing more than a "decision to engage in further rulemaking" (EPA Mot. 1), a "tentative" step (*id*. at 9) that determines no "rights or obligations" (*id.* at 7). In fact, it is a definitive decision that purports to conclude a decision-making process designed by EPA, codified in its regulations, and subject to specified requirements to ensure its soundness and transparency. It also has altered the legal regime and caused legal consequences for the States. As such, the Revised Determination constitutes a final action.

For the same reasons, the States' claims are ripe. They raise purely legal questions and are based on a closed administrative record. No amount of delay will make the States' claims more concrete or fit for review.

As to standing, EPA's Revised Determination has injured the States in several ways that would be redressed by a favorable ruling here.

In sum, EPA and Movant-Intervenors' threshold arguments miss their mark. The motions to dismiss should be denied.

I. BACKGROUND

A. State Regulation of Greenhouse Gas Emissions from Vehicles

According to the federal government's Fourth National Climate Assessment, the period we are living through "is now the warmest in the

history of modern civilization."[2] Recent years have been the hottest on record and have brought "record-breaking, climate-related weather extremes."[3] The harms associated with the warming climate, which the Supreme Court has described as "serious and well recognized," *Massachusetts v. EPA*, 549 U.S. 497, 521 (2007), are already impacting the States' resources and their residents' health and welfare. How much worse these impacts become "will depend primarily on the amount of greenhouse gases (especially carbon dioxide) emitted globally."[4]

Accordingly, numerous states have enacted laws and implemented programs to reduce their greenhouse gas emissions.[5] Addressing emissions from the transportation sector is particularly important: as of 2016, it is the nation's largest source of greenhouse gas emissions.[6] California recognized

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[2] U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment* (Wash., DC 2017), Vol. 1, Exec. Summ., https://science2017.globalchange.gov/chapter/executive-summary/

[3] *Id.*

[4] *Id.*

[5] Exhibit M (APP186-187) provides a partial list of such laws. The exhibits and declarations cited herein can be found in the accompanying Appendix. Citations to pages in the Appendix follow the format "APP."

[6] EPA, "Sources of Greenhouse Gas Emissions" in Inventory of U.S. Greenhouse Gas Emissions and Sinks, https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions (last accessed Aug. 28, 2018).

the transportation sector's significance as early as 2002, when it enacted the nation's first law requiring limits on greenhouse gas emissions from vehicles.[7] Cal. Health & Safety Code § 43018.5. Thereafter, the California Air Resources Board ("CARB") adopted regulations establishing such limits. 13 Cal. Code Regs. §§ 1961.1, 1961.3. Between 2004 and 2010, twelve States—Connecticut, Delaware, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Vermont and Washington (the "Section 177 States")—adopted California's vehicle emission standards pursuant to the Clean Air Act, 42 U.S.C. § 7507 ("Section 177").

B. The National Program

In 2010, EPA established the first federal greenhouse gas emission standards for vehicles. In 2012, it set standards for model years 2017–2025. 40 C.F.R. § 86.1818-12. EPA's actions were part of the establishment and continuation of the National Program of vehicle emission standards. As this Court explained, the National Program is "[t]he product of an agreement between the federal government, California, and the major automobile manufacturers" that "make[s] it possible for automobile manufacturers to

[7] As used herein, "vehicles" refers to passenger vehicles and light-duty trucks.

sell a 'single light-duty national fleet' that satisfies the standards of EPA, [the National Highway Traffic Safety Administration (NHTSA)], California, and the Section 177 states." *Chamber of Commerce of U.S. v. EPA*, 642 F.3d 192, 198 (D.C. Cir. 2011); *see also* Declaration of Michael McCarthy ("McCarthy Decl.") ¶¶ 6-7 and attachment (APP78-79, APP88-91). "Pursuant to that agreement, California amended its regulations to deem compliance with the national standards [then proposed by EPA as] compliance with its own." *Chamber of Commerce*, 642 F.3d at 198; *see also* Declaration of Joshua Cunningham ("Cunningham Decl.") ¶ 10 (APP51).

C. The Mid-Term Evaluation

Recognizing the long timeframe for the later model-year standards, EPA committed to a mid-term review of those standards (the "Mid-Term Evaluation"). 77 Fed. Reg. 62,624, 62,784 (Oct. 15, 2012) (the "2012 Rule"). The regulation codifying this commitment required that, "[b]y no later than April 1, 2018, the Administrator shall determine whether the standards … for the 2022 through 2025 model years are appropriate under section 202(a) of the Clean Air Act …" 40 C.F.R. § 86.1818-12(h) (the "MTE Regulation"). If, after completing its review, EPA determined that the standards continued to be appropriate, they would remain binding. Otherwise, if EPA determined that the standards were no longer appropriate,

the regulation provided that the Administrator "shall initiate a rulemaking to revise the standards." *Id.* EPA intended this process to be "collaborative … and transparent," 77 Fed. Reg. at 62,964, and "as robust and comprehensive as that in the original setting of the [model year] 2017–2025 standards," *id.* at 62,784. The agency pledged "to conduct the mid-term evaluation in close coordination with [CARB]." *Id.*; *see also id.* at 62,785 (stressing importance of CARB's role).

The foundation of the Mid-Term Evaluation was a draft Technical Assessment Report ("TAR") to be prepared jointly by EPA, NHTSA and CARB. 77 Fed. Reg. at 62,784. This document would allow EPA "to examine afresh the issues and, in doing so, conduct similar analyses and projections as those considered in the … rulemaking" originally establishing the standards. *Id.* at 62,965. EPA agreed to make its assumptions and modeling "available to the public to the extent consistent with law," *id.* at 62,964, and release the TAR for public comment *before* issuing its determination. 40 C.F.R. § 86.1818-12(h)(2). The MTE Regulation mandated that EPA base its determination upon the TAR and the public comment it received. *Id.*

EPA, NHTSA and CARB began work on the TAR in December 2012. McCarthy Decl. ¶ 12 (APP81). The agencies held over 100 interagency

meetings and met with vehicle manufacturers, parts suppliers, and other stakeholders. *Id.* ¶¶ 13, 14 (APP81-82). Agency staff traveled extensively, gathering information about emission-reducing technologies and manufacturer design plans. *Id.* ¶ 14 (APP81-82). CARB staff participated at every step, spending thousands of hours in meetings, conducting research, and drafting sections of the TAR. *Id.* ¶ 13, 15 (APP81-83).

In July 2016, the agencies issued the TAR.[8] This 1,217-page document assembled data and analysis from a "wide range of sources" including "research projects initiated by the agencies, input from stakeholders, and information from technical conferences, published literature, and studies published by various organizations," including a National Academy of Sciences study "purposely timed to inform the Mid-Term evaluation."[9] Based on this body of research, the TAR concluded that "a wider range of technologies exist[s] for manufacturers to use to meet the [model year] 2022–2025 standards, and at costs that are similar or lower than those projected" in 2012.[10]

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[8] The TAR is available at https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas#TAR

[9] TAR at 2-2, 2-4.

[10] TAR at ES-2.

After receiving public comment on the TAR, EPA issued a 268-page Proposed Determination supported by a 719-page Technical Support Document.[11] EPA preliminarily determined that the standards remained appropriate.

Following a second round of comment, EPA issued its final determination on January 12, 2017 ("2017 Determination").[12] EPA considered the TAR's findings and analysis in detail, and found that "the record clearly establishes that, in light of technologies available today and [projected] improvements, it will be practical and feasible for automakers to meet the [model year] 2022–2025 standards at reasonable cost that will achieve the significant [greenhouse gas] emissions reduction goals of the program." Ex. A at 29 (APP33). Accordingly, EPA determined that the standards remain "appropriate under section 202(a)(1) of the Clean Air Act." *Id.* at 1 (APP5). As both EPA and Movant-Intervenors acknowledge, the 2017 Determination constituted a final action. *Id.*; Movant-Intervenors Mot. 6 n.7.

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[11] These documents are available at https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100Q3DO.pdf and https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100Q3L4.pdf.

[12] A copy of the 2017 Determination is included as Exhibit A in the States' Appendix.

D. EPA's Revised Determination

Months later, EPA reversed course. After announcing it would reconsider the 2017 Determination, and receiving public comment, EPA published its 11-page Revised Determination on April 13, 2018.[13] In it, EPA summarily withdrew the 2017 Determination and replaced it with a determination "conclud[ing] that the standards are not appropriate" and "should be revised." 83 Fed. Reg. at 16,077 (APP36).

Despite EPA's regulatory mandate to base the determination upon the TAR, and its promise to conduct the reconsideration "in accordance with the regulations EPA established for the Mid-Term Evaluation," 82 Fed. Reg. 39,551, 39,553 (Aug. 21, 2017), the Revised Determination largely ignored the TAR. McCarthy Decl. ¶ 22 (APP86). Instead, citing a "significant record … developed since the January Final Determination"—a record it had not previously disclosed to the public—EPA declared that the existing standards "present challenges for auto manufacturers due to feasibility and practicability," raise "potential concerns" about safety, and would increase consumer costs. 83 Fed. Reg. at 16,078 (APP37). Despite the requirement that EPA set forth in detail its assessment of specific factors, the agency

[13] A copy of the Revised Determination is included as Exhibit B in the States' Appendix.

instead stated it would defer several such assessments to a future rulemaking.

EPA's Revised Determination violates several important requirements in the MTE Regulation and lacks the "reasoned explanation" required under the APA "in light of the [agency's] change in position and significant reliance interests involved." *Encino Motorcars, LLC v. Navarro*, 136 S.Ct. 2117, 2126 (2016). Based on these and other deficiencies, California, the Section 177 States, and five States that follow the federal standards timely filed a Petition for Review.

II. ARGUMENT

The States' Petition satisfies the threshold requirements for judicial review. EPA's Revised Determination is a final action, and the States and their claims meet the tests for ripeness and standing. Moreover, in seeking to foreclose judicial review, EPA is asking the Court to overlook "the type of administrative evasiveness" that transforms government into "a matter of the whim and caprice of the bureaucracy." *S.C. Coastal Conservation League v. Pruitt*, No. 18-CV-330-DCN, 2018 WL 3933811, at *6 (D.S.C. Aug. 16, 2018), quoting *N. Carolina Growers' Ass'n, Inc. v. United Farm Workers*, 702 F.3d 755, 772 (4th Cir. 2012) (Wilkinson, J., concurring). By issuing a Revised Determination that abandons the existing record and

reverses its prior action, EPA wishes to wipe the administrative slate clean and move on to the next rulemaking. Well-grounded precepts of administrative law forbid this. *N. Carolina Growers' Ass'n*, 702 F.3d at 772 ("the pivot from one administration's priorities to those of the next [must] be accomplished with at least some fidelity to law and legal process") (Wilkinson, J., concurring).

A. EPA's Action Is a Final Action

EPA and Movant-Intervenors first contend that the Revised Determination is not a final action under 42 U.S.C. § 7607(b)(1). An action is final if it marks the "consummation of the agency's decisionmaking process" and is one "by which rights or obligations have been determined, or from which legal consequences will flow." *Bennett v. Spear*, 520 U.S. 154, 177–78 (1997) (quotation marks and citations omitted). Courts apply a "pragmatic" and "flexible" approach when assessing finality. *Abbott Laboratories v. Gardner*, 387 U.S. 136, 149–50 (1967).

1. The Revised Determination Satisfies the First *Bennett* Prong

a. It Purports to Conclude the Mid-Term Evaluation

EPA has already conceded that the Revised Determination purports to "mark the consummation" of the Mid-Term Evaluation. *See* 83 Fed. Reg. at 16,087 ("This notice *concludes* EPA's [Mid-Term Evaluation] under 40

CFR 86.1818-12(h).") (emphasis added). This concession reflects the governing structure codified in the MTE Regulation, which mandated that the Administrator "*shall determine* whether the standards" remained appropriate "[b]y no later than April 1, 2018." 40 C.F.R. § 86.1818-12(h) (emphasis added). When EPA withdrew the 2017 Determination and issued a new determination reaching the opposite conclusion—*i.e.*, that the standards "are not appropriate" and "should be revised"—it purported to conclude this review and provided its "definitive" and "unequivocal" position regarding the appropriateness of the standards.[14] *Ciba-Geigy Corp. v. EPA*, 801 F.2d 430, 436 (1986). Thus, EPA's action readily meets the first *Bennett* condition.

Additionally, the MTE Regulation required EPA, before making a determination, to develop a comprehensive record, and then base its determination thereon, and "set forth in detail the bases for the determination." 40 C.F.R. § 86.1818-12(h)(2), (4). Such "extensive factfinding" requirements further demonstrate finality here. *U.S. Army Corps of Engs. v. Hawkes Co., Inc.*, 136 S.Ct. 1807, 1813 (2016); *see also Safari Club Int'l v. Jewell*, 842 F.3d 1280, 1289 (D.C. Cir. 2016). In

[14] Of course, EPA concluded the Mid-Term Evaluation for the first time with its 2017 Determination.

developing the 2017 Determination, EPA undertook a multi-year review that included more than 100 meetings, research projects, two rounds of public comment, and the preparation of the TAR. Although EPA's Revised Determination ignores this record and fails to make several requisite findings, those defects do not change the fact that it purports to conclude the Mid-Term Evaluation and provides EPA's definitive position.

That EPA's action begets another rulemaking process to revise the standards does not make the Revised Determination any less final. "To be final, an action need not be the last administrative action contemplated by the statutory scheme." *Role Models America v. White*, 317 F.3d 327, 331 (D.C. Cir. 2003) (quotation marks and brackets omitted).

b. EPA's Attempt to Paint Its Action as "Tentative" and "Interlocutory" Fails

To avoid this result, EPA seeks to recast its action as "tentative" and "interlocutory," merely an interim step akin to an advance notice of proposed rulemaking. EPA Mot. 9. EPA further claims that it has not yet decided whether the current standards "should be retained, be made more stringent, or be made less stringent." *Id.* at 10. EPA's attempt to characterize its action this way runs afoul of the facts. Statements throughout the Revised Determination—although unsupported—demonstrate its definitive nature. *See, e.g.*, 83 Fed. Reg. at 16,078 ("the

Administrator believes that the current [greenhouse gas] emission standards for model year 2022–2025 light-duty vehicles presents [sic] challenges for auto manufacturers due to feasibility and practicability, raises potential concerns related to automobile safety, and results in significant additional costs on consumers"); *id.* at 16,081 ("Based on consideration of the information provided, the Administrator believes that it would not be practicable to meet the model year 2022–2025 emission standards without significant electrification and other advanced vehicle technologies that lack a requisite level of consumer acceptance.").

Occasional statements that EPA intends to further analyze certain factors manifest either EPA's failure to complete the determination (thus violating its regulation), or its intent, having determined the standards are "not appropriate," to take steps to decide the extent of the revisions. *See* 83 Fed. Reg. at 16,087 ("EPA … will further explore *the appropriate degree and form* of changes to the program") (emphasis added). In either case, such statements do not alter the definitive nature of EPA's determination.[15]

[15] That EPA retains authority to reconsider its determination does not make an otherwise final action non-final. *Safari Club Int'l*, 842 F.3d at 1289. Moreover, the Notice of Proposed Rulemaking issued by EPA and NHTSA does not include any alternative that would strengthen the standards, and the agencies' "preferred alternative" would jettison all improvements currently required. 83 Fed. Reg. 42,986, 42,988–90 (Aug. 24, 2018).

Indeed, if EPA's characterization of its action were true, it would be conceding that it violated the mandate that it consider specific factors and make a definitive determination regarding the appropriateness of the standards. 40 C.F.R. § 86.1818-12(h)(1), (2), (4).

Finally, contrary to EPA's claim, EPA Mot. 4, the 2012 Rule does not preclude review here, but merely confirms that a determination that the standards are appropriate "will be a final agency action … subject to judicial review on its merits" as will any rule revising the standards. 77 Fed. Reg. at 62,784–85. The 2012 Rule does not state that a determination that the standards are not appropriate—no matter how arbitrary or unlawful—would not be a final action. Indeed, EPA lacks the authority to curtail the reviewability of its actions in this way. *Columbia Broad. Sys. v. United States*, 316 U.S. 407, 416 (1942) (substance of agency's action is material, not the "particular label" it assigns the action).

c. EPA and Movant-Intervenors' Authorities Are Distinguishable

The definitive nature of EPA's action makes it substantially unlike the grant of reconsideration in *Clean Air Council v. Pruitt*, 862 F.3d 1 (2017), and the proposed rule in *In re Murray Energy Corp.*, 788 F.3d 330 (2015). Those actions are not analogous to EPA's action here, which concluded a decision-making process, withdrew a previous final action, and announced

EPA's determination that the standards are "not appropriate." Having thus "publicly articulate[d] an unequivocal position," EPA has "relinquished the benefit of postponed judicial review." *Ciba-Geigy Corp.*, 801 F.2d at 436.

Movant-Intervenors' cases are also inapplicable. This Court previously held that an agency's decision to collect information to develop emission standards for cement facilities, *Portland Cement Ass'n v. EPA*, 665 F.3d 177 (D.C. Cir. 2011), a guidance letter that preceded an administrative proceeding, *Southwest Airlines Co. v. U.S. Dep't of Transp.*, 832 F.3d 270 (D.C. Cir. 2016), and a decision to initiate a quasi-adjudicatory proceeding to determine a company's liability, *Arch Coal, Inc. v. Acosta*, 888 F.3d 493 (D.C. Cir. 2018), were all non-final. These cases are distinguishable because they did not involve an agency re-opening and then reversing its prior final action while disregarding the extensive record on which the agency relied for its original action. Finally, *American Portland Cement Alliance v. EPA*, 101 F.3d 772 (D.C. Cir. 1996), involved a different, and comparatively narrow, judicial review provision not relevant here. *Id.* at 775.

2. EPA's Action Satisfies the Second *Bennett* Prong

a. The Revised Determination Has Altered the Applicable Legal Regime and Created Legal Consequences

EPA's action likewise satisfies the second prong of the *Bennett* standard: it "alter[ed] the legal regime" and created "direct and appreciable legal consequences." *Bennett*, 520 U.S. at 178. Under the MTE Regulation, EPA's action has triggered a binding requirement that it "shall" initiate a rulemaking to revise the standards. 40 C.F.R. § 86.1818-12(h)(1). The Revised Determination therefore carries legal consequences for the agency, which must now carry out that regulatory directive. *Ctr. for Auto Safety v. Nat'l Highway Traffic Safety Admin.*, 452 F.3d 798, 806 (D.C. Cir. 2006) (action is final if it has "binding effects on … the agency"); *Nat'l Envtl. Dev. Ass'n's Clean Air Project*, 752 F.3d 999, 1007 (D.C. Cir. 2014) (action creating "legal consequences" for agency staff is final). This alone is sufficient to satisfy the second *Bennett* prong.

EPA's action has caused legal consequences for the States as well. The non-Section 177 States rely upon the current federal standards to satisfy a critical part of their own greenhouse gas reduction mandates. After affirming that the standards would remain legally binding in its 2017 Determination, EPA withdrew that determination and proclaimed the

standards "not appropriate." Thus, EPA has wiped away its previous assurance, and these States must now anticipate fewer emission reduction benefits from the National Program.

For instance, the District of Columbia, which currently follows the federal standards, has determined that it can no longer rely on the future emission reduction benefits that the existing federal standards once promised. It therefore has committed staff time and resources to preparing and implementing regulations to adopt California's standards as part of meeting the District's greenhouse gas reduction goals. Declaration of Marc A. Nielsen ("Nielsen Decl.") ¶¶ 10-12 (APP97-99). Contrary to EPA's suggestion, the District cannot wait to act. A state adopting California's standards for a particular model year must do so "at least two years before commencement of such model year." 42 U.S.C. § 7507(2). Because commencement of a model year is based on its "annual production period," model year 2022 will "commence" sometime in 2021 when production of those vehicles begins. *Id.* §§ 7507(2), 7521(b)(3)(A)(i); *see also* Nielsen Decl. ¶ 13 (APP99). The District therefore must act now to be able to apply California's standards to model year 2022 vehicles.

Other states are also taking action in response to EPA's Revised Determination. In California, CARB has prepared proposed amendments to

its regulations clarifying that its agreement to accept compliance with the federal standards will be available to manufacturers only if the current federal standards remain intact. Cunningham Decl. ¶¶ 36-39 (APP60). As CARB staff explained:

> The proposed amendments will ensure that appropriate and necessary greenhouse gas emission reductions and public health protections are achieved by California's standards. They are also important for maintaining the pace of greenhouse gas emission reductions that are necessary to achieve [California's] statutory targets.

Id. attachment at 5 (APP69).

Several Section 177 States are likewise taking, or planning to take, administrative and regulatory action. Declaration of Christine Kirby ("Kirby Decl.") ¶¶ 28-41 (APP134-139), Declaration of Steven E. Flint ("Flint Decl.") ¶¶ 8-15 (APP145-148), Declaration of Ali Mirzakhalili ("Mirzakhalili Decl.") ¶¶ 8-18 (APP166-168), Declaration of Heidi Hales ("Hales Decl.") ¶¶ 3-7 (APP170-171), and Declaration of Stuart Clark ("Clark Decl.") ¶¶ 4-5 (APP181-182). Because it is unknown when EPA's revisions to the federal standards will be final, and manufacturers are already planning model year 2022 vehicles, Cunningham Decl. ¶¶ 34-35 (APP59-60), these States are dedicating staff time and resources in direct response to

EPA's action. All of these State actions demonstrate the "direct and appreciable legal consequences" of EPA's action. *Bennett*, 520 U.S. at 178.

b. Movant-Intervenors' Cases Are Again Inapplicable

Again, Movant-Intervenors' cases have no weight here. *Reliable Automatic Sprinkler Co. v. Consumer Product Safety Commission*, 324 F.3d 726 (D.C. Cir. 2003), and *FTC v. Standard Oil Co.*, 449 U.S. 232 (1980), stand for the unexceptional proposition that the initiation of a quasi-adjudicatory proceeding is not reviewable. The decisions in *Nat'l Mining Ass'n v. McCarthy*, 758 F.3d 243 (D.C. Cir. 2014), and *Indep. Equip. Dealers Ass'n v. EPA*, 372 F.3d 420 (D.C. Cir. 2004), which involved agency guidance letters, are also distinguishable. *See, e.g.*, *Indep. Equip. Dealers*, 372 F.3d at 427 ("workaday advice letter" reiterating agency's position "for the umteenth time" not reviewable). None concerned an agency concluding its decision-making process, withdrawing a prior final action, and announcing a definitive decision.

B. The States' Claims Are Ripe

EPA and Movant-Intervenors next argue that the States' claims are not ripe. In fact, EPA suggests they will *never* be ripe, and seeks to relegate them to the public comment phase of its ongoing rulemaking. EPA Mot. 13. This is backwards. The Mid-Term Evaluation was designed to determine in

the first place whether such a rulemaking is even warranted, and then, if so, to inform that rulemaking. Thus, any deficiencies in the Revised Determination must be resolved *now*, and not after EPA's rulemaking is completed.

Moreover, the States' claims are fit for review. "In determining the fitness of an issue for judicial review we look to see whether the issue is purely legal, whether consideration of the issue would benefit from a more concrete setting, and whether the agency's action is sufficiently final." *Nat'l Envtl. Dev. Ass'n's Clean Air Project*, 752 F.3d at 1008 (quotation marks and citation omitted). All these factors support ripeness here. The States' claims raise questions about whether EPA's action comports with the governing regulations and the APA. Such administrative law claims "present purely legal issues." *Atl. States Legal Found. v. EPA*, 325 F.3d 281, 284 (D.C. Cir. 2003). Moreover, these claims are based on a closed administrative record. (Contrary to EPA's assertions, the States are *not* challenging EPA's ongoing rulemaking here.) Thus, the setting is sufficiently concrete for review. And, as demonstrated above, EPA's action is "sufficiently final."

As to hardship, when "an issue is clearly fit for review," as is the case here, "there is no need to consider the hardship to the parties of withholding

court consideration." *Action for Children's Television v. FCC*, 59 F.3d 1249, 1258 (D.C. Cir. 1995) (quotation marks and citation omitted). Even if hardship were relevant, the showing required under the Clean Air Act is minimal: "Such statutes … permit judicial review directly, even before the concrete effects normally required for APA review are felt." *Whitman v. Am. Trucking Ass'n*, 531 U.S. 457, 479–80 (2001) (quotation marks and citation omitted). Here, the detrimental impact of EPA's action on the States has been substantial. *See* Sections II.A.2.a. and II.C.1. By contrast, EPA has identified no hardship it would suffer from judicial review.

C. The States Have Standing

EPA's standing argument fails because, like its other arguments, it mischaracterizes EPA's action as a mere notice of a contingent future action. Again, this is not the case.

Standing requires (1) an injury-in-fact (2) fairly traceable to the respondent's conduct and (3) likely to be redressed by a favorable decision. *Massachusetts*, 549 U.S. at 517. "States are not normal litigants" and are entitled to "special solicitude" for purposes of standing. *Id.* at 518, 520.

1. The States Have Been Injured

EPA's action injures the States in several ways. *First*, it inflicts a particular injury on California, which, pursuant to an "agreement between

the federal government … and the major automobile manufacturers," amended its regulations to accept compliance with the proposed federal standards. *Chamber of Commerce*, 642 F.3d at 198. This agreement also required that EPA base its determination on a robust factual record that included the TAR. 40 C.F.R. § 86.1818-12(h)(1), (2)(i). And it expressly provided CARB an important role in the Mid-Term Evaluation and the preparation of the TAR. 77 Fed. Reg. at 62,784-85. On these bases, California agreed to participate in the National Program, accept compliance with the federal standards, and collaborate on the TAR. Cunningham Decl. ¶¶ 13-15 (APP52-54). CARB invested thousands of hours of work and substantial costs in the development of the TAR, all with the expectation that EPA—as it had agreed and obligated itself to do—would base its determination on the TAR. McCarthy Decl. ¶¶ 13-15 (APP81-83). California honored its commitments under the agreement. However, by issuing a determination uninformed by the analysis and findings in the TAR, EPA breached a commitment it had made to California and codified in its regulations. This injury establishes California's standing, and only one petitioner's standing is required to satisfy Article III's case-or-controversy requirement. *Massachusetts*, 549 U.S. at 518.

Second, by failing to disclose in advance the information on which EPA based its Revised Determination, EPA has caused informational injury to the States. The governing regulations explicitly required EPA to make the analyses, projections, assumptions and modeling it used to arrive at its determination available for public review and comment. 40 C.F.R. § 86.1818-12(h)(2)(ii); 77 Fed. Reg. at 62,965. Prior to issuing its 2017 Determination, EPA did this: it published the TAR, invited public comment, issued its Proposed Determination and Technical Support Document, and held a second round of public comment, all before issuing its final determination. *See* Section I.C., *supra*. In stark contrast, and in violation of its regulatory precepts, EPA issued its Revised Determination without disclosing the "significant record" of new information on which it based its decision. 83 Fed. Reg. at 16,078. By depriving the States of this information, EPA substantially impaired their ability to fully participate in the Mid-Term Evaluation. *See* McCarthy Decl. ¶¶ 19-21 (APP84-85). This is an independent basis for their standing. *Federal Election Com'n v. Akins*, 524 U.S. 11, 24–25 (1998).

Third, EPA's Revised Determination, coupled with the regulatory mandate that it initiate a rulemaking to revise the standards, has set in motion a process that will result in increased greenhouse gases and

exacerbate climate harms to the States. *See, e.g.*, Declaration of Bruce Carlisle, ¶¶ 8-27 (APP106-119), Declaration of Julia Moore ¶¶ 10-20 (APP175-179), Flint Decl. ¶¶ 24-44 (APP151-163), Clark Decl. ¶¶ 6-9 (APP182-183). Thus, EPA's action harms the States' sovereign and quasi-sovereign interests in preserving their territories and natural resources. *Massachusetts*, 549 U.S. at 521. Although the precise extent of this harm is not yet known, such precision is not required. *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 565 n.2 (1992).

Fourth, EPA's action has already caused the States concrete injury, as demonstrated above in Section II.A.2.a. As a direct result of the Revised Determination, and in light of statutory and industry lead-times, several States have determined that they must now divert staff time and other resources to take administrative and regulatory actions. The impact on State resources provides another basis for establishing standing. *See, e.g.*, *Texas v. United States*, 809 F.3d 134, 155 (5th Cir. 2015).

2. The States' Injuries Are Directly Traceable to EPA's Action and Would Be Redressed by a Favorable Ruling

All of the above injuries are directly traceable to EPA's Revised Determination and would be redressed by a favorable ruling. An order vacating EPA's Revised Determination and restoring the 2017

Determination would cure the immediate harms from EPA's breach of its commitment to California and the States' informational harm.[16] EPA also would be forced to confront its 2017 Determination and the underlying record, thus ensuring that any further consideration of the model year 2022–2025 standards in its rulemaking would be informed by the findings and analysis from the Mid-Term Evaluation. That the States might need to take further actions in light of EPA's separate proposal to revise the standards does not undermine the States' standing here. *See Motor & Equip. Mfrs. Ass'n v. Nichols*, 142 F.3d 449, 458 (D.C. Cir. 1998) (recognizing that "considerably eas[ing]" of path to desired result suffices for redressablity).

CONCLUSION

For the reasons stated above, the States respectfully request that the Court deny the motions to dismiss.

[16] Although the States' informational injury satisfies the redressability element, this showing is not required. *See Massachusetts*, 549 U.S. at 517–18 (party alleging deprivation of a procedural protection need not demonstrate redressability and immediacy).

Dated: August 29, 2018

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CERTIFICATE OF COMPLIANCE

I hereby certify that the Opposition by the State Petitioners to Respondents' and Movant-Intervenors' Motions to Dismiss, dated August 29, 2018, complies with the type-volume limitations of Rule 32 of the Federal Rules of Appellate Procedure and this Court's Circuit Rules. I certify that this brief contains 5,189 words, as counted by the Microsoft Word software used to produce this brief, excluding the parts of the brief exempted by Federal Rule of Appellate Procedure 32(a)(7)(B)(iii) and Circuit Rule 32(a)(1).

/s/ David Zaft
DAVID ZAFT

CERTIFICATE OF SERVICE

I hereby certify that I caused a copy of the foregoing Opposition by the State Petitioners to Respondents' and Movant-Intervenors' Motions to Dismiss to be filed on August 29, 2018 using the Court's CM/ECF system, and that, therefore, service was accomplished upon counsel of record by the Court's system.

/s/ David Zaft
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ORAL ARGUMENT NOT YET SCHEDULED

Case No. 18-1114 (and consolidated cases)

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

State of California, et al.,

Petitioners,

v.

United States Environmental Protection Agency, et al.,

Respondent.

On Petition for Review of Final Action of the
United States Environmental Protection Agency

State Petitioners' Appendix in Support of their Opposition to Respondents' and Movant-Intervenors' Motions to Dismiss

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Exhibit A

EPA, "Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation," dated January 2017

Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation

EPA United States Environmental Protection Agency

Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation

U.S. Environmental Protection Agency

United States Environmental Protection Agency

EPA-420-R-17-001
January 2017

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Executive Summary

The 2012 rulemaking establishing the National Program for federal greenhouse gas (GHG) emissions and corporate average fuel economy (CAFE) standards for model years (MY)2017-2025 light-duty vehicles included a regulatory requirement for the Environmental Protection Agency (EPA) to conduct a Midterm Evaluation (MTE) of the GHG standards established for model years (MY)2022-2025.[1] In this final order, the Administrator is making a final adjudicatory determination (hereafter "determination") that, based on her evaluation of extensive technical information available to her and significant input from the industry and other stakeholders, and in light of the factors listed in the 2012 final rule establishing the MY2017-2025 standards, the MY2022-2025 standards remain appropriate under section 202 (a) (1) of the Clean Air Act. This action leaves those standards entirely as they now exist, unaltered. The regulatory status quo is unchanged. This final order constitutes a final agency action. See 76 FR 48763 (Aug. 9, 2011).

This Final Determination follows the November 2016 Proposed Determination issued by the EPA Administrator and the July 2016 release of a Draft Technical Assessment Report (TAR), issued jointly by the EPA, the National Highway Traffic Safety Administration (NHTSA), and the California Air Resources Board (CARB). Opportunities for public comment were provided for both the Draft TAR and the Proposed Determination. In the Draft TAR, the agencies examined a wide range of issues relevant to GHG emissions standards for MY2022-2025, and shared with the public their initial technical analyses of those issues. The Draft TAR was required by EPA's regulations as the first step in the Midterm Evaluation process. In developing the Proposed Determination, the Administrator considered public comments on the Draft TAR and EPA updated its analyses where appropriate in response to comments and to reflect the latest available data. The Administrator has likewise considered public input on the Proposed Determination in developing this Final Determination.

As the final step in the MTE, the Administrator must determine whether the MY2022-2025 GHG standards, established in 2012, are still appropriate under section 202(a)(1) of the Clean Air Act (Act), in light of the record before the Administrator, given the latest available data and information. EPA's regulations establish April 1, 2018, as the latest date for such a determination, but otherwise do not constrain the Administrator's discretion to select an earlier determination date. The Administrator is choosing to make the Final Determination now, recognizing that long-term regulatory certainty and stability are important for the automotive industry and will contribute to the continued success of the program, which in turn will reduce emissions, improve fuel economy, deliver significant fuel savings to consumers, and benefit public health and welfare.

EPA received more than 100,000 public comments on the Proposed Determination, with comments from about 60 organizations and the rest from individuals. These public comments have informed the Administrator's Final Determination, and EPA has responded to those comments in the accompanying Response to Comments (RTC) document. This record[2]

[1] 40 CFR 86.1818-12(h).

[2] This record, the basis for the Administrator's determination, is contained in EPA Docket ID No. EPA-HQ-OAR-2015-0827.

represents the most current information available, as informed by public comment, and provides the basis for the Administrator's Final Determination, as called for in the 2012 rule.

The EPA regulations state that in making the required determination, the Administrator shall consider the information available on the factors relevant to setting greenhouse gas emission standards under section 202(a) of the Clean Air Act for model years 2022 through 2025, including but not limited to:

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

This Final Determination is the Administrator's final decision on whether or not the MY2022-2025 standards are appropriate under section 202(a)(1) of the Clean Air Act, in light of the record now before the Administrator. EPA's regulations specify that the determination shall be "based upon a record that includes the following:

- A Draft Technical Assessment Report addressing issues relevant to the standard for the 2022 through 2025 model years;
- Public comment on the Draft Technical Assessment Report;
- Public comment on whether the standards established for the 2022 through 2025 model years are appropriate under section 202(a) of the Clean Air Act; and
- Such other materials the Administrator deems appropriate."[4]

The EPA has now concluded all the required steps in the MTE process and the record upon which the Administrator is making this Final Determination reflects all the elements specified in the regulations. As discussed above, EPA issued (jointly with NHTSA and CARB) the July 2016 Draft Technical Assessment Report (TAR) and sought public comment on it. EPA updated

[3] 40 CFR 86.1818-12(h)(1).
[4] 40 CFR 86.1818-12(h)(2).

its Draft TAR assessment in response to public comments as part of the November 2016 Proposed Determination. EPA also sought public comment on the Proposed Determination that the GHG standards for MY2022-2025 remain appropriate under section 202 (a)(1) of the Act. If those comments had included information that led the Administrator to the determination that the standards are inappropriate, EPA would then have had to initiate a rulemaking seeking to amend those standards, as specified in the MTE regulation.[5] However, no factual evidence came to light in the public comments or otherwise that leads the Administrator to a different conclusion than the one set forth in the Proposed Determination. The Administrator is thus making this Final Determination that the standards remain appropriate, and that no further action under the Midterm Evaluation is necessary. Thus the standards remain unchanged and the regulatory status quo is unaltered. See also 76 FR 48763 (Aug. 9, 2011) ("[t]he MY2022-2025 GHG standards will remain in effect unless and until EPA changes them by rulemaking").

EPA's updated analyses presented in the Proposed Determination built upon and were directly responsive to public comments on the Draft TAR. The Administrator has fully considered public comments submitted in response to the Proposed Determination, and EPA has responded to comments in the accompanying Response to Comments (RTC) document. The Administrator believes that there has been no information presented in the public comments on the Proposed Determination that materially changes the Agency's analysis documented in the Proposed Determination. Therefore, the Administrator considers the analyses presented in the Proposed Determination[6] as the final EPA analyses upon which her Final Determination is based.

The Administrator notes that, in response to EPA's solicitation of comment on the topic, several commenters spoke to the need for additional incentives or flexibilities in the out years of the program including incentives that could continue to help promote the market for very advanced technologies, such as electric vehicles. She notes that her determination, based on the record before her, is that the MY2022-2025 standards currently in effect are feasible (evaluated against the criteria established in the 2012 rule) and appropriate under section 202, and do not need to be revised. This conclusion, however, neither precludes nor prejudices the possibility of a future rulemaking to provide additional incentives for very clean technologies or flexibilities that could assist manufacturers with longer term planning without compromising the effectiveness of the current program. The EPA is always open to further dialogue with the manufacturers, NHTSA, CARB and other stakeholders to explore and consider the suggestions made to date and any other ideas that could enhance firms' incentives to move forward with and to help promote the market for very advanced technologies, such as electric vehicles (EVs), plug-in hybrid electric vehicles (PHEVs), and fuel cell vehicles (FCEVs).

The basis for the Administrator's assessment supporting her decision that the MY2022-2025 standards are appropriate is summarized below.

The Standards Are Feasible at Reasonable Cost, Without Need for Extensive Electrification. As part of our technical assessment of the technologies available to meet the MY2022-2025 GHG standards, we present a range of feasible, cost-effective compliance pathways to meet the

[5] 40 CFR 86.1818-12(h) (final sentence).

[6] Proposed Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation, EPA-420-R-16-020, and accompanying Technical Support Document, EPA-420-R-16-021, November 2016.

MY2022-2025 standards. This analysis demonstrates that compliance can be achieved through a number of different technology pathways reflecting predominantly the application of technologies already in commercial production. The EPA also considered further developments in technologies where there is reliable evidence that those technologies could be feasibly deployed by 2025. The standards are in fact devised so as not to force manufacturers into a single compliance path, and the analysis showing multiple compliance pathways indicates that the standards provide each manufacturer with the flexibility to apply technologies in the way it views best to meet the needs of its customers. Moreover, given the rapid pace of automotive industry innovation, we believe there are, and will continue to be, emerging technologies that will be available in the MY2022-2025 time frame that could perform appreciably better at potentially lower cost than the technologies modeled in EPA's assessment. We have already seen this type of innovative development since the MY2017-2025 GHG standards were originally promulgated in 2012, including expanded use of continuously variable transmissions and introduction of higher expansion ratio, naturally aspirated gasoline engines (Atkinson). Updated information also shows that some of the technologies we did anticipate in 2012 are costing less, and are more effective, than we anticipated at that time.

EPA further projects that the MY2022-2025 standards can be met largely through advances in gasoline vehicle technologies, such as improvements in engines, transmissions, light-weighting, aerodynamics, and accessories, and, as noted, that there are multiple available compliance pathways based on the predominant use of these technologies. This analysis is consistent with both agencies' findings in the 2012 final rulemaking (FRM). Table ES-1 shows fleet-wide penetration rates for a subset of the technologies EPA projects could be used to comply with the MY2025 standards. The analyses further indicate that very low levels of strong hybrids and electric vehicles (both plug-in hybrid electric vehicles (PHEV) and electric vehicles (EV)) will be needed to meet the standards. EPA analyzed a central case low-cost pathway as well as multiple sensitivity cases, all of which show that compliance can be achieved through a number of different technology pathways without extensive use of strong hybrid or electric vehicles. These sensitivity cases include various fuel price scenarios, cost markups, and technology penetrations (e.g., lower Atkinson penetration, lower mass reduction, alternative transmissions). See Table ES-1, presenting the sensitivity cases as a range of technology penetrations and per-vehicle costs. These costs are lower than those projected in the 2012 rule; at that time, the EPA projected that average per-vehicle costs, although reasonable, would be about $1,100.[7]

Table ES-1 Selected Technology Penetrations (Absolute) and Per-Vehicle Average Costs (2015$) to Meet MY2025 GHG Standards (Incremental to the Costs to Meet the MY2021 Standards) [1]

	Final Determination	
	Primary Analysis	Range of Sensitivities Analyzed
Turbocharged and downsized gasoline engines (%)	34%	31 - 41%
Higher expansion ratio, naturally aspirated gasoline engines (%)	27%	5 - 41%
8 speed and other advanced transmissions[2] (%)	93%	92 - 94%
Mass reduction (%)	9%	2 - 10%

[7] 77 FR 62853, October 15, 2012; Draft Technical Assessment Report, Table 12.44.

Off-cycle technology[3]	26%	13 - 51%
Stop-start (%)	15%	12 - 39%
Mild Hybrid (%)	18%	16 - 27%
Strong Hybrid (%)	2%	2 - 3%
Plug-in hybrid electric vehicle[4] (%)	2%	2%
Electric vehicle[4] (%)	3%	2 - 4%
Per vehicle cost (2015$)	**$875**	**$800 - $1,115**

Notes:
[1] Percentages shown are absolute rather than incremental. Values based on AEO 2016 reference case.
[2] Including continuously variable transmissions (CVT).
[3] In addition to modeling the off-cycle credits of stop-start and active aerodynamics, EPA also assessed additional off-cycle technologies as unique technologies that can be applied to a vehicle and that reduce CO_2 emissions by either 1.5 g/mi or 3 g/mi. See Proposed Determination Appendix C.1.1.1.3,
[4] Electric vehicle penetrations include the California Zero Emission Vehicle (ZEV) program.

The Standards Will Achieve Significant CO_2 and Oil Reductions. Based on various assumptions, including the U.S. Department of Energy's Annual Energy Outlook (AEO) 2016 reference case projections of the car/truck mix out to 2025, the footprint-based GHG standards curves for MY2022-2025 are projected to achieve an industry-wide fleet average carbon dioxide (CO_2) target of 173 grams/mile (g/mi) in MY2025 (Table ES-2). The projected fleet average CO_2 target represents a 2-cycle GHG emissions compliance level equivalent to 51.4 mpg-e (if all reductions were achieved exclusively through fuel economy improvements).[8] EPA projects that this GHG compliance level of 51.4 mpg-e could be met by automakers with average real world/label fuel economy of about 36 mpg. Given that the MY2016 real world fleet average fuel economy is about 26 mpg, this means that the fleet must improve real world fuel economy by about 10 mpg over the 9-year period from 2016 to 2025, or about one mpg per year.[9]

As a sensitivity, Table ES-2 also includes target projections based on two AEO 2016 scenarios in addition to the AEO 2016 reference case: a low fuel price case and a high fuel price case. Under the footprint-based standards, the program is designed to ensure significant GHG reductions across the fleet, and each automaker's standard automatically adjusts based on the mix (size and volume) of vehicles it produces each model year. Thus, as shown in Table ES-2, different fuel price cases translate into different projections for the car/truck fleet mix (e.g., with a higher truck share shown in the low fuel price case, and a lower truck share shown in the high fuel price case), which in turn leads to varying projections for the CO_2 targets and MPG-e levels projected for MY2025. These estimated CO_2 target levels reflect changes in the latest projections about the MY2025 fleet mix compared to the projections in 2012 when the standards were first established.

In our analysis for this Final Determination, we are applying the same footprint-based curves to the updated fleet projections for MY2025. It is important to keep in mind that the updated

[8] The projected MY2025 target of 173 g/mi represents an approximate 50 percent decrease in GHG emissions relative to the fuel economy standards that were in place in 2010. It is clear from current GHG manufacturer performance data that many automakers are earning air conditioner refrigerant GHG credits that reduce GHG emissions, but do not improve fuel economy. Accordingly, the projected MY2025 target of 173 g/mi represents slightly less than a doubling of fuel economy relative to the standards that were in place in 2010.
[9] U.S. EPA, Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2016," November 2016, www.epa.gov/fuel-economy/trends-report.

MY2025 fleet wide projections reflected in this Final Determination are still projections-- based on the latest available information, which will likely continue to change with future projections -- and that the actual GHG emissions/fuel economy level achieved in MY2025 will not be determined until the manufacturers have completed their MY2025 production. Put another way, each manufacturer will not know what its individual standard is until MY2025, since that individual standard is determined by the type and number of vehicles the manufacturer chooses to produce.

Table ES-2 Projections for MY2025: Car/Truck Mix, CO_2 Target Levels, and MPG-equivalent[1]

	2012 Final Rule	Final Determination		
	AEO 2011 Reference	**AEO 2016 Reference**	AEO 2016 Low	AEO 2016 High
Fuel Price in 2025 ($/gallon)[2]	$3.87	**$2.97**	$1.97	$4.94
Car/truck mix	67/33%	**53/47%**	44/56%	63/37%
CO_2 (g/mi)	163	**173**	178	167
MPG-e[3]	54.5	**51.4**	49.9	53.3

Notes:
[1] The CO_2 and MPG-e values shown here are 2-cycle compliance values. Projected real-world values are detailed in the Proposed Determination TSD Chapter 3; for example, AEO reference fuel price case, real-world CO_2 emissions performance would be 233 g/mi and real-world fuel economy would be about 36 mpg.
[2] AEO 2011 fuel price is 2010$ (equivalent to $4.21 in 2015$); AEO 2016 fuel prices are 2015$.
[3] Mile per gallon equivalent (MPG-e) is the corresponding fleet average fuel economy value if the entire fleet were to meet the CO_2 standard compliance level through tailpipe CO_2 improvements that also improve fuel economy. This is provided for illustrative purposes only, as we do not expect the GHG standards to be met only with fuel efficiency technology.

EPA estimates that over the vehicle lifetimes the MY2022-2025 standards will reduce GHG emissions by 540 million metric tons and reduce oil consumption by 1.2 billion barrels, as shown in Table ES-3.

Table ES-3 Cumulative GHG and Oil Reductions for Meeting the MY2022-2025 Standards (Vehicle Lifetime Reductions)

	Final Determination[1]
GHG reduction (million metric tons, MMT CO_2e)	540
Oil reduction (billion barrels)	1.2

Note:
[1] Values based on AEO 2016 reference case.

The Standards Will Provide Significant Benefits to Consumers and to the Public. The net benefits of the MY2022-2025 standards are nearly $100 billion (at 3 percent discount rate). Table ES-4 presents the societal monetized benefits associated with meeting the MY2022-2025 standards. The EPA also evaluated the benefit-costs of additional scenarios (AEO 2016 high and low fuel price scenarios). See Proposed Determination Section IV.A. In all cases, the net benefits far exceed the costs of the program. It is also notable that in all cases, the benefits (excluding fuel savings) and the fuel savings, each independently, exceed the costs. That is, the

benefits exceed the costs without considering any fuel savings, and likewise fuel savings exceed the costs even without considering any other benefits.

Table ES-4 GHG Analysis of Lifetime Costs & Benefits to Meet the MY2022-2025 GHG Standards (for Vehicles Produced in MY2021-2025)[1] (Billions of $)

	Final Determination[2]	
	3 Percent Discount Rate	7 Percent Discount Rate
Vehicle Program	-$33	-$24
Maintenance	-$3	-$2
Fuel	$92	$52
Benefits[1]	$42	$32
Net Benefits	$98	$59

Notes:
[1]All values are discounted back to 2016. See the Proposed Determination Appendix C for details on discounting social cost of GHG and non-GHG benefits, and for a discussion that the costs and benefits reflect some early compliance with the MY2025 standard in MY2021.
[2] Values based on AEO 2016 reference case and 2015$.

When considering the payback of an average MY2025 vehicle compared to a vehicle meeting the MY2021 standards, we believe one of the most meaningful analyses is to look at the payback for consumers who finance their vehicle, as the vast majority of consumers (nearly 86 percent) purchase new vehicles through financing. The average loan period is over 67 months. Consumers who finance their vehicle with a 5-year loan would see payback within the first year. Consumers who pay cash for their vehicle would see payback in the fifth year of ownership. Consumers would realize net savings of $1,650 over the lifetime of their new vehicle (i.e., net of increased lifetime costs and lifetime fuel savings). Even with the lowest fuel prices projected by AEO 2016 (see Proposed Determination Appendix C), approximately $2 per gallon in 2025, the lifetime fuel savings significantly outweigh the increased lifetime costs.

Table ES-5 Payback Period and Net Lifetime Consumer Savings for an Average MY2025 Vehicle Compared to the MY2021 GHG Standards

	Final Determination[1]
Payback period – 5-year loan purchase[2] (years)	<1
Payback period – Cash purchase (years)	5
Net Lifetime Consumer Savings ($, discounted at 3%)	$1,650

Notes:
[1] Values based on AEO 2016 reference case and 2015$
[2] Using an interest rate of 4.25 percent.

The Auto Industry is Thriving and Meeting the Standards More Quickly than Required. While the Final Determination focuses on the MY2022-2025 standards, we note that the auto industry, on average, has out-performed the first four years of the light-duty GHG standards (MY2012-2015). This has occurred concurrently with a period during which the industry successfully rebounded after a period of economic distress. The recently released GHG Manufacturer

Performance Report for the 2015 Model Year shows that the National Program is working even at low fuel prices and automakers are over-complying with the standards, notwithstanding that the MY2015 standard was the most stringent to date, and that the increase in stringency from the previous model year was also the most pronounced to date.[10] Further, concurrently with out-performing the GHG standards, sales have increased for seven straight years, for the first time in 100 years, to an all-time record high in 2016, reflecting positive consumer response to vehicles meeting the standards.

The Administrator's Final Determination is that the MY2022-2025 standards remain appropriate. In light of the pace of progress in reducing GHG emissions since the MY2022-2025 standards were adopted, the success of automakers in achieving the standards to date while vehicle sales are strong, the projected costs of the standards, the impact of the standards on reducing emissions and fuel costs for consumers, and the other factors identified in 40 CFR 86.1818-12(h), the Administrator concludes that the record does not support a conclusion that the MY2022-2025 standards should be revised to make them less stringent. The Administrator did consider whether it would be appropriate to propose to amend the standards to increase their stringency. In her view, the current record, including the current state of technology and the pace of technology development and implementation, could support a proposal, and potentially an ultimate decision, to adopt more stringent standards for MY2022-2025. However, she also recognizes that regulatory certainty and consequent stability is important, and that it is important not to disrupt the industry's long-term planning. Long lead time is needed to accommodate significant redesigns. The Administrator also believes a decision to maintain the current standards provides support to a timely NHTSA rulemaking to adopt MY2022-2025 standards, as well as to the California Air Resources Board to consider in its review of the California GHG vehicle standards for MY2022-2025 as part of its Advanced Clean Cars program,[11] and thus to a harmonized national program. The Administrator consequently has concluded that it is appropriate to provide the full measure of lead time for the MY2022-2025 standards, rather than adopting (or, more precisely, proposing to adopt) new, more stringent standards with a shorter lead time.

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[10] "Greenhouse Gas Emission Standards for Light-duty Vehicles, Manufacturer Performance Report for the 2015 Model Year, November 2016, EPA-420-R-16-014.https://www.epa.gov/regulations-emissions-vehicles-and-engines/ghg-emission-standards-light-duty-vehicles-manufacturer.

[11] California adopted its own GHG standards for MY2017-2025 in 2012 prior to EPA and NHTSA finalizing the National Program. Through direction from its Board in 2012, CARB both adopted a "deemed to comply" provision allowing compliance with EPA's GHG standards in lieu of CARB's standards, and committed to participate in the Midterm Evaluation (https://www.arb.ca.gov/msprog/consumer_info/advanced_clean_cars/consumer_acc_mtr.htm).

I. Introduction

A. Background on the Midterm Evaluation

The Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA) have conducted two joint rulemakings to establish a coordinated National Program for federal greenhouse gas (GHG) emissions and corporate average fuel economy (CAFE) standards for light-duty vehicles. Light-duty vehicles, which include passenger cars, sport utility vehicles, crossover utility vehicles, minivans, and pickup trucks, make up about 60 percent of all U.S. transportation-related GHG emissions and fuel consumption.[12] The agencies finalized the first set of National Program standards covering model years (MYs) 2012-2016 in May 2010[13] and the second set of standards, covering MY2017-2025, in October 2012.[14] The National Program is one of the most significant federal actions ever taken to reduce domestic GHG emissions and improve automotive fuel economy, establishing standards that increase in stringency year-over-year from MY2012 through MY2025 and projected to reach a level that nearly doubles fuel economy and halves GHG emissions compared to MY2010.

Through the coordination of the National Program with the California Air Resources Board's GHG standards, automakers can build one single fleet of vehicles across the U.S. that satisfies all GHG/CAFE requirements, and consumers can continue to have a full range of vehicle choices that meet their needs.[15] In addition, the Canadian government has adopted standards aligned with the U.S. EPA GHG standards through MY2025, further facilitating manufacturers' ability to produce vehicles satisfying harmonized standards.[16] Most stakeholders strongly supported the National Program, including the auto industry, automotive suppliers, state and local governments, labor unions, NGOs, consumer groups, veterans groups, and others. In the agencies' 2012 final rules, the National Program was estimated to reduce carbon dioxide (CO_2) emissions by 6 billion metric tons and reduce oil consumption by 12 billion barrels over the lifetime of MY2012-2025 vehicles. The standards are projected to provide significant savings for consumers due to reduced fuel use and consequent reduced fuel expenditures.

The 2012 final rule established standards through MY2025 to provide substantial lead time and regulatory certainty to the industry. Recognizing the rule's long time frame, EPA's rule establishing GHG standards for MY2017-2025 light-duty vehicles included a requirement for the agency to conduct a Midterm Evaluation (MTE) of the MYs 2022-2025 GHG standards. Through the MTE, EPA must determine whether the GHG standards for MY2022-2025,

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[12] Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2014, EPA Publication number EPA 430-R-16-002, April 15, 2016. Overall transportation sources account for 26 percent of total U.S. GHG emissions.

[13] 75 FR 25324, May 7, 2010.

[14] 77 FR 62624, October 15, 2012.

[15] Subsequent to the adoption of California-specific GHG standards for MYs 2017-2025 and the adoption of the Federal standards for MY2017 and beyond, CARB adopted a "deemed to comply" provision in furtherance of a National Program whereby compliance with the federal GHG standards would be deemed to be compliance with California's GHG program.

[16] EPA has coordinated with Environment and Climate Change Canada (ECCC) and Transport Canada throughout the Midterm Evaluation, including collaborating on a number of technology research projects. See Draft Technical Assessment Report Chapter 2.2.3, p. 2-8.

established in 2012, are still appropriate, within the meaning of section 202(a)(1) of the Clean Air Act, in light of the record before the Administrator, given the latest available data and information. See 40 CFR 86.1818-12(h). The MTE regulations provide that if the Administrator were to make a determination that the standards are not appropriate, based upon consideration of the decision factors in the regulation and the factual record available to the Administrator at the time of the determination, then the EPA would initiate a rulemaking to amend the standards to make them either more or less stringent. See 40 CFR 86.1818-12(h) (final sentence). This regulatory provision to conduct a rulemaking is limited only to the situation where the Administrator makes a determination that the standards are not appropriate and should be changed, to be either more or less stringent, and not to the situation where the Administrator, as in the case of this Final Determination, determines that the standards are appropriate and should not be changed. See 77 FR 62784 (Oct. 15, 2012) (stating that if EPA concludes the standards are appropriate it will "announce that final decision and the basis for EPA's decision" and if the EPA decides the standards are not appropriate, it will "initiate a rulemaking to adopt standards that are appropriate under section 202(a)").

In the 2012 rulemaking, the EPA stated its intention that the MTE would entail "a holistic assessment of all of the factors considered in standards setting," and "the expected impact of those factors on manufacturers' ability to comply, without placing decisive weight on any particular factor or projection." See 77 FR 62784 (Oct. 15, 2012). Indeed, the analyses supporting this MTE have been as robust and comprehensive as that in the original setting of the MY2017-2025 standards, *Id.*, although the nature of the decision-making the EPA has undertaken based on those analyses is very different, as established by design of the MTE regulations. In the 2012 rule, the EPA was faced with establishing the MY2017-2025 standards, while in this Final Determination the EPA has evaluated those standards in light of developments to date in order to determine if the existing standards are appropriate. *Id*. In gathering data and information throughout the MTE process, the EPA has drawn from a wide range of sources, including vehicle certification data, research projects and vehicle testing programs initiated by the agencies, input from stakeholders, and information from technical conferences, published literature, studies published by various organizations, and the many public comments.

In July 2016, EPA, NHTSA, and CARB jointly issued for public comment a Draft Technical Assessment Report (TAR) examining a wide range of issues relevant to the MY2022-2025 standards.[17] For the EPA, the Draft TAR was the first formal step in the MTE process as required under EPA's regulations.[18] The Draft TAR was a technical report, not a decision document. It was an opportunity for all three agencies to share with the public their technical analyses relating to the appropriateness of the MY2022-2025 standards.

The EPA received over 200,000 public comments on the Draft TAR, including about 90 comments from organizations and the rest from individuals. The organization commenters included auto manufacturers and suppliers, environmental and other non-governmental organizations (NGOs), consumer groups, state and local governments and their associations, labor unions, fuels and energy providers, auto dealers, academics, national security experts,

[17] 81 FR 49217, July 27, 2016.
[18] See 40 CFR 86.1818-12(h)(2)(i).

veteran's groups, and others. These comments presented a range of views on whether the standards should be retained, or made more or less stringent, and, in some cases, provided additional factual information that EPA considered in updating its analyses in support of the Administrator's Proposed Determination. The EPA also considered the few additional comments received after the close of the comment period on the Draft TAR.[19]

On November 30, 2016, EPA Administrator issued a proposed adjudicatory determination[20] proposing to find that the MY2022-2025 standards remain appropriate under the Clean Air Act. Because the Administrator was proposing that there be no change to the MY2022-2025 standards currently in the regulations, in other words that there be no change in the standards' stringency, the Proposed Determination did not include a Notice of Proposed Rulemaking. See section 86.1818-12(h). In this Final Determination, the Administrator has once again considered public comments -- those received on the Proposed Determination. The EPA received more than 100,000 comments on the Proposed Determination, with about 60 comments from organizations and the rest from individuals. The EPA responds to the public comments in the accompanying Response to Comments (RTC) document.

The EPA regulations state that in making the required determination, the Administrator shall consider the information available on the factors relevant to setting greenhouse gas emission standards under section 202(a) of the Clean Air Act for model years 2022 through 2025, including but not limited to:

- The availability and effectiveness of technology, and the appropriate lead time for introduction of technology;
- The cost on the producers or purchasers of new motor vehicles or new motor vehicle engines;
- The feasibility and practicability of the standards;
- The impact of the standards on reduction of emissions, oil conservation, energy security, and fuel savings by consumers;
- The impact of the standards on the automobile industry;

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[19] After the close of the comment period on the Draft TAR, EPA received and docketed additional comments from Volkswagen, the Electric Drive Transportation Association, and the Alliance of Automobile Manufacturers (a non-technical comment), all of which the EPA considered in the Proposed Determination.

[20] As noted in the Proposed Determination, and discussed more fully in the Response to Comments, the determination is not a rulemaking. None of EPA's rules, the Administrative Procedures Act, or the Clean Air Act require that the determination be made by rulemaking. EPA is properly exercising its discretion to proceed by adjudication. The final determination evaluates the technical record and concludes that the current standards are appropriate. As with past mid-course evaluations of Title II rules, where the EPA evaluates standards and decides not to change them, it need not undertake, and is not undertaking, a rulemaking. For example, in the final rule for heavy-duty engine standards (66 FR 5063, January 18, 2001), EPA announced regular biennial reviews of the status of the key emission control technology. EPA subsequently issued those reviews in 2002 and 2004, without going through rulemaking. See EPA Report 420-R-02-016; EPA Report 420-R-04-004. Or for instance, in the final rule for the Nonroad Tier 3 standards (63 FR 56983, Oct 23, 1998), EPA committed to reviewing the feasibility of the standards by 2001 and to adjust them by rulemaking if necessary. In 2001, without engaging in rulemaking, the EPA published a report, see EPA Report 420-R-01-052, accepted comments, and concluded publicly that the standards remained technologically feasible. (Memorandum: "Comments On Nonroad Diesel Emissions Standards: Staff Technical Paper," from Chet France to Margo Oge, June 4, 2002).

- The impacts of the standards on automobile safety;
- The impact of the greenhouse gas emission standards on the Corporate Average Fuel Economy standards and a national harmonized program; and
- The impact of the standards on other relevant factors.[21]

The preamble to the 2012 final rule further listed ten relevant factors that the agencies will consider at a minimum during the MTE. The EPA in fact addressed all of these issues in the Draft TAR, and considered them further in the Proposed Determination and in this Final Determination.[22]

- Development of powertrain improvements to gasoline and diesel powered vehicles;
- Impacts on employment, including the auto sector;
- Availability and implementation of methods to reduce weight, including any impacts on safety;
- Actual and projected availability of public and private charging infrastructure for electric vehicles, and fueling infrastructure for alternative fueled vehicles;
- Costs, availability, and consumer acceptance of technologies to ensure compliance with the standards, such as vehicle batteries and power electronics, mass reduction, and anticipated trends in these costs;
- Payback periods for any incremental vehicle costs associated with meeting the standards;
- Costs for gasoline, diesel fuel, and alternative fuels;
- Total light-duty vehicle sales and projected fleet mix;
- Market penetration across the fleet of fuel efficient technologies;
- Any other factors that may be deemed relevant to the review.[23]

In the 2012 final rule, the agencies projected that the MY2025 standards would be met largely through advances in conventional vehicle technologies, including advances in gasoline engines (such as downsized/turbocharged engines) and transmissions, vehicle weight reduction, improvements in aerodynamics, more efficient accessories, and lower rolling resistance tires. The agencies also projected that vehicle air conditioning systems would continue to improve by becoming more efficient and by increasing the use of alternative refrigerants and lower leakage systems. The EPA estimated that some increased electrification of the fleet would occur through the expanded use of stop/start and mild hybrid technologies, but projected that the MY2025 standards could be met with only about five percent of the fleet being strong hybrid electric vehicles (HEVs) and only about two percent of the fleet to be electric vehicles (EV) or plug-in hybrid electric vehicles (PHEVs).[24] All of these technologies were available at the time of the

[21] 40 CFR 86.1818-12(h).
[22] 76 FR 48673 (Aug. 9, 2011) and 77 FR 62784, October 15, 2012.
[23] Among the other factors deemed relevant and addressed in the Draft TAR and Proposed Determination, EPA's analysis examined the potential impact of the California Zero Emission Vehicle (ZEV) program, which California has revised since the 2012 final rule. EPA also examined the availability and use of credits, including credits for emission reductions from air conditioning improvements and from off-cycle technologies.
[24] For comparison to vehicles for sale today, an example of a mild HEV is GM's eAssist (Buick Lacrosse), a strong HEV is the Toyota Prius, an EV is the Nissan Leaf, and a PHEV is the Chevrolet Volt.

2012 final rule, some on a limited number of vehicles while others were more widespread, and the agencies projected that manufacturers would be able to meet the standards through significant efficiency improvements in the technologies, as well as through increased usage of these and other technologies across the fleet.

Since the 2012 final rule, vehicle sales have been strong, hitting an all-time high of 17.5 million vehicles in 2015, gas prices have dropped significantly, and truck share of the fleet has increased. At the same time, auto manufacturers have over-complied with the GHG program for each of the first four years of the program (MY2012-2015), and the industry as a whole has built a substantial bank of credits from the initial years of the program.[25] Technologies that reduce GHG emissions are entering the market at rapid rates, including more efficient engines and transmissions, aerodynamics, light-weighting, improved accessories, low rolling resistance tires, improved air conditioning systems, and others. Manufacturers are also using certain technologies that the agencies did not consider in their evaluation in the 2012 rule, including non-hybrid Atkinson cycle gasoline engines and 48-volt mild hybrid systems. Other technologies are being utilized at greater rates than the agencies projected, such as continuously variable transmissions (CVTs). These additional technologies have resulted in projected compliance pathways which differ slightly from those in the 2012 final rule with respect to some of the specific technologies expected to be applied to meet the future standards. However, the conclusions of the 2012 Final Rule, the July 2016 Draft TAR, the November 2016 Proposed Determination, and this Final Determination are very similar: that advanced gasoline vehicles will be the predominant technologies that manufacturers can use to meet the MY2025 standards. This assessment is similar to the conclusion of a 2015 study by the National Academy of Sciences which also found that the 2025 standards could be achieved primarily with advanced gasoline vehicle technologies.[26] As discussed below, the standards are also projected to be achievable through multiple feasible technology pathways at reasonable cost -- less than projected in the 2012 rulemaking -- and with significant direct benefit to consumers in the form of net savings due to purchasing less fuel.

The Administrator notes that, in response to EPA's solicitation of comment on the topic, several commenters spoke to the need for additional incentives or flexibilities in the out years of the program including incentives that could continue to help promote the market for very advanced technologies, such as electric vehicles. She notes that her determination, based on the record before her, is that the MY2022-2025 standards currently in effect are feasible (evaluated against the criteria established in the 2012 rule) and appropriate under section 202, and do not need to be revised. This conclusion, however, neither precludes nor prejudices the possibility of a future rulemaking to provide additional incentives for very clean technologies or flexibilities that could assist manufacturers with longer term planning without compromising the effectiveness of the current program. The EPA is always open to further dialog with the manufacturers, NHTSA, CARB and other stakeholders to explore and consider the suggestions made to date and any other ideas that could enhance firms' incentives to move forward with and

[25] "Greenhouse Gas Emission Standards for Light-duty Vehicles, Manufacturer Performance Report for the 2015 Model Year, November 2016, EPA-420-R-16-014.

[26] "Cost, Effectiveness and Deployment of Fuel Economy Technologies for Light-Duty Vehicles," National Research Council of the National Academies, June 2015, Finding 2.1 (p. 2-83).

to help promote the market for very advanced technologies, such as electric vehicles (EVs), plug-in hybrid electric vehicles (PHEVs), and fuel cell vehicles (FCEVs).

B. Background on the Light-duty Vehicle GHG Standards

The GHG emissions standards are attribute-based standards, based on vehicle footprint.[27] In other words, the standards are based on a vehicle's size: larger vehicles have numerically higher GHG emissions targets and smaller vehicles have numerically lower GHG emissions targets. Manufacturers are not compelled to build vehicles of any particular size or type, and each manufacturer has a unique fleetwide standard for each of its car and truck fleets that reflects the light-duty vehicles it chooses to produce in a given model year. Each automaker's standard automatically adjusts each year based on the vehicles (sizes and volumes) it produces. With fleetwide averaging, a manufacturer can produce some models that exceed their target, and some that are below their target. This approach also helps preserve consumer choice, as the standards do not constrain consumers' opportunity to purchase the size of vehicle with the performance, utility and safety features that meet their needs. In addition, manufacturers have available many other flexibility provisions, including banking and trading of credits across model years and trading credits across manufacturers.

The footprint curves for the MY2012-2025 GHG standards, illustrating the year-over-year stringency increases, are shown below in Figure I.1 and Figure I.2.[28]

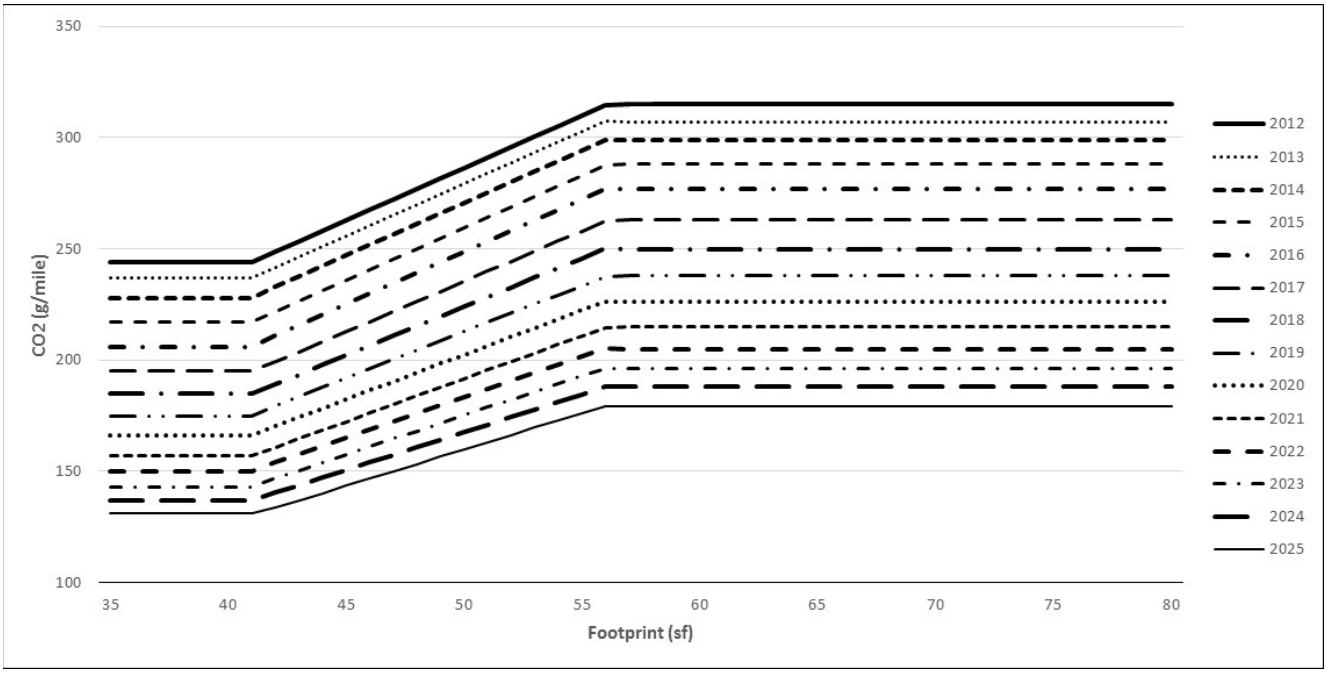

Figure I.1 CO_2 (g/mile) Passenger Car Standards Curves

[27] Footprint is defined as a vehicle's wheelbase multiplied by its average track width—in other words, the area enclosed by the points at which the wheels meet the ground.

[28] See 40 CFR 86.1818-12(c).

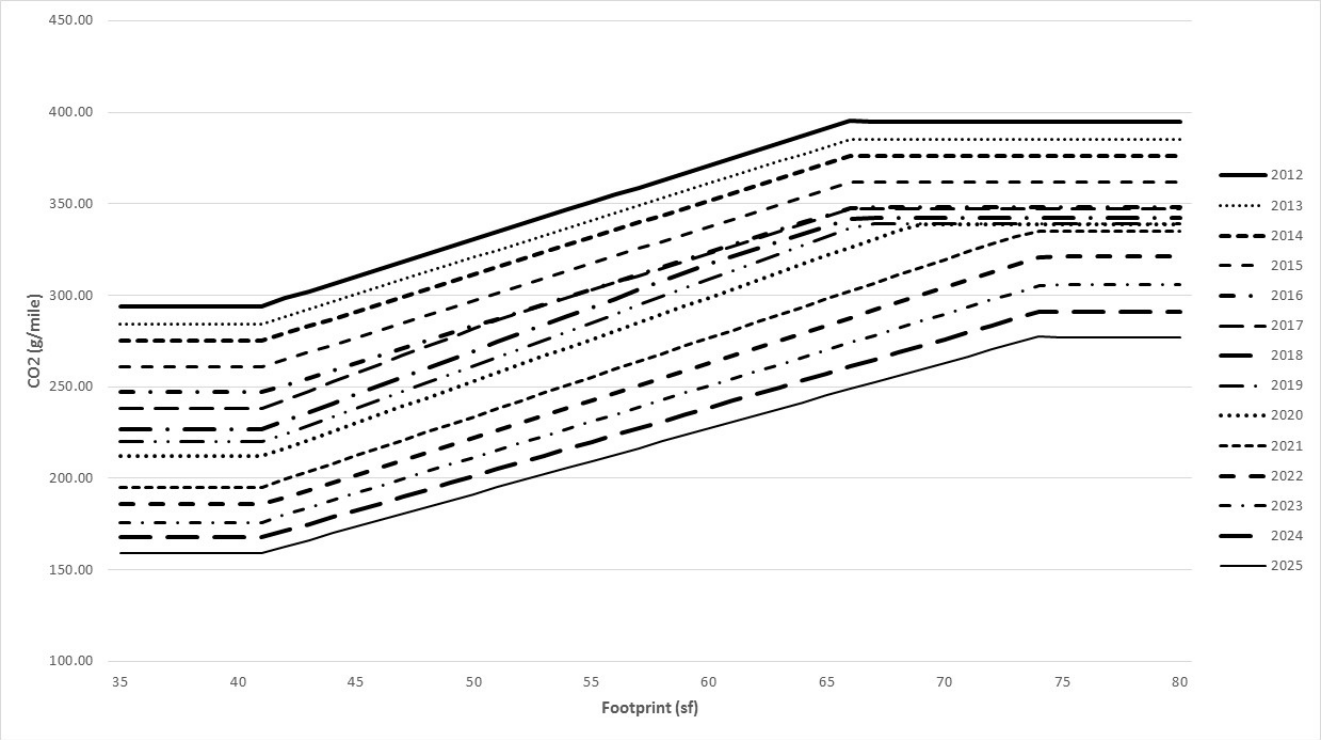

Figure I.2 CO_2 (g/mile) Light Truck Standards Curves

C. Climate Change Science

In the Proposed Determination, the EPA presented an overview of climate change science as laid out in the climate change assessments from the National Academies, the U.S. Global Change Research Program, and the Intergovernmental Panel on Climate Change. The EPA summarized the impacts to human health, to ecosystems, and to physical systems in the United States and around the world, from heat waves to sea level rise to disruptions of food security. Impacts to vulnerable populations such as children, older Americans, persons with disabilities, those with low incomes, indigenous peoples, and persons with preexisting or chronic conditions were also highlighted. The most recent assessments have confirmed and further expanded the science that supported the 2009 Endangerment and Cause or Contribute Findings for Greenhouse Gases Under section 202(a) of the Clean Air Act; Final Rule (74 FR 66496, December 15, 2009), as discussed in the more recent 2016 Finding That Greenhouse Gas Emissions from Aircraft Cause or Contribute to Air Pollution That May Reasonably Be Anticipated to Endanger Public Health and Welfare (81 FR 54422, August 15, 2016). Furthermore, the climate system continues to change: in 2015, CO_2 concentrations grew by more than 2 parts per million, reaching an annual average of 401 ppm, sea level continued to rise at 3.3 mm/year since the satellite record started in 1993, Arctic sea ice continues to decline, and glaciers continue to melt.[29] 2016 was the

[29] Blunden, J. and D. S. Arndt, Eds., 2016: State of the Climate in 2015. Bull. Amer. Meteor. Soc., 97 (8), S1–S275, DOI:10.1175/2016BAMSStateoftheClimate.

warmest year in the global average surface temperature record going back to 1880, the third year in a row of record temperatures.

II. The Administrator's Assessment of Factors Relevant to the Appropriateness of the MY2022-2025 Standards

Through the Midterm Evaluation, the Administrator must determine whether the GHG standards for model years 2022-2025, established in 2012, are still appropriate, within the meaning of section 202(a)(1) of the Clean Air Act, given the latest available data and information in the record before the Administrator. [30] In this final order, the Administrator is making a final determination that the GHG standards currently in place for MYs 2022-2025 remain appropriate under the Clean Air Act. The consequence of this determination is that the standards remain unchanged, there is no alteration in the rules, and the regulatory status quo continues. The Administrator has fully considered public comments submitted on the Proposed Determination, and the EPA has responded to comments in the accompanying Response to Comments (RTC) document. The Administrator believes that there has been no information presented in the public comments on the Proposed Determination that materially changes the Agency's analysis documented in the Proposed Determination.[31] Therefore, the Administrator considers the analyses presented in the Proposed Determination as the final the EPA analyses upon which this Final Determination is based.

The EPA regulations[32] state that in making the required determination, the Administrator shall consider the information available on the factors relevant to setting greenhouse gas emission standards under section 202(a) of the Clean Air Act for model years 2022 through 2025, including but not limited to:

(i) The availability and effectiveness of technology, and the appropriate lead time for introduction of technology;
(ii) The cost on the producers or purchasers of new motor vehicles or new motor vehicle engines;
(iii) The feasibility and practicability of the standards;
(iv) The impact of the standards on reduction of emissions, oil conservation, energy security, and fuel savings by consumers;
(v) The impact of the standards on the automobile industry;
(vi) The impacts of the standards on automobile safety;
(vii) The impact of the greenhouse gas emission standards on the Corporate Average Fuel Economy standards and a national harmonized program; and
(viii) The impact of the standards on other relevant factors.[33]

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[30] See 40 CFR 86.1818-12(h).
[31] Proposed Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation, EPA-420-R-16-020, and accompanying Technical Support Document, EPA-420-R-16-021, November 2016. In adopting the midterm evaluation provisions, EPA indicated that it "expect[ed] to place primary reliance on peer-reviewed studies" and on "NAS reports" in making midterm evaluation determinations. 77 FR 62787. EPA has in fact done so. See Draft TAR Section 2.2.1 and 2.2.3.
[32] See 40 CFR 86.1818-12(h)(1)(i) through (viii).
[33] 40 CFR 86.1818-12(h)(1).

Below we discuss each of these factors in light of the analyses upon which this Final Determination is based.

(i) The availability and effectiveness of technology, and the appropriate lead time for introduction of technology; (ii) the cost on the producers or purchasers of new motor vehicles or new motor vehicle engines; (iii) the feasibility and practicability of the standards

Several of the factors relate to the technology assessment -- technology availability and effectiveness, lead time for introducing technologies, and the costs, feasibility and practicability of the standards. On the basis of EPA's extensive technical analyses contained in the Proposed Determination, and after consideration of the additional comments received by the agency, the Administrator finds that there will be multiple technologies available at reasonable cost to allow the industry to meet the MY2022-2025 standards, with the majority in commercial production today, and others under active development with reliable evidence of feasibility and availability in the market by 2025. See Proposed Determination Sections II and IV.A, and TSD Chapter 2. As in the 2012 FRM, The Administrator further finds that the MY2025 standards can be achieved with very low levels of strong hybrid or plug-in electrified vehicles. The EPA's extensive review of the literature, including but not limited to the 2015 NAS study, makes it clear that advanced gasoline vehicle technologies will continue to improve between now and 2025. In addition, the significant technology advances that have already occurred in just the four years since the 2012 final rule are a strong indication that technology will continue to advance, with clear potential for additional innovation over the next eight years.

The EPA projects a range of potential compliance pathways for each manufacturer and the industry as a whole to meet the MY2022-2025 standards (see Proposed Determination Table IV.5 and Appendix C which show a "central case" and eight sensitivity cases). This analysis indicates that the standards can be met largely through utilization of a suite of advanced gasoline vehicle technologies, with modest penetration of stop-start and mild hybrids and relatively low penetrations of strong hybrids, PHEVs and EVs. The 2015 National Academy of Sciences study on fuel economy technologies similarly found that the 2025 standards would be achieved largely through improvements to a range of technologies that can be applied to a gasoline vehicle without the use of strong hybrids, PHEV, or EV technology. It is important to underscore that EPA's projected technology penetrations are meant to illustrate one of many possible technology pathways to achieve compliance with the MY2022-2025 GHG standards. The rules do not mandate the use of any particular form of technology; the standards are performance-based and thus manufacturers are free to select among the suite of technologies they best believe is right for their vehicles to achieve compliance. As we have seen in recent years with the rapid advances in a wide range of GHG-reduction technologies, we expect that ongoing innovation will result in further improvements to existing technologies and the emergence of others.

As we note throughout this document, the EPA carefully considered and responded in detail to all of the significant public comments as part of the record for the Proposed Determination. Some industry commenters have expressed the view that the EPA did not in fact consider their technical comments. As described in the Proposed Determination and Chapter 2 of the TSD, a number of changes the EPA made to its analysis between the Draft TAR and the Proposed Determination were in response to those technical comments highlighted by the Alliance of Automobile Manufacturers and Global Automakers. These included updating the baseline fleet to a MY2015 basis, better accounting for certain technologies in that baseline fleet, improving

the vehicle classification structure to improve the resolution of cost-effectiveness estimates applied in the OMEGA model, updating effectiveness estimates for certain advanced transmission technologies, conducting additional sensitivity analyses (including those where certain advanced technologies are artificially constrained), and adding quality assurance checks of technology effectiveness into the ALPHA and Lumped Parameter Model. See Proposed Determination Appendix A at A-1 and A-2. EPA consulted with NHTSA and CARB as part of the process of developing the Proposed Determination. The Final Determination is based on an administrative record at the very least as robust as that for the 2012 FRM, including extensive state-of-the-art research projects conducted by EPA and consultants to both agencies, data and input from stakeholders, multiple rounds of public comment, information from technical conferences, published literature, and studies published by various organizations. EPA put primary emphasis on the many peer-reviewed studies, as well as on the National Academy of Sciences 2015 report on fuel economy technologies.

Auto industry commenters believe that EPA's analysis generally overestimates the effect of advanced gasoline technologies, that these technologies will not be sufficient to meet the standards, and that higher levels of electrified vehicles will be needed to meet the MY2022-2025 standards. The EPA has carefully considered these comments and our assessment is that the commenters are not considering the possibility of applying the full range of road load reduction and non-electrified powertrain technologies broadly across high volume models, and in the combinations, that the EPA assessed in the Proposed Determination and Draft TAR. In some cases, the auto industry comments, including the Alliance of Automobile Manufacturers (Alliance), are based on the premise that the only possible technologies available in MY2025 will be represented by technology already contained in the fleet today (more specifically, that contained in the Draft TAR's MY2014 baseline fleet), and that those technologies will not improve in efficiency. The EPA disagrees with this assertion; several recently released engines have already demonstrated efficiencies that exceed those in the MY2014 fleet.[34] These actual engines illustrate that improvement has continued beyond the assumed basis of the comments, and it is highly unlikely that even these recent developments represent the limit of achievable efficiencies in the future. EPA's assessment is consistent with the MY2015 NAS report, in which the committee wrote that in the context of increasingly stringent fuel economy and GHG emissions standards, "gasoline-fueled spark ignition (SI) engine will continue to be the dominant powertrain configuration even through 2030 (pg S-1)."[35] Setting aside the assumption that the best available technologies today will undergo no improvement in future years (a premise the auto industry has disproved time and again), the commenters do not even allow for the recombination of existing technologies, and thus severely and unduly limit potential effectiveness increases obtainable by MY2025. The EPA notes that events have already disproven this assumption; as one specific example, Ford introduced a 10-speed automatic transmission on the MY2017 F150 paired with a turbocharged downsized engine, which represents a technology combination that was not previously available and was therefore not considered (and would be deemed impossible) by the Alliance comments. NGO commenters, on

[34] These engines include the 1.5L Honda turbo, Volkswagen's EA888-3B Miller cycle, and Hyundai-Kia's 2.0L Atkinson cycle engine.

[35] The 2015 NAS report also included an example technology pathway which illustrated how the application of conventional, non-electrified technologies would enable the example midsize car to meet its MY2025 footprint target (pp 8-18, 8-19).

the other hand, believe that EPA's analysis is robust and that, if anything, EPA's assessment of technologies is overly conservative as we did not consider additional technologies expected to be in the market in the MY2022-2025 timeframe.

The EPA also has carefully considered comments and issues related to powertrain improvements, including advanced engine technologies and improvements to transmission technologies. See 76 FR 48763 and 77 FR 62784. A key technology the EPA assessed in the Draft TAR and Proposed Determination to be available at reasonable cost is the Atkinson Cycle engine in non-hybrid applications. The Atkinson Cycle architecture has already been demonstrated in production domestically (Mazda, Toyota, Hyundai-Kia), enhanced with cooled exhaust gas recirculation (Mazda), and in Europe further enhanced with cylinder deactivation (Volkswagen). These production examples are consistent with EPA engine modeling and initial hardware testing that shows synergies between the use of cooled exhaust gas recirculation and cylinder deactivation with Atkinson Cycle engines. See TSD Chapter 2.3.4.1.4. In addition, and as explained in TSD Chapter 2.3.4.1.8.3 and further below, the EPA conducted sensitivity analyses constraining penetration of Atkinson-cycle engines and found that there are other cost-effective compliance paths available which rely chiefly on engine technology alternatives, rather than on electrification. We did not receive information in the comments on the Proposed Determination that provided a basis for reaching a different conclusion. Among these alternative technology paths are increased penetration of gasoline direct injected, turbo-downsized engines (a chief technology in the agencies' 2012 FRM assessment). The EPA has carefully considered and addressed the comments questioning the effectiveness values the EPA estimated for this technology; the EPA continues to believe these estimates are well grounded. The EPA explained in detail why the engine configuration used in its effectiveness estimates is representative, why the friction reduction assumptions are sound based on the use of coatings and other materials and technologies throughout the engine's moving components, and why the production engines cited as alternatives in the comments are not representative of feasible effectiveness values in 2025 given that they lack various technologies that improve efficiency (including variable valve lift, external cooled exhaust gas recirculation, sequential turbocharging, and higher peak cylinder pressure capability). See TSD Chapter 2.3.4.1.9.1.

The EPA is projecting average per vehicle costs of $875 across the fleet (see Table ES-1 and Proposed Determination Table IV.5).[36] These costs are lower than those projected in the 2012 rule, which the EPA estimated at about $1,100 (see Table 12.44 of the Draft TAR). The EPA found in the 2012 rule that these (higher) costs were reasonable, even without considering the payback in the form of less fuel used, which more than offsets these costs. See 77 FR 62663-62665, 62880 and 62922. Consequently, the EPA regards these lower estimated per-vehicle costs to be reasonable. Furthermore, the projected reduced fuel expenditures more than offset the estimated increase in vehicle cost even with lower assumptions of fuel cost. EPA's analysis finds that consumers who finance their vehicle with a 5-year loan would see payback within the first year; consumers who pay cash for their vehicle would see payback in the fifth year of

[36] Across eight sensitivity cases, average per-vehicle costs ranged from $800-$1,115. See Proposed Determination Table IV.5.

ownership. Consumers would realize net savings of $1,650 over the lifetime of their new vehicle (i.e., net of increased lifetime costs and lifetime fuel savings).

This decrease in estimated per-vehicle cost is not surprising—technology to achieve environmental improvements has often proved to be less costly than EPA's initial estimates.[37] Captured in these cost estimates, we project significant increases in the use of advanced engine technologies, comprising more than 60 percent of the fleet across a range of engines including turbo-downsized 18 bar and 24 bar, naturally-aspirated Atkinson cycle, and Miller cycle engines. We also see significant increases of advanced transmission technology projected to be implemented on more than 90 percent of the fleet, which includes continuously variable transmissions (CVTs) and eight-speed automatic transmissions. Stop-start technology and mild hybrid electrification are projected to be used on 15 percent and 18 percent, respectively, of the fleet. Similar to the analysis in the 2012 FRM, the EPA is projecting very low levels of strong hybrids (2 percent) and EV/PHEVs (5 percent) as absolute levels in the fleet (in the central case analysis, see Table ES-1).[38]

The EPA has considered the feasibility of the standards under several different scenarios of future fuel prices and fleet mix, as well as other sensitivity cases (e.g., different assumptions about technologies or credit trading) (see Proposed Determination Section IV.A and Appendix C), which showed only very small variations in average per-vehicle cost or technology penetration mix. Thus, our conclusion that there are multiple ways the MY2022-2025 standards can be met with a wide range of technologies at reasonable cost, and predominantly with advanced engine technologies, holds across all these scenarios.

These technology pathway findings are similar to the types of technologies that EPA projected in establishing the standards in the 2012 rule, although the specific technologies within the advanced engine, advanced transmission, and mild hybrid categories have been updated from the 2012 rule to reflect the current state of technological development (hence the lower estimated per vehicle cost than in the 2012 rule). For example, additional engine technologies, such as the naturally aspirated Atkinson cycle and Miller cycle noted above, were not even considered by the agencies in the 2012 rule yet are in production vehicles today. Similarly, transmission technology has developed such that CVTs are now emerging as a more popular choice for manufacturers than the dual-clutch transmissions we had mainly considered in 2012.[39] Mild hybrid technology also has developed, with more sophisticated 48-volt systems now offering a more cost-effective option than the 110-volt systems we had considered in the 2012 rule. The fact that these technologies have developed and improved so rapidly in the past four years since the MY2022-2025 standards were established provides a strong indication that the pace of innovation is likely to continue. The EPA expects that this trend will continue, likely affording

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[37] U.S. EPA, National Center for Environmental Economics (2014). "Retrospective Study of the Costs of EPA Regulations: A Report of Four Case Studies." EPA 240-F-14-001, https://yosemite.epa.gov/ee/epa/eerm.nsf/vwAN/EE-0575.pdf/$file/EE-0575.pdf including its literature review, Chapter 1.1.

[38] Note that a portion of the five percent EV/PHEV penetration is attributed to the California Zero Emission Vehicle (ZEV) program which is included in our reference case. See TSD Section 1.2.1.1. The incremental penetration of EV/PHEVs needed to meet the EPA GHG standards is projected to be less than one percent. See Proposed Determination Appendix C.1.1.3.2, Tables C.19-C.22, p. A-136-137.

[39] 77 FR 62852-62883; October 15, 2012.

manufacturers even more technology options, and at potentially lower cost, than the Administrator was able to consider at this time for the Final Determination.

EPA's analysis indicates that the effectiveness of the technologies evaluated provides manufacturers with a feasible, reasonable mix of technologies that are predominantly in production today, though not always in combination. For example, a manufacturer may have moved to an advanced turbo-downsized engine design and applied aerodynamic improvements, but not yet applied more advanced transmission or applied further mass reduction opportunities. In addition, there are some straightforward improvements to these technologies that are anticipated and well-documented in the record. See, e.g., Proposed Determination TSD Chapters 2.2.3.4 through 2.2.3.11, and 2.2.7.2 through 2.2.7.5. Most of the automaker comments to the Proposed Determination regarding feasibility did not account for the possibility of using a broad slate of technologies in combination. A few manufacturers have shared with the EPA confidential business information illustrating technology walks (or "techwalks"), which show the cumulative effects of the application of various technologies applied to a given vehicle model. However, while the techwalks provided include some of the same advanced technologies considered by EPA, none of the techwalks include a fuller range of conventional technologies in the combinations described in the Proposed (and Final) Determination. Some are missing very reasonable vehicle technologies, some are missing very reasonable engine technologies, and some are missing very reasonable transmission technologies. Because the manufacturer example techwalks don't include all technologies in the appropriate combinations and in some cases don't include the appropriate credit values, the examples show a shortfall (as would be expected) of about 20-40 g/mi depending on the vehicle. This resulting gap between the EPA and manufacturer-supplied projections would be eliminated if a broader set of the available technologies described in the Final Determination were included in their analysis and appropriate credit values were used.

Moreover, the EPA believes there is ample lead time between now and MY2022-2025 for manufacturers to continue implementing additional technologies into their vehicle production such that the MY2022-2025 standards can be achieved.

In considering whether lead time for the MY2022-2025 standards is adequate, the EPA recognizes that these standards were first established in 2012, providing the auto manufacturers with up to 13 years of lead time for product planning to meet these standards. In the 2012 rule, the EPA concluded that, "EPA agrees that the long lead time in this rulemaking should provide additional certainty to manufacturers in their product planning. The EPA believes that there are several factors that have quickened the pace with which new technologies are being brought to market, and this will also facilitate regulatory compliance."[40] As noted, in setting the standards in 2012, the EPA was beginning to see that technologies were being brought to market at a quickened pace, and this trend has clearly continued over the past four years (see Proposed Determination Section II). The EPA's 2016 CO_2 and Fuel Economy Trends report provides even further evidence of the rapid pace at which manufacturers are bringing advanced technologies into the fleet. For example, GM, Honda and Hyundai have implemented advanced transmissions on 80-90 percent of their fleets within the past five years. Over that same period, GM and Ford have implemented turbocharged engines on 25 percent and 40 percent of their fleets,

[40] 77 FR 62880; October 15, 2012.

respectively. Given that the EPA projects that the fleet as a whole could reach the 2025 standards with penetrations of 27 percent turbo-downsized 18 bar engines, and 7 percent turbo-downsized 24 bar engines, these penetration rates are clearly achievable given the pace with which some manufacturers have already implemented similar technologies.[41] With respect to the issue of lead time for the Atkinson engine technology, many of the building blocks necessary to operate an engine in Atkinson mode are already present in the MY2016 fleet (including gasoline direct injection (GDI), increased valve phasing authority, higher compression ratios, and (in some instances) cooled exhaust gas recirculation (cEGR)). Some of the potential packaging obstacles mentioned in comments, such as exhaust manifold design, should not be an impediment because more conventional manifold designs (not requiring a revamping of vehicle architecture) are both available and demonstrated in non-hybrid Atkinson cycle applications. There thus should be sufficient lead time before MY2022 to adopt the technology, since it could be incorporated without needing to be part of a major vehicle redesign.

Indeed, technology adoption rates and the pace of innovation have accelerated even beyond what EPA expected when initially setting these standards, which will further aid in addressing any potential for lead time concerns. By the time manufacturers must meet the MY2025 standards, since the standards were set in 2012, they will have had up to 13 years of lead time for product planning and at least 2-3 product redesign cycles, and at present manufacturers still have 5 to 8 years of lead time until the MY2022-2025 standards, with at least 1-2 redesign cycles.[42]

The EPA has also evaluated the progress of the existing fleet in meeting standards in future model years. See the Proposed Determination TSD Appendix C. This assessment shows that more than 100 individual MY2016 vehicle versions, or about 17 percent of the fleet, already meet future footprint-based CO_2 targets for MY2020 with current powertrains and air conditioning improvements. These figures do not include off-cycle credits in assessing compliance. In light of the fact that manufacturers are reporting an average of 3 g/mi of off-cycle credits across the fleet for 2015, with some manufacturers reporting more than 4 g/mi off-cycle credits, the share of the MY2016 fleet that can already meet the MY2020 footprint-based CO_2 targets -- four years ahead of schedule-- is actually even higher.

Notably, the majority of these vehicles are gasoline powertrains, and the vehicles include nearly every vehicle type, including midsize cars, SUVs, and pickup trucks, and span nearly every major manufacturer. It is important to note that because of the fleetwide averaging structure of the standards, not all vehicles are required to be below their individual targets, and in fact EPA expects that manufacturers will be able to comply with the standards with roughly 50 percent of their production meeting or falling below the footprint based targets. This analysis is another indication that the fleet is on track to meet future standards, especially given the 5 to 8 years of lead time remaining to MY2022-2025.

Consequently, evaluating the factors the EPA is required to consider under 40 CFR 86.1818(h)(1) (i), (ii), and (iii) of the mid-term evaluation rules, based on the current record before the Administrator, there is available and effective technology to meet the MY2022-2025 standards, it is available at reasonable cost to the producers and purchasers of new motor

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[41] EPA 2016 CO_2 and Fuel Economy Trends Report, Figures 6.2, 6.3 and 6.5.

[42] Redesign cycles are summarized in the Proposed Determination Appendix A and are discussed in greater detail in the 2012 FRM final Joint Technical Support Document, EPA-420-R-12-901, at Chapter 3.5.1.

vehicles or new motor vehicle engines, there is adequate lead time to meet those standards, and the standards are thus feasible and practicable. Moreover, this most recent analysis remains consistent with the key conclusions reached in the 2012 FRM: there are multiple compliance paths based chiefly on deployment of advanced gasoline engine technologies with minimal needed penetration of strong hybrid or full electric vehicles, projected per vehicle costs are lower than in the 2012 FRM, and the cost of the lower emitting technology is fully paid back by the associated fuel savings.

(iv) The impact of the standards on reduction of emissions, oil conservation, energy security, and fuel savings by consumers

The EPA also has considered the impact of the standards on reduction of emissions, oil conservation, energy security, and fuel savings by consumers, again as required by the Midterm Evaluation rules. Light-duty vehicles are significant contributors to the U.S. GHG emissions inventory—responsible for 61 percent of U.S. transportation GHG emissions and 16 percent of total U.S. GHG emissions in 2014—and thus must be a critical part of any program to reduce U.S. GHG emissions. EPA projects that the MY2022-2025 standards will reduce GHG emissions annually by more than 230 million metric tons (MMT) by 2050, and nearly 540 MMT over the lifetime of MY2022-2025 vehicles. See Proposed Determination Section IV.A.4, Table IV.6, and Appendix C.2. These projected GHG reductions associated with the MY2022-2025 standards are significant compared to total light-duty vehicle GHG emissions of 1,100 MMT in 2014.[43] See Proposed Determination Section IV and Table IV.6.

These standards are projected to reduce oil consumption by 50 billion gallons and to save U.S. consumers nearly $92 billion in fuel cost over the lifetime of MY2022-2025 vehicles. See Proposed Determination Table IV.8 and IV.13, respectively. On average for a MY2025 vehicle (compared to a vehicle meeting the MY2021 standards), consumers will save more than $2,800 in total fuel costs over that vehicle's lifetime, with a net savings of $1,650 after taking into consideration the upfront increased vehicle costs. See Proposed Determination Table IV.12, 3 percent discount rate case. EPA considers a range of societal benefits of the standards, including the social costs of carbon and other GHGs, health benefits, energy security, the value of time saved for refueling, and others.

Benefits are projected to far outweigh the costs, with net benefits totaling nearly $100 billion over the lifetime of MY2022-2025 vehicles (3 percent discount rate). See Proposed Determination Section IV.A.6 and Table IV.13. As was the case when the EPA first established the MY2022-2025 standards in the 2012 rule, this analysis also supports a conclusion that the standards remain appropriate – and indeed will provide enormous benefits -- from the standpoint of impacts of the standards on emissions, oil conservation, energy security, and fuel savings.

(v) The impact of the standards on the automobile industry

EPA has assessed the impacts of the standards on the automobile industry. We have estimated the costs required to meet the MY2022-2025 standards at about $33 billion (see

[43] Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2014, EPA 430-R-16-002, April 15, 2016.

Proposed Determination Section IV.A and Table IV.13), with an average per-vehicle cost of about $875 (see Proposed Determination Section IV.A and Tables IV.4 and IV.5). These costs are less than those originally projected when the EPA first established these standards in the 2012 rule; at that time, we had projected an average per vehicle cost of approximately $1,100 (see Table 12.44 of the Draft TAR). The Administrator found those (higher) projected costs to be reasonable in the 2012 rule, and finds the lower projected costs shown in our current analysis continues to support the appropriateness of the standards.

In addition to costs, the EPA has assessed impacts on the auto industry in terms of potential impacts on vehicle sales. See Proposed Determination Section III and Appendix B and TSD Chapter 4. As part of these assessments, the EPA has evaluated a range of issues affecting consumers′ purchases of vehicles, which also addresses a portion of the factor, "the cost on the producers or purchasers of new motor vehicles or new motor vehicle engines" (emphasis added, 40 CFR 86.1818-12(h)(ii)). EPA's assessments indicate that, to date, there is little, if any, evidence that consumers have experienced adverse effects from the standards. Vehicle sales continue to be strong, with annual increases for seven straight years, through 2016, for the first time in 100 years, and record sales in 2016. These sales increases are likely due not to the standards, but rather to economic recovery from the 2008-2009 recession. Nevertheless, at the least, we find no evidence that the standards have impeded sales. We also have not found any evidence that the technologies used to meet the standards have imposed "hidden costs" in the form of adverse effects on other vehicle attributes. See Proposed Determination Appendix B.1.4 and B.1.5.2. Similarly, we have not identified significant effects on vehicle affordability to date. See Proposed Determination Appendix B.1.6. We recognize that the standards will have some impact on the price of new vehicles, but we do not believe that the standards have significantly reduced the availability of vehicle model choices for consumers at any particular price point, including the lowest price vehicle segment. Id. at Appendix B.1.6.1. Given the lead time provided since the 2012 rule for automakers to achieve the MY2022-25 standards, and the evidence to date of consumer acceptance of technologies being used to meet the standards, the EPA expects that any effects of the standards on the vehicle market will be small relative to market responses to broader macroeconomic conditions.

The main argument in the public comments on both the Draft TAR and the Proposed Determination that the standards will have an adverse impact on the industry is that the standards, although achievable, will require extensive electrification of the fleet to do so, and this will result in more expensive vehicles -- and an emerging technology -- which consumers will be reluctant to purchase. Our analysis, however, indicates that there are multiple compliance pathways which would need only minimal (less than 3 percent) of strong hybrids and electric vehicles, and that the great bulk of technologies used would be based on improvements to gasoline internal combustion engines. This is true not only in the agency's primary analysis, but also in a series of sensitivity analyses (assuming, among other things, significantly less use of the Atkinson engine technology, and a wide range of fuel prices). See Table ES-1 and the Proposed Determination Section IV.A.3 and Appendix C.1. This analysis is also consistent with findings of the 2015 NAS study (as well as each agency's findings in the 2012 FRM).[44] Consequently, the EPA does believe that the evidence supports the claim of the comments on this point.

[44] "Cost, Effectiveness and Deployment of Fuel Economy Technologies for Light-Duty Vehicles," National Research Council of the National Academies, June 2015.

The EPA also carefully considered the issue of whether there has been consumer acceptance of the new fuel efficiency technologies. As noted, industry sales are at a record high, with sales increasing for seven consecutive years for the first time since the 1920's. These sales trends provide no evidence of consumer reluctance to purchase the new technologies. Moreover, professional auto reviews found generally positive associations with the existence of the technologies. See Section B.1.5.1.2 of the Appendix to the Proposed Determination. The evidence to date thus supports consumer acceptance of the new technologies.

Another potential impact on the automobile industry that the EPA has assessed is the potential for impacts on employment. EPA's assessment projects job growth in the automotive manufacturing sector and automotive parts manufacturing sector due specifically to the need to increase expenditures for the vehicle technologies needed to meet the standards. We do not attempt to quantitatively estimate the total effects of the standards on the automobile industry, due to the significant uncertainties underlying any estimate of the impacts of the standards on vehicle sales. Nor do we quantitatively estimate the total effects on employment at the national level, because such effects depend heavily on the state of overall employment in the economy. We further note that, under conditions of full employment, any changes in employment levels in the regulated sector due to the standards are mostly expected to be offset by changes in employment in other sectors. See the Proposed Determination Appendix B.2. The Administrator finds that, while the standards are likely to have some effect on employment, this effect (whether positive or negative) is likely to be small enough that it will be unable to be distinguished from other factors affecting employment, especially macroeconomic conditions and their effect on vehicle sales.

The Administrator thus finds, based on the current record, that the standards will impose reasonable per vehicle costs (and less than those projected in the 2012 FRM), that there is no evidence of the standards having an adverse impact on vehicle sales or on other vehicle attributes, or on employment in the automotive industry sector. Given these assessments of potential impacts on costs to the auto industry and average per-vehicle costs, consumers' purchases of vehicles, and employment, the Administrator finds that the potential impacts on the automobile industry support a conclusion that the MY2022-2205 standards remain appropriate and should not be changed.

(vi) The impacts of the standards on automobile safety

The EPA has assessed the potential impacts of the standards on automobile safety. In the Proposed Determination, consistent with the Draft TAR's safety assessment, the EPA assessed the potential of the MY2022-2025 standards to affect vehicle safety. In the Draft TAR (Chapter 8), the agencies reviewed the relationships between mass, size, and fatality risk based on the statistical analysis of historical crash data, which included a new analysis performed by using the most recent available crash data. The EPA used this updated analysis[45] in the Proposed Determination to calculate the estimated safety impacts of the modeled mass reductions over the lifetimes of new vehicles in response to MY2022-2025 standards. See the Proposed

[45] Puckett, S.M. and Kindelberger, J.C. (2016, June). Relationships between Fatality Risk, Mass, and Footprint in Model Year 2003-2010 Passenger Cars and LTVs – Preliminary Report. Washington, DC: National Highway Traffic Safety Administration.

Determination Section III.C.1 and Appendix B.3.1. EPA's analysis finds that the fleet can achieve modest levels of mass reduction as one technology among many to meet the MY2022-2025 standards without any net increase in fatalities. The 2015 NAS study further found that the footprint-based standards are likely to have little effect on vehicle and overall highway safety.[46] Therefore, the Administrator finds that the existing MY2022-2025 standards will have no adverse impact on automobile safety. There is no evidence in the public comments that suggests a different conclusion.

(vii) The impact of the greenhouse gas emission standards on the corporate average fuel economy standards and a national harmonized program

The EPA has assessed the impacts of the standards on the CAFE standards and a national harmonized program. EPA notes that NHTSA has established augural standards for MY2022-2025 and must by statute undertake a *de novo* notice and comment rulemaking to establish final standards for these model years. Under the Energy Policy and Conservation Act (EPCA) statute, as amended by the Energy Independence and Security Act (EISA), NHTSA must establish final standards at least 18 months before the beginning of each model year.[47] That statute requires the Secretary of Transportation to consult with the EPA Administrator in establishing fuel economy standards.[48] The EPCA/EISA statute includes a number of factors that NHTSA must consider in deciding maximum feasible average fuel economy, including "the effect of other motor vehicle standards of the Government on fuel economy."[49] Thus, in determining the CAFE standards for MY2022-2025, NHTSA can take into consideration the light-duty GHG standards, and indeed did so in initially establishing the MY2017-2021 CAFE standards and the augural MY2022-2025 standards. See 77 FR 62669, 62720, 62803-804. The EPA believes that by providing information on our evaluation of the current record and our determination that the existing GHG standards for MY2022-2025 are appropriate, we are enabling, to the greatest degree possible, NHTSA to take this analysis and the GHG standards into account in considering the appropriate CAFE standards for MY2022-2025.

The EPA recognizes that in 2012, when we discussed the mid-term evaluation, we expressed an intent that if EPA's determination was that the standards should not change, the EPA would issue its final determination concurrently with NHTSA's final rule adopting fuel economy standards for MY2022-2025. See 77 FR at 62633. Our intent was to align the agencies' proceedings for MYs 2022-2025 and to maintain a joint national program. *Id.* The EPA remains committed to a joint national program that aligns, as much as possible, the requirements of EPA, NHTSA, and CARB. The Administrator concludes, however, that providing her determination that the GHG standards remain appropriate now, rather than waiting until after NHTSA has proposed standards, allows NHTSA to fully account for the GHG standards and is more likely to align the agencies' determinations. Thus, the Administrator finds that her determination takes

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[46] "Cost, Effectiveness and Deployment of Fuel Economy Technologies for Light-Duty Vehicles," National Research Council of the National Academies, June 2015, Finding 10.2.
[47] 42 U.S.C. 32902(a).
[48] 42 U.S.C. 32902(b)(1).
[49] 42 U.S.C. 32902(f).

account of the relationship between GHG standards and fuel economy standards and supports the goal of a national harmonized program.[50]

In an action separate from this Final Determination, the EPA will be responding to a petition received from the auto industry trade associations, the Alliance of Automobile Manufacturers and Global Automakers, regarding several provisions that they request be harmonized between the EPA GHG standards and the NHTSA CAFE standards.[51] On December 21, 2016, NHTSA signed a Federal Register notice signaling its plan to consider the NHTSA-specific requests from the auto industry petition. The EPA likewise intends, in the near future, to continue working together with NHTSA, the Petitioners and other stakeholders, as we carefully consider the requests made in the June 2016 petition, and possible ways to further harmonize the national program.

(*viii) The impact of the standards on other relevant factors*

In addition to the above factors, the Administrator has also considered the factor of regulatory certainty -- which relates closely to the issue of lead time discussed above. Regulatory certainty gives the automakers the time they need to conduct long-term planning and engineering to meet future standards. Indeed, the 2012 standards covered a long period of time – 13 years—in order to provide the industry with a lengthy period of stability and certainty. Thus, the Midterm Evaluation called for rule changes only if the Administrator found the existing standards to be no longer feasible and appropriate. Clearly, as discussed above, the automakers' response to technology development and deployment in the face of the regulatory certainty provided by the MY2012-2021 standards, which are not subject to the midterm evaluation, has exceeded EPA's projections set out in the original 2012 rule. Having the same certainty on the level of the MY2022-2025 standards can now enable manufacturers to continue unimpeded their existing long-term product planning and technology development efforts, which, in turn, could lead to even further, and perhaps sooner, breakthroughs in technology. These efforts could contribute to the continued success of the industry and the GHG standards program, which in turn would benefit consumers through fuel savings and the public through reduced emissions. Initiating a rulemaking now to change the standards would disrupt the industry's planning for future product lines and investments. Thus, the Administrator finds that regulatory certainty is an important consideration in assessing the appropriateness of the standards.

[50] The MTE rules themselves do not require concurrent timing with any aspect of NHTSA's rulemaking. Moreover, there is uncertainty as to whether the NHTSA rulemaking would be complete by the date on which EPA is mandated to make a final determination, so that the expressed hope (in the 2012 preamble) of concurrent proceedings may be overtaken by events in any case.

[51] "Petition for Direct Final Rule with Regard to Various Aspects of the Corporate Average Fuel Economy Program and the Greenhouse Gas Program," submitted by the Alliance of Automobile Manufacturers and the Association of Global Automakers to EPA and NHTSA, June 20, 2016.

III. Final Determination

Having considered available information on each of the above factors required by the regulations, under 40 CFR 86.1818-12(h)(1), the Administrator is determining that the GHG standards currently in place for MYs 2022-2025 are appropriate under section 202(a)(1) and (2) of the Clean Air Act. The Administrator has fully considered public comments submitted on the Proposed Determination, and there has been no information provided through the comments that compels or persuades the Administrator to alter her Proposed Determination. The consequence of this final determination is a continuation of the current regulatory status quo. The regulations themselves are unaltered as a result of this determination.

In the Administrator's view, the record clearly establishes that, in light of technologies available today and improvements we project will occur between now and MY2022-2025, it will be practical and feasible for automakers to meet the MY2022-2025 standards at reasonable cost that will achieve the significant GHG emissions reduction goals of the program, while delivering significant reductions in oil consumption and associated fuel savings for consumers, significant benefits to public health and welfare, and without having material adverse impact on the industry, safety, or consumers. The Administrator recognizes that not all of the technologies available today have been implemented in a widespread manner, but she also recognizes that the purpose of the Midterm Evaluation is to assess whether the standards remain appropriate in light of the pace of compliance and technological development in the industry. As discussed above, the technological development of advanced gasoline vehicle technologies has surpassed EPA's expectations when we initially adopted the standards. Although we anticipated in 2012 that the standards could be met primarily using advanced gasoline engine and transmission technologies, the range of technology development has been more extensive and effective than anticipated. The industry's vibrancy, initiative, and ingenuity is to be commended. The Administrator concludes that the MY2022-2025 standards could be largely met simply by implementation of these technologies, but we recognize that we are at the mid-point of these standards phasing-in and it would be unreasonable, in light of past developments, ongoing investment by the industry, and EPA's extensive review of the literature on future technologies and improvements to existing technologies, to expect that no further technology development would occur that could be implemented for MY2022-2025 vehicles. In the Draft TAR and Proposed Determination, the EPA was not even able to consider all of the technologies being developed because of the rapid pace of development. As discussed in the Proposed Determination (see Section II and Appendix B), the EPA did not consider several technologies that we know are under active development and may potentially provide additional cost-effective technology pathway options for meeting the MY2025 standards; examples of such technologies include electric boosting, dynamic cylinder deactivation, and variable compression ratio. A significant difference between the industry analysis and that of the EPA is over the extent to which electric vehicle production will be needed to meet the standards. Many of industry's comments regarding cost, consumer acceptance, and other factors primarily stem from their view that significant EV penetration will be required. As discussed earlier, the Administrator has considered the report of the National Academy of Sciences and information and data from the auto industry, and she has determined based on the technical record before her that the industry's conclusions do not take into account the possibility of applying the full range of road load reduction and non-electrified powertrain technologies broadly across high volume models, and in the combinations, that the EPA assessed in the Proposed Determination and Draft TAR. In addition, the automotive industry has been

characterized throughout its history by continued innovation and adoption of ever-improving technologies to improve fuel economy and lower emissions while simultaneously providing a range of vehicles to customers with the features they desire (safety, driveability, etc.). Thus, in light of the pace of progress in reducing GHG emissions since the MY2022-2025 standards were adopted, the success of automakers in achieving the standards to date while vehicle sales are strong, the projected costs of the standards, the impact of the standards on reducing emissions and fuel costs for consumers, and the other factors identified in 40 CFR 86.1818-12(h) and discussed above, the Administrator concludes that the record does not support a conclusion that the MY2022-2025 standards should be revised to make them less stringent.

The Administrator has also considered whether, in light of these factors and the record (including public comments urging more stringent standards), it would be appropriate to make the standards more stringent. She recognizes that the current record, including the current state of technology and the pace of technology development and implementation, could support a decision to adopt more stringent standards for MY2022-2025 (or, put more precisely, could support a decision to initiate rulemaking proposing to amend the standards to increase their stringency). The EPA found in 2012 that the projected standards were feasible at reasonable cost, and the current record shows that the standards are feasible at even less cost and that there are more available technologies (particularly advanced gasoline technologies) than projected in 2012, and that the benefits outweigh the costs by nearly $100 billion. These factors could be the basis for a proposal to amend the standards to increase the standards' stringency. Moreover, one could point to the overall need to significantly reduce greenhouse gases in the transportation sector even further, especially given expected growth in vehicle travel. The Administrator also recognizes, however, that regulatory certainty is an important and critical consideration. Regulatory certainty gives the automakers the time they need to conduct long-term planning and engineering that could lead to major advancements in technology while contributing to the continued success of the industry and the GHG standards program, which in turn will benefit consumers and reduce emissions. She also believes a decision to maintain the current standards provides support to a timely NHTSA rulemaking to adopt MY2022-2025 standards and a harmonized national program. Thus, the Administrator has concluded that it is appropriate to provide the full measure of lead time for the MY2022-2025 standards, rather than initiating rulemaking to adopt new, more stringent standards with a shorter lead time and significant uncertainty in the interim which would impede on-going technological improvements and innovation.

Accordingly, the Administrator concludes that in light of all the prescribed factors, and considering the entire record, the current MY2022-2025 standards are appropriate.

Exhibit B

EPA, "Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light-Duty Vehicles," dated April 13, 2018

been submitted to EPA under all sections of the Toxic Substances Control Act (TSCA). Some of the information may be claimed or determined to be Confidential Business Information (CBI).

DATES: Access to the confidential data occurred on or about February 28, 2018.

FOR FURTHER INFORMATION CONTACT: *For technical information contact:* Scott Sherlock, Environmental Assistance Division (7408M), Office of Pollution Prevention and Toxics, Environmental Protection Agency, 1200 Pennsylvania Ave. NW, Washington, DC 20460–0001; telephone number: (202) 564–8257; email address: *Sherlock.scott@epa.gov.*

For general information contact: The TSCA-Hotline, ABVI-Goodwill, 422 South Clinton Ave., Rochester, NY 14620; telephone number: (202) 554–1404; email address: *TSCA-Hotline@epa.gov.*

SUPPLEMENTARY INFORMATION:

I. General Information

A. Does this action apply to me?

This action is directed to the public in general. This action may, however, be of interest to all who manufacture, process, or distribute industrial chemicals. Since other entities may also be interested, the Agency has not attempted to describe all the specific entities that may be affected by this action.

B. How can I get copies of this document and other related information?

The docket for this action, identified by docket identification (ID) number EPA–HQ–OPPT–2003–0004, is available at *http://www.regulations.gov* or at the Office of Pollution Prevention and Toxics Docket (OPPT Docket), Environmental Protection Agency Docket Center (EPA/DC), West William Jefferson Clinton Bldg., Rm. 3334, 1301 Constitution Ave. NW, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the OPPT Docket is (202) 566–0280. Please review the visitor instructions and additional information about the docket available at *http://www.epa.gov/dockets.*

II. What action is the Agency taking?

Under GSA/FEDSIM solicitation number GSC–QFOB–18F–33169, task order number 47QFCA–18–F–0009, contractor CGI of 12601 Fair Lakes Circle, Fairfax, VA, is assisting the Office of Pollution Prevention and Toxics (OPPT) by providing technical support; development of operations and maintenance of Central Data Exchange (CDX) chemical safety and pollution prevention (CSPP) applications; and Chemical Information Systems (CIS) OPPT Confidential Business Information Local Area Network (CBI LAN) applications.

In accordance with 40 CFR 2.306(j), EPA has determined that under GSA/FEDSIM solicitation number GSC–QFOB–18F–33169, task order number 47QFCA–18–F–0009, CGI required access to CBI submitted to EPA under all sections of TSCA to perform successfully the duties specified under the contract. CGI personnel were given access to information submitted to EPA under all sections of TSCA. Some of the information may be claimed or determined to be CBI.

EPA is issuing this notice to inform all submitters of information under all sections of TSCA that EPA has provided CGI access to these CBI materials on a need-to-know basis only. All access to TSCA CBI under this contract is taking place at EPA Headquarters in accordance with EPA's *TSCA CBI Protection Manual.*

Access to TSCA data, including CBI, will continue until February 25, 2023. If the contract is extended, this access will also continue for the duration of the extended contract without further notice.

CGI personnel have signed nondisclosure agreements and were briefed on appropriate security procedures before they were permitted access to TSCA CBI.

Authority: 15 U.S.C. 2601 *et seq.*

Dated: March 29, 2018.

Pamela S. Myrick,

Director, Information Management Division, Office of Pollution Prevention and Toxics.

[FR Doc. 2018–07644 Filed 4–12–18; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[EPA–HQ–OAR–2015–0827; FRL–9976–61–OAR]

Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022–2025 Light-Duty Vehicles

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice; withdrawal.

SUMMARY: In this notice, the Environmental Protection Agency (EPA) Administrator has reconsidered the previous Final Determination of the Mid-term Evaluation of greenhouse gas emission standards for model year 2022–2025 light-duty vehicles. The Administrator determines that the current standards are based on outdated information, and that more recent information suggests that the current standards may be too stringent. The Administrator thus concludes that the standards are not appropriate in light of the record before EPA and, therefore, should be revised as appropriate. EPA is also withdrawing the previous Final Determination issued by the agency on January 12, 2017, with this notice. EPA, in partnership with the National Highway Traffic Safety Administration, will initiate a notice and comment rulemaking in a forthcoming **Federal Register** notice to further consider appropriate standards for model year 2022–2025 light-duty vehicles, as appropriate. On March 22, 2017, EPA published a **Federal Register** notice providing its intention to reconsider the Final Determination of the Mid-term Evaluation of greenhouse gas emissions standards for model year 2022–2025 light-duty vehicles, this notice was published jointly with the Department of Transportation (DOT). On August 21, 2017, EPA and DOT jointly published a **Federal Register** notice providing a 45-day public comment period on the reconsideration and EPA held a public hearing on September 6, 2017.

FOR FURTHER INFORMATION CONTACT: Christopher Lieske, Office of Transportation and Air Quality (OTAQ), Assessment and Standards Division (ASD), Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor MI 48105; telephone number: (734) 214–4584; email address: *lieske.christopher@epa.gov* fax number: 734–214–4816.

SUPPLEMENTARY INFORMATION:

I. Introduction

In this notice, the Administrator of the Environmental Protection Agency (EPA) is making a new determination of the Mid-term Evaluation (MTE) of greenhouse gas (GHG) emission standards for model year (MY) 2022–2025 light-duty vehicles. The Administrator determines that the standards are not appropriate in light of the record before EPA, and therefore, should be revised as appropriate. EPA is also withdrawing the January 12, 2017 Final Determination (January 2017 Determination) with this notice. EPA, in partnership with the National Highway Traffic Safety Administration (NHTSA), will initiate a notice and comment rulemaking in a forthcoming **Federal Register** notice to further consider appropriate standards for MY 2022–2025 light-duty vehicles, as appropriate.

The Administrator makes this finding due to the significant record that has been developed since the January 2017 Determination. Many of the key assumptions EPA relied upon in its January 2017 Determination, including gas prices and the consumer acceptance of advanced technology vehicles, were optimistic or have significantly changed and thus no longer represent realistic assumptions. For example, fuel price estimates used by EPA in the original rulemaking are very different from recent EIA forecasts. EPA needs to update these estimates in the analysis and more accurately reflect changes in US oil production. Economic inputs such as the social cost of carbon, the rebound effect, and energy security valuation should also be updated to be consistent with the literature and empirical evidence.

EPA has also both developed and received additional data and assessments since the January 2017 Determination regarding technology effectiveness and technology costs which warrant additional consideration.

In making this finding, the Administrator has also considered that the reach and success of the program established in the 2012 rulemaking is significantly limited when consumers cannot afford new cars. New information and data provided show the potential significant negative effects of higher vehicle costs.

Based on our review and analysis of the comments and information submitted, and EPA's own analysis, the Administrator believes that the current GHG emission standards for MY 2022–2025 light-duty vehicles presents challenges for auto manufacturers due to feasibility and practicability, raises potential concerns related to automobile safety, and results in significant additional costs on consumers, especially low-income consumers. On the whole, the Administrator believes the MY 2022–2025 GHG emission standards are not appropriate and, therefore, should be revised as appropriate. EPA, in partnership with NHTSA, will further explore the appropriate degree and form of changes to the program through a notice and comment rulemaking process. This Determination is not a final agency action. As EPA explained in the 2012 final rule establishing the MTE process, a determination to maintain the current standards would be a final agency action, but a determination that the standards are not appropriate would lead to the initiation of a rulemaking to adopt new standards, and it is the conclusion of that rulemaking that would constitute a final agency action and be judicially reviewable as such.[1]

II. Background

The 2012 rulemaking establishing the National Program for federal GHG emissions and corporate average fuel economy (CAFE) standards for MY 2017–2025 light-duty vehicles included a regulatory requirement for the EPA to conduct a Mid-term Evaluation (MTE) of the GHG standards established for MY 2022–2025.[2] EPA included this self-required reevaluation due to the long time frame at issue in setting standards for MYs 2022–2025, and given NHTSA's obligation to conduct a de novo rulemaking in order to establish final standards for vehicles for those model years.[3] EPA's regulations at 40 CFR 86.1818–12(h) state that ''in making the determination as to whether the existing standards are appropriate, the Administrator shall consider the information available on the factors relevant to setting greenhouse gas emission standards under section 202(a) of the Clean Air Act for model years 2022–2025, including but not limited to:

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

EPA regulations on the MTE process required EPA to issue a Final Determination no later than April 1, 2018 on whether the GHG standards for MY 2022–2025 light-duty vehicles remain appropriate under section 202(a) of the Clean Air Act.[5] The regulations also required the issuance of a draft Technical Assessment Report (TAR) by November 15, 2017, an opportunity for public comment on the draft TAR, and, before making a Final Determination, an opportunity for public comment on whether the GHG standards for MY 2022–2025 remain appropriate. In July 2016, the draft TAR was issued for public comment jointly by the EPA, NHTSA, and the California Air Resources Board (CARB).[6] Following the draft TAR, EPA published a Proposed Determination for public comment on December 6, 2016 and provided less than 30 days for public comments over major holidays.[7] EPA published the January 2017 Determination on EPA's website and *regulations.gov* finding that the MY 2022–2025 standards remained appropriate.[8]

On March 15, 2017, President Trump announced a restoration of the original mid-term review timeline. The President made clear in his remarks, ''[i]f the standards threatened auto jobs, then commonsense changes'' would be made in order to protect the economic viability of the U.S. automotive industry.'' [9] In response to the President's direction, EPA announced in a March 22, 2017,[10] **Federal Register** notice, its intention to reconsider the Final Determination of the MTE of GHGs emissions standards for MY 2022–2025 light-duty vehicles. The Administrator stated that EPA would coordinate its reconsideration with the rulemaking process to be undertaken by NHTSA regarding CAFE standards for cars and light trucks for the same model years.

On August 21, 2017,[11] EPA published a notice in the **Federal Register** announcing the opening of a 45-day public comment period and inviting stakeholders to submit any additional comments, data, and information they believed were relevant to the Administrator's reconsideration of the January 2017 Determination. EPA held a public hearing in Washington, DC on September 6, 2017.[12] EPA received more than 290,000 comments in response to the August 21, 2017 notice.[13]

[1] 77 FR 62784, (**Federal Register**, Vol 77, No 199, pp 62784–62785).
[2] 40 CFR 86.1818–12(h).
[3] 77 FR 62784.
[4] 40 CFR 86.1818–12(h)(1).
[5] *Id.; see also* 77 FR 62624 (October 15, 2012).
[6] 81 FR 49217 (July 27, 2016).
[7] 81 FR 87927 (December 6, 2016).
[8] Docket item EPA–HQ–OAR–2015–0827–6270 (EPA–420–R–17–001).
[9] *See https://www.whitehouse.gov/briefings-statements/remarks-president-trump-american-center-mobility-detroit-mi/.*
[10] 82 FR 14671 (March 22, 2017).
[11] 82 FR 39551 (August 21, 2017).
[12] 82 FR 39976 (August 23, 2017).
[13] The public comments, public hearing transcript, and other information relevant to the Mid-term Evaluation are available in docket EPA–HQ–OAR–2015–0827.

III. The Administrator's Assessment of Factors Relevant to the Appropriateness of the MY 2022–2025 GHG Emission Standards

In the following sections, the Administrator provides his assessment on why the current standards for MY 2022–2025 are not appropriate based on the regulatory provisions found in 40 CFR 86.1818–12(h). The Administrator considered the complete record, including all comments provided on the reconsideration, in his determination.

Factor 1: The Availability and Effectiveness of Technology, and the Appropriate Lead Time for Introduction of Technology; and Factor 3: The Feasibility and Practicability of the Standards

The Administrator finds, based on the record, including new data and information provided since January 2017, that the January 2017 Determination was optimistic in its assumptions and projections with respect to the availability and effectiveness of technology and the feasibility and practicability of the standards. Accordingly, the Administrator now determines that the MY 2022–2025 GHG emissions standards may not be feasible or practicable and there is greater uncertainty as to whether technology will be available to meet the standards on the timetable established in the regulations. This is a result of: (1) The changes in trends of electrification since the January 2017 Determination; (2) reliance on future technology advances; and (3) the acceptance rate of the necessary technology by consumers.

a. The Changes in Trends of Electrification Since the January 2017 Determination

The agency's January 2017 Determination was completed at a time when the trends and data associated with MY 2012–2015 showed that the majority of the major car-manufacturing companies were ''over-complying'' with their relative GHG compliance requirements and building up credits. EPA's latest data [14] alongside new reports and data submitted by stakeholders [15] show that starting in MY 2016 many companies, for the first time, had to rely on credits in order to comply with the program, and predicts this will occur again for Model Year 2017. While these companies did remain in compliance, they are relying on banked credits which suggests that it may be increasingly difficult for them to comply going forward as they use up their supply of credits. Additionally, the stringency curve dramatically increases at around the same time these credits could run out, further complicating the feasibility of compliance for MY 2022–2025.

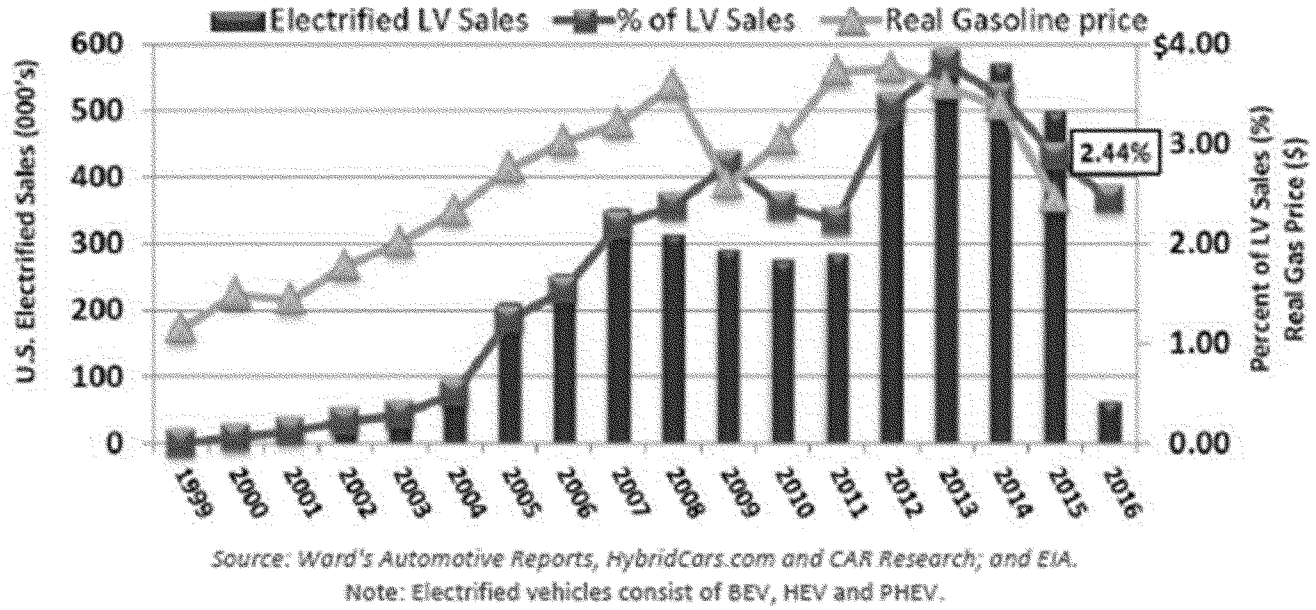
The figure below shows that since a peak in 2013, electrified light-vehicle (LV) sales have decreased both as a total and as a percentage of all light-vehicle sales. This calls into question EPA assumptions for the 2012 rulemaking and the January 2017 Determination that sales of electrified LVs will be sufficient to support compliance with the MY 2022–2025 standards.

Multiple commenters also questioned the feasibility of the standards due to flagging consumer demand for fuel-efficient vehicles including electric vehicles. The Alliance of Automobile Manufacturers (Alliance) stated that the level of technology modeled by EPA is insufficient to meet the standards and that the actual level of technology needed is misaligned with market realities. Global Automakers similarly charged that ''decline in vehicle sales, lower gas prices, an increased preference for light trucks over cars, and sluggish demand for high fuel economy vehicles—are taking place as the stringency of the standards increase at an unprecedented rate. There is, simply put, a misalignment between the increasing stringency of the standards and the decreasing consumer demand for fuel efficiency'' and that ''revised findings would support the conclusion that adjustments to the regulations are needed.'' Global Automakers submitted the figure below to show the sluggish demand for electrification in the U.S. market from 1999 through early 2016.

[14] EPA, Greenhouse Gas Emission Standards for Light-Duty Vehicles—Manufacturer Performance Report for the 2016 Model Year, Office of Transportation and Air Quality, EPA–420–R–18–002, January 2018, *https://www.epa.gov/regulations-emissions-vehicles-and-engines/greenhouse-gas-ghg-emission-standards-light-duty-vehicles.*

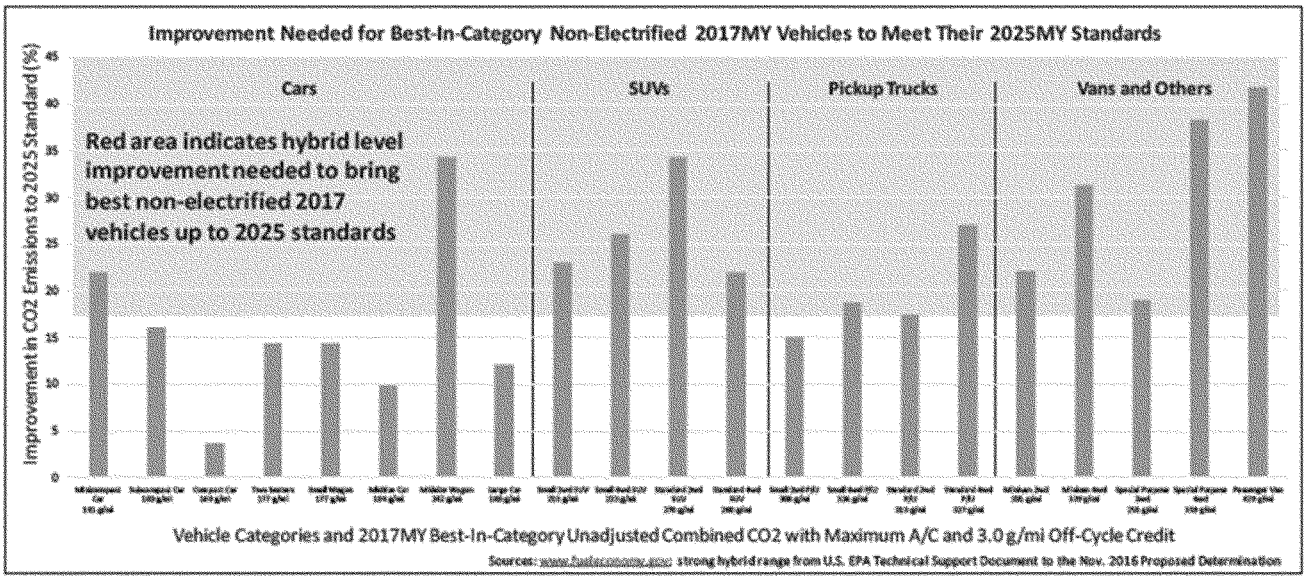
[15] *See e.g.,* Analysis of EPA Vehicle Technology Walks in Prior Final Determination Response to Comments (Alliance Attachment 2); Evaluation of the Environmental Protection Agency's Lumped Parameter Model Informed Projections from the Proposed Determination (Novation Analytics, September 2017) (Alliance Attachment 3); and Critical Assessment of Certain Technical and Economic Assumptions Made in EPA's Final Determination on the Appropriateness of the Model Year 2022–2025 Light-Duty Vehicle Greenhouse Gas Emission Standards under the Midterm Evaluation (Trinity Consultants, NERA Economic Consulting, October 2017) (Alliance Attachment 6).

Figure 1: Figure Submitted by Global Automakers (p. 42) titled: "Figure 16: U.S. Electrified Light Vehicle Sales and Take Rate 1999 - 2016 YTD"



The Alliance stated that ''[i]nformation on compliance trends, including the feasibility of meeting the standards, projections on compliance, and the credit system are increasingly indicating that it is not feasible—taking all technology, cost, product cycle, and practical market factors into account—to meet the standards as they are currently set.'' For example, Figure 2 below shows that significant vehicle electrification, specifically strong hybrids, would be needed to meet the standards, contrary to the agency's assertion in the January 2017 Determination.

Figure 2: Figure submitted by the Alliance (p. 18) titled "Figure 5: Improvement in CO_2 Emissions Required in the Best MY 2017 Non-Electrified Vehicles to Meet MY 2025 Targets"[16]



Global Automakers, the Alliance, and individual automakers provided detailed information on a variety of technologies that EPA projected could be used to meet the MY 2022 through 2025 standards. Regarding the need for electrification, the Alliance asserts that advanced internal combustion engine technologies alone will not meet MY 2025 standards and that the need for greater electrification than EPA originally projected means that issues unique to electrification must be considered. The Alliance further

[16] The Alliance submitted this figure in color with the upper shaded portion in red as indicated in the note in the figure.

provided that presently only electric vehicles (*e.g.,* strong hybrid, plug-in hybrid (PHEV), or electric vehicle (EV)) meet MY 2025 standards, even with credit assumptions, and that those vehicles make up a minimal amount of the market share indicating a less than adequate acceptance by consumers. Despite automakers continuing to offer an increasing amount of advance technology vehicles for sale, consumer adoption remains very low. These comments provide data that raises concerns about EPA's 2017 Determination.

Toyota provided comment that ''compliance with the current requirements through the 2025 MY require gasoline hybrid electric vehicles or more sophisticated forms of vehicle electrification at sales volumes significantly higher than the agencies' estimates and at levels the market is unable or unwilling to support absent significant changes in market signals.'' Toyota further provided that they continue to disagree with EPA's past assessment that lighter, more aerodynamic vehicles powered by less expensive conventional gasoline powertrains will be sufficient to comply with the standards. Fiat Chrysler Automobiles (FCA) similarly indicated, ''FCA continues to provide data that shows more technology is necessary than the agencies have assumed for 2022–2025MY compliance. The advanced technologies needed, including higher levels of electrification will negatively affect affordability, lowering sales, and ultimately impacting jobs.'' Mercedes Benz estimated that it will need more than 25 percent battery electric vehicles (BEVs) and around 5 percent PHEVs in its fleet to meet the standards in MY 2025, noting that these estimates are significantly higher than the 7 percent BEV and 3 percent PHEV shares projected by EPA for the overall fleet. One commenter stated that they believe standards can be met with only small increases in the efficiency of fossil fuel engines.

EPA also received comments from several non-governmental organizations stating that the existing record supports the previous determination. Several commenters also provided technical information and/or analysis. The Union of Concerned Scientists (UCS) provided that they do not believe the auto manufacturers are correct about the degree of electrification that they claim will be necessary to meet the standards.

Several commenters supported extending incentives for advanced technologies. The Alliance recommended that EPA extend the advanced technology multiplier incentives beyond MY 2021 and that manufacturers should not be held responsible for upstream power plant emissions (*i.e.,* manufacturers should be allowed to use the 0 g/mile emissions factor for electric powered vehicles rather than having to account for upstream electricity generation emissions). Toyota similarly commented that EPA should extend the current advanced technology sales multiplier and 0 g/mi allowance through MY 2025. Mercedes Benz requested that EPA extend the multipliers through at least MY 2025 to support further commercialization of electric and hybrid vehicles. Jaguar Land Rover supported the reconsideration of the final determination as a way ''to enable a future final determination that provides incentives for very clean technologies.''

NGV America urged the agency provide a level playing field for natural gas vehicles. As stated in their comments, ''Regulatory incentives currently in place for vehicle manufacturers provide no benefit for renewable natural gas and include requirements that prevent automakers from realizing benefit from selling natural gas vehicles,'' including the driving range requirement on alternative fuel that is required for natural gas vehicles but not for electric vehicles.

Several commenters also supported flexibilities for advanced technology vehicles. CALSTART stated that to spur the EV market, the agencies could consider maintaining the current credits for full zero emission vehicles, and delay the upstream emissions factors for such vehicles. Securing America's Future Energy (SAFE) commented in support of extending the advanced technology credits out to MY 2025 to help facilitate and accelerate the transition to energy sources other than oil. Edison Electric Institute and California Electric Transportation Coalition also commented in support of extending the advanced technology credits. The National Coalition for Advanced Transportation (NCAT) commented that to the extent that EPA seeks to make adjustments to increase flexibility, it urges the agency to recognize and support the role of EVs and other advanced technology vehicles.

The Alliance and Toyota commented that the current full size pick-up truck incentives should be available to all light-duty trucks. They further commented that the program's sales volume thresholds should be removed because they discourage the application of technology, since manufacturers cannot be confident of achieving the sales thresholds.

Based on consideration of the information provided, the Administrator believes that it would not be practicable to meet the MY 2022–2025 emission standards without significant electrification and other advanced vehicle technologies that lack a requisite level of consumer acceptance.

b. Reliance on Future Technology

EPA received comments from the auto manufacturers that EPA should exclude technologies that are protected by intellectual property rights and have not been introduced and certified to Tier 3 emissions requirements. Specifically, the Alliance stated that EPA should exclude from its technology assessments dynamic skip fire, variable compression ratio engines, Mazda's SkyActiv X, and other technologies that are protected by intellectual property rights and have not been introduced and certified to Tier 3 emissions requirements. Toyota's information stated that ''[n]ot yet implemented technologies, such as advanced cylinder deactivation and 48V mild hybrid systems, can play a role in improving efficiency and reducing CO_2 emissions moving forward; however, we do not project these technologies as sufficient to meet the 2025 MY requirements.''

Regarding the use of Atkinson cycle engines, the Alliance commented that the EPA analysis oversimplified and did not consider the financial consequence of aggressive penetration. New information from Global Automakers provided that ''it is difficult to maintain confidence in the agency's optimism about the wide consumer acceptance, supply availability, safety and learning for new, unproven technologies such as the broad application of naturally aspirated Atkinson cycle engines.''

In general, the Alliance, Global Automakers and others found that EPA's modeling overestimates the role conventional technologies can play in meeting future standards and that industry believes more strong hybrids and plug-in electric vehicles will be needed to meet current standards, raising concerns about cost and affordability. Both the Alliance and Global Automakers submitted detailed information regarding various aspects of EPA modeling, raising several technical issues, and submitted several new studies in support of their comments.[17]

[17] See ''Analysis of EPA Vehicle Technology Walks in Prior Final Determination Response to Comments'' (Alliance Attachment 2), ''Evaluation of the Environmental Protection Agency's Lumped Parameter Model Informed Projections from the

Continued

Other commenters were more optimistic about the availability of advanced technologies. Suppliers provided comments about specific technologies available to meet the standards. The Motor and Equipment Manufacturers Association (MEMA) commented that suppliers continue to improve a myriad of technologies as industry pushes innovation—specifically, more capable 48-volt systems, higher efficiency turbo engines, various advances in thermal management and control technologies, and new composites and materials for improved light-weighting. Manufacturers of Emission Controls Association (MECA) noted that automakers have announced plans to adopt 48-volt mild hybrids at a faster rate than originally planned and commented on new technologies that will be in production prior to 2021 but were not considered in the draft TAR, including dynamic cylinder deactivation, variable compression ratio and electric boost. MECA gave an example that dynamic cylinder deactivation combined with 48-volt systems which they stated has the potential to improve fuel economy by up to 20 percent. One commenter stated that they believe existing standards are achievable now without expensive or ''boutique'' technologies and are becoming even more cost-effective as time passes.[18] Other commenters performed analyses of the technical feasibility of meeting the MY2025 standards,[19] including analyses of a number of engine and other technologies that they believe EPA did not fully consider.

Based on EPA's review of the comments and information received since the January 2017 Determination, technologies continue to develop. Some technologies, such as continuously variable transmissions, have been adopted in many more vehicle applications than originally anticipated by EPA in the 2012 rulemaking and have continued to demonstrate potential further improvements in efficiency. Other technologies such as the dual clutch transmissions EPA projected in the 2012 rulemaking have not gained significant customer acceptance and as such, have proven difficult for manufacturers to deploy. A third category, of recently adopted technologies such as dynamic skip fire (2019 Chevrolet Silverado) and variable compression ratio engines (2019 Infiniti QX50), may have the potential to offer additional technology pathways to aid future compliance. As such, it is appropriate that the EPA continue to evaluate these and other technology developments in the forthcoming rulemaking.

Some commenters supported strengthening the standards in any future reconsideration and at a minimum retaining the standards due to certain new information and analysis available since the rule was adopted in 2012. For example, one commenter stated that they believe the costs of compliance are declining and believes that final compliance costs will be less than initially estimated.

To note, ethanol producers and agricultural organizations commented in support of high octane blends from clean sources as a way to enable GHG reducing technologies such as higher compression ratio engines. They provided information suggesting that mid-level (*e.g.,* E30) high octane ethanol blends should be considered as part of the Mid-term Evaluation and that EPA should consider requiring that mid-level blends be made available at service stations. The petroleum industry noted that high octane fuel is available today for vehicles that require it and commented that EPA has no basis for including octane number as a factor in the Mid-term Evaluation because it was not considered in the prior rulemakings or the draft TAR. The Alliance and Global Automakers commented that higher octane gasoline enables opportunities for use of more energy-efficient technologies (*e.g.,* higher compression ratio engines, improved turbocharging, optimized engine combustion) and that manufacturers would support a transition to higher octane gasoline, but do not advocate any sole pathway for producing increased octane.

Several state and local governments commented on the appropriateness of the MY 2022–2025 standards. CARB referenced its independent midterm review completed in March 2017 where it found the MY 2022–2025 GHG emission standards to be appropriate and that the latest information continues to support maintain or strengthening the current standards.[20]

Other state government agencies stated that the standards are appropriate, continue to apply, and that they believe compliance will be even easier than expected with newer conventional technologies.

The Aluminum Association provided new studies regarding the use of aluminum in light-weighting and noted additional forthcoming studies which could inform EPA's reconsideration, commenting that the aluminum industry continues to provide and improve light-weighting solutions to help meet rigorous GHG and fuel efficiency regulations without sacrificing safety.

EPA has given careful consideration to these comments and agrees that these commenters have identified both current and promising technologies that may be able to deliver significant improvements in reducing GHG emissions once fully deployed. However, EPA also recognizes that there is significant uncertainty both in the pace of development of these technologies and in the degree of efficiency improvements they will ultimately be able to deliver. EPA believes that this uncertainty further supports its determination to reconsider the current standards through a subsequent rulemaking.

c. The Acceptance of the Necessary Technologies by Consumers

In addition to the issues related to new technologies needing to be developed to meet the MY 2022–2025 emission standards, consumers' preferences must change to ensure that the current standards can be met—that is, consumers will need to be willing to purchase vehicles with new technologies. However, as shown below, consumers' preferences are not necessarily aligned to meet emission standards and there is uncertainty on this issue that merits further consideration. Consumers' preferences are driven by many factors and fuel economy is merely one factor that increases and decreases based on the price of gasoline.

The Alliance and Global Automakers state that the standards will be effective only if people buy a mix of vehicles that

Proposed Determination'' (Novation Analytics, September 2017) (Alliance Attachment 3), and ''Critical Assessment of Certain Technical and Economic Assumptions Made in EPA's Final Determination on the Appropriateness of the Model Year 2022–2025 Light-Duty Vehicle Greenhouse Gas Emission Standards under the Midterm Evaluation'' (Trinity Consultants, NERA Economic Consulting, October 2017) (Alliance Attachment 6).

[18] See comments in the docket from the Advanced Engine Systems Institute.

[19] See ''Efficiency Technology and Cost Assessment for the U.S. 2025–2030 Light-Duty Vehicles'' (International Council on Clean Transportation, March 2017, Attachment 5 to ICCT comments), ''Technical Assessment of CO_2 Emission Reductions for Passenger Vehicles in the Post-2025 Timeframe'' (Environmental Defense Fund).

[20] CARB, Advanced Clean Cars Midterm Review, Resolution 17–3 (March 24, 2017), available at: *https://www.arb.ca.gov/msprog/acc/mtr/res17-3.pdf;* CARB, California's Advanced Clean Cars Midterm Review, *Summary Report for the Technical Analysis of the Light Duty Vehicle Standards* (January 18, 2017) (p. ES–3), available at: *https://www.arb.ca.gov/msprog/acc/mtr/acc_mtr_finalreport_full.pdf.* See CARB comments at docket item EPA–HQ–OAR–2015–0827–9197.

is sufficiently fuel-efficient on average to meet the standards, but that current trends do not indicate an acceptance by consumers of the increased costs and tradeoffs in other desirable vehicle attributes that are needed to comply with more stringent GHG standards going forward. The only MY 2017 vehicles that could comply with the MY 2025 standard have a very low consumer acceptance rate today and make up less than 5 percent of the total market share (see Figure 2 above). Despite the auto industry providing an increasing number of battery-electric vehicle models and plug-in hybrid electric vehicle models, combined national sales of these vehicles still account for just over one percent of the market. According to data submitted by the Global Automakers, sales of hybrids peaked in 2013 at 3.1 percent, but only accounted for 2 percent of the market in 2016.

The Alliance, Global Automakers, Mercedes-Benz, and National Corn Growers Association expressed concerns about low adoption rates of electrified vehicles (strong hybrids, PHEVs, and EVs). Global Automakers stated that customers are not buying electrified vehicles at a rate sufficient for compliance. Mitsubishi and Mercedes-Benz pointed to low gasoline prices and limited infrastructure for electric vehicle charging as an additional obstacle for electric vehicle adoption. Mitsubishi considered the standards unachievable if consumers are not willing to buy more electrification in their vehicles.

Some commenters countered that consumers do prioritize fuel economy that sales numbers decreased because of the cyclical nature of the industry, and that there is enough flexibility in the market to meet consumer needs. Also, a number of commenters asserted that there is a growing understanding and acceptance of electrification in vehicles, pointing to an increased percentage of EV sales and automakers announcing plans for electrification. Contrary to these comments, as shown in Figure 1, EV sales have decreased and when looking at very small numbers, percentage growth may be misleading.

A further issue is the growing preference for light duty trucks over cars. In 2012, the car and light truck shares were projected to be 67 percent to 33 percent respectively for MY 2025. According to EPA's 2017 Fuel Economy Trends Report, the split in MY 2016 was 55 percent cars and 45 percent trucks. With regard to MY 2016 compliance, the Alliance commented that the large shift in consumer buying patterns toward the light-truck fleet has negatively impacted industry compliance because the light-truck standards were relatively more demanding during this period of time.

Several commenters expressed concern over potential adverse effects on other vehicle attributes due to the standards. The Alliance, Global Automakers, and other stakeholders noted that consumers consider a wide range of features in their purchase decisions. Mercedes-Benz cited low sales of its S550E PHEV which, though more efficient than its internal combustion engine counterpart, had slower acceleration and reduced trunk space. The National Automobile Dealers Association (NADA) and International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (UAW) noted that consumers' preferences vary with time and market conditions, such as fuel prices. The Alliance, Global Automakers, and Mitsubishi stated that current low gas prices make the standards more difficult to achieve. The Alliance and NADA pointed to a recent study from Resources for the Future that found greater willingness to pay for performance than for fuel economy, and the potential for misestimating willingness to pay if not taking into account other vehicle attributes.[21] Global Automakers expressed concern that, if EPA cannot calculate consumers' willingness to pay for attributes, it may overestimate the probability of success for the standards. One commenter stated that consumers slightly undervalue or fully value future fuel savings while other commenters cited a poll in Ohio supporting achieving an average of 40 mpg in 2025. Consumers Union cited research that found that fuel economy is the top factor that consumers want to be improved in their next vehicle.

Commenters shared perspectives on the current and projected state of the vehicle market and demand. Global Automakers commented that overall vehicle sales have leveled off, and it believes that sales may decline in coming years. CFA noted that vehicle models with larger fuel economy improvements had larger sales increases while sales for those with lower improvements had lower increases. EPA intends to continue to consider vehicle sales and the potential impact of the EPA standards on vehicle sales as a relevant factor in the forthcoming rulemaking.

Various comments raised questions about how to predict the impacts of the standards on vehicle sales. The Alliance and NADA argued that EPA has not yet conducted an ''appropriate analysis'' of the sales impacts of the standards, and NADA asks the agencies to ''fully understand'' consumer vehicle purchase decisions. The Alliance referenced work by Ford suggesting that the standards would reduce sales volumes by four percent using cost estimates from the draft TAR. Other commenters provided that neither EPA nor NHTSA has found vehicle demand modeling methods robust enough to predict sales impacts; and EDF stated EPA and NHTSA could consider using a static forecast (that is, assuming market shares to be unaffected by the standards).

Auto industry and dealer comments discussed implications for vehicle fleet turnover. The Alliance noted that low fleet turnover would reduce the effectiveness of the GHG program. NADA suggested that the GHG program should seek to maximize fleet turnover.

Several commenters discussed a study by researchers at Indiana University. The Indiana University's 'Total Cost of Ownership' analysis found that the MY2017–2025 standards would decrease sales using a ''2016 perspective'' but that it would increase sales when using inputs from the 2012 final rulemaking. Some commenters raised concerns related to the study related to future benefits of improved fuel economy and different assumptions in consumer willingness to pay. Graham, a coauthor of the IU study, supported the assumptions of the report in a response to those comments.

EPA agrees that impacts on new vehicle sales and fleet turnover are important factors that were not adequately considered in the January 2017 Determination. As noted above, if new vehicle sales are lower than expected because of higher prices, or lack of consumer acceptance of advanced technologies, significant share of projected GHG reductions and fuel saving gains on a fleet-wide basis may not be realized. EPA intends to more fully consider these potential actions in the forthcoming rulemaking. EPA intends to explore new analytical tools to look at new vehicle sales and fleet turnover as part of its decision-making record for the new rule.

Factor 2: The Cost on the Producers or Purchasers of New Motor Vehicles or New Motor Vehicle Engines

The cost on the producers (*e.g.,* suppliers, auto manufacturers), intermediaries (*e.g.,* auto dealers), and purchasers (*e.g.,* consumers, car drivers) can be rather significant based on the standards set. For consumers, especially

[21] To note, there are numerous peer-reviewed studies related to this subject and many of them are available in the docket associated with this action. EPA intends to summarize and assess the studies on this topic as part of the forthcoming rulemaking.

low-income consumers, moderate increases to the cost of cars can result in significant impacts to disposable income.

Both the Alliance and Global Automakers identified areas where EPA underestimated costs. The Alliance identified three areas related to technology cost that it believes need further assessment: Direct technology costs, indirect cost multipliers, and cost learning curves.[22] Global Automakers asserted that EPA's modeling has consistently underestimated the costs associated with technologies and the amount of technology needed, commenting that a quality check at every step of the process needs to be done with real-world data that has been supplied by manufacturers.

The January 2017 Determination did not give appropriate consideration to the effect on low-income consumers. The Administrator believes that affordability of new cars across the income spectrum, and especially among low-income consumers, is an important factor, both because of its equity impacts and because of its potential impacts on the total energy savings delivered by the standards. In its new rulemaking, EPA plans to thoroughly assess the impacts of the standards on affordability and reconsider the importance of this factor in selecting an appropriate level of the standard.

The Alliance, Mitsubishi, and Vermont Energy Investment Corporation (VEIC) recommended that EPA revisit affordability concerns. The Alliance and Global noted that average vehicle transactions prices have increased. The Alliance stated that consumers do not change the fraction of their budgets for transportation; if vehicles become more expensive, they will have to buy less expensive vehicles with fewer features. Global Automakers expected price increases to lead some low-income households to switch from buying new to used vehicles, and some to be forced out of the market entirely. The Alliance reiterated that the standards have a disproportionate negative impact on low-income households. Mitsubishi expressed concern that it would have to add electrification to already efficient low-priced vehicles and the increased price could drive buyers to less efficient used vehicles. NADA and Graham expressed concerns that potential buyers will not be able to get loans large enough to cover the increased vehicle prices. Mercedes-Benz pointed out that up to half its sales in some markets are leased; the payback period for technologies to meet the standards may exceed the typical three-year leasing period, and low residual values for advanced technologies could further increase lease payments.

The Alliance stated that the standards have a disproportionate negative impact on low-income households. Other commenters stated that the standards will have a larger proportionate benefit for low-income households and referenced a Greene and Welch study.[23] VEIC requested that the agencies consider that relaxing the standards will increase ownership costs on lower-income drivers. EDF did not find adverse effects on affordability and note that the standards will lead to used vehicle purchasers having more fuel efficient choices.

On the issue of consumer affordability, some stakeholders commented that EPA standards are not making new vehicles less affordable, citing a Synapse Energy Economics report prepared for Consumers Union. The report noted a wider range for vehicle prices at the upper end, due to higher-end vehicles receiving more features, at the same time that the prices of entry-level vehicles have stayed roughly the same for the past 10 years.

EPA concludes that affordability concerns and their impact on new vehicle sales should be more thoroughly assessed, further supporting its determination to initiate a new rulemaking for the 2022–2025 standards.

Factor 4: The Impact of the Standards on Reduction of Emissions, Oil Conservation, Energy Security, and Fuel Savings by Consumers

The impact of the standards on emissions, oil conservation, energy security, and fuel savings to consumers are significantly affected by many assumptions including but not limited to: (1) The consumer adoption of new lower emitting cars; (2) cost of fuel; and (3) the rebound effects.

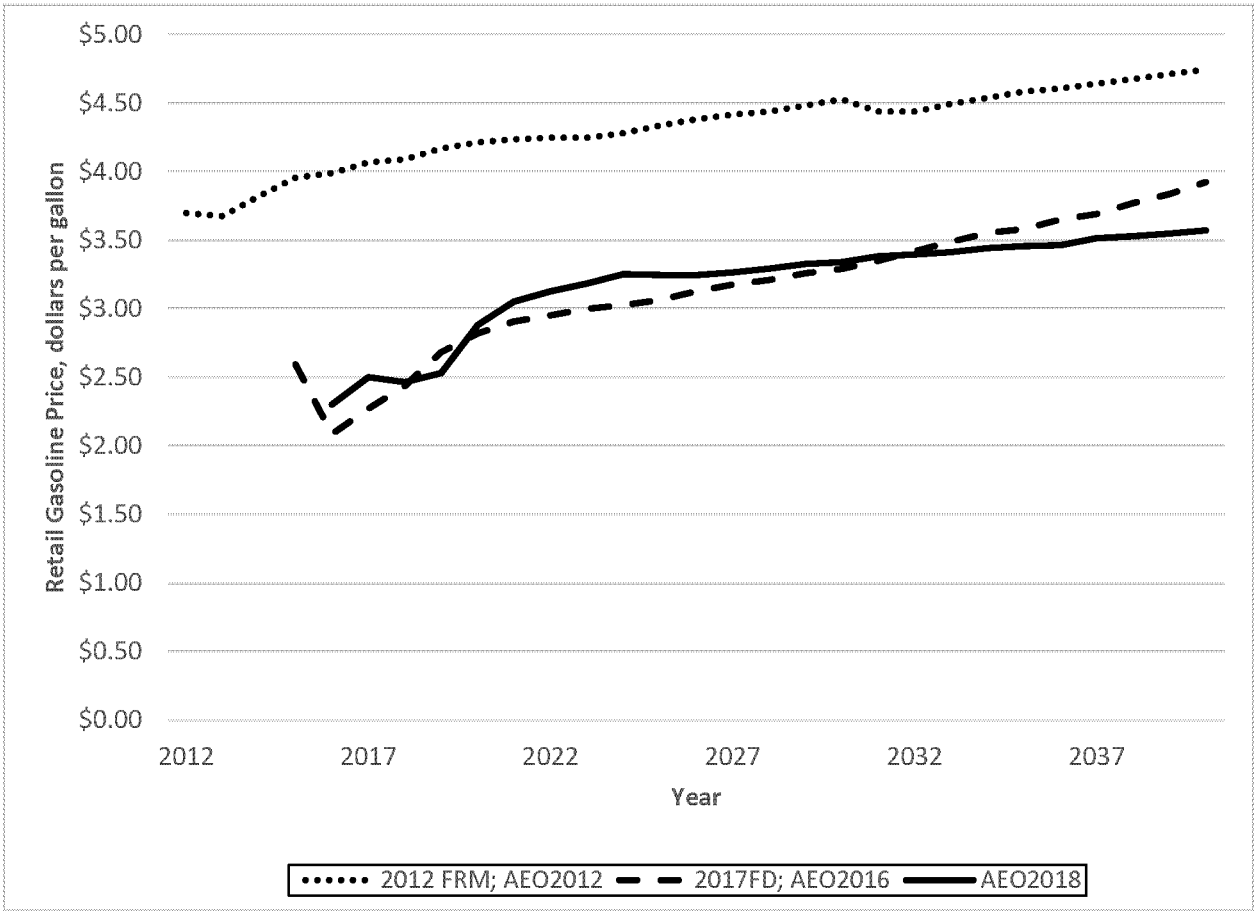
Slower or decreased consumer adoption of new lower emitting cars, as mentioned above, would result in decreased effectiveness of the program. As consumer preference changes and/or the cost of new cars increases, consumers may be less willing to purchase new vehicles and thus phase out the higher-emitting older cars. Because of the potential decrease in adoption of newer cars the reduction of emissions from the standards may be less than originally thought. The same logic can be applied to oil conservation. EPA believes that this issue raises enough concern to warrant consideration in the future rulemaking.

With respect to cost of fuel, for example, the lifetime fuel savings to consumers can change by almost 200 percent per vehicle based on the assumption on gas prices according to the 2016 Proposed Determination (Table IV.12). This significant effect on consumer savings due to fuel prices can in turn affect both consumer demand for fuel-efficient vehicles and their driving behavior generally, both of which significantly affect impacts on emissions, oil conservation and energy security. Figure 3 below shows the fuel price projections EPA used in the 2012 final rule, the January 2017 Determination, and the current projections from the Energy Information Administration's Annual Energy Outlook (AEO). As can be seen from the figure, the 2012 rule projected significantly higher fuel prices than current EIA projections, while the 2017 Final Determination used similar projections to EIA. Lower fuel prices mean lower incentives for consumers to purchase fuel efficient vehicles, because the fuel cost savings they get from doing so are also lower. Thus, the projections for fuel cost savings in the 2012 rule may have been optimistic, which increases the challenge manufacturers face in making fuel-efficient vehicles attractive to consumers. This consideration supports EPA's determination that the current standards are inappropriate and should be reconsidered in a new rulemaking.

[22] See ''Critical Assessment of Certain Technical and Economic Assumptions Made in EPA's Final Determination on the Appropriateness of the Model Year 2022–2025 Light-Duty Vehicle Greenhouse Gas Emission Standards under the Midterm Evaluation'' (Trinity Consultants, NERA Economic Consulting, October 2017) (Alliance Attachment 6).

[23] D.L. Greene and J.G. Welch (2017), ''The impact of increased fuel economy for light-duty vehicles on the distribution of income in the United States: A Retrospective and Prospective Analysis.'' March 2017. University of Tennessee, Knoxville.

Figure 3: EIA Annual Energy Outlook Retail Gasoline Price Projections, $/gallon (all values adjusted to 2017$)



With respect to the rebound effect (the increase in driving resulting from a lower marginal cost of driving due to greater fuel efficiency), EPA received a range of views and assessments in the recent public comments. Higher rebound values mean that consumers are inherently driving more due to the increase in fuel efficiency of the vehicle and this impact will offset the reduction of emissions, oil conservation, energy security, and fuel savings by customers. EPA believes it is important to fully consider the effects of a rebound effect to project an accurate assessment of the projected fuel savings, and EPA intends to do so in its new rulemaking.

With respect to energy security, the situation of the United States is dramatically different than it was at the time the 2012 standards were promulgated, and even significantly different from its situation in 2016 when the draft TAR was developed.

Regarding emissions, some state and local government commenters pointed to the co-benefits of GHG standards as important criteria pollutant control measures. For example, NACAA commented that the standards would lead to oxides of nitrogen (NOx) reduction that contribute to attainment and maintenance of the 2008 and 2015 ozone and 2012 fine particulate matter National Ambient Air Quality Standards (NAAQS) and other air benefits. While EPA agrees that there are co-benefits from these standards, EPA notes that the standards are supposed to be based on GHG emissions and that while co-benefits exist with respect to emissions such as criteria pollutants, using GHG emission standards as criteria pollutant control measures is likely a less efficient mechanism to decrease criteria pollutants and those issues are already handled through the NAAQS implementation processes.

Based on the information provided above, the Administrator believes that there is strong basis for concern that the current emission standards from MY 2022—2025 may not produce the same level of benefits that was projected in the January 2017 Determination. This further supports the Administrator's determination to withdraw the prior Determination and initiate a rulemaking to reconsider the current standards.

Factor 5: The Impact of the Standards on the Automobile Industry

The Administrator finds, based on the current record, that the standards potentially impose unreasonable per vehicle costs resulting in decreased sales and potentially significant impact to both automakers and auto dealers. Trinity Consulting & NERA Economic Consulting (TC/NERA) [24] found that the MY 2022–2025 standards would reduce vehicle sales over those four model years from 65 million to 63.7 million, a reduction of 1.3 million vehicles, due to higher vehicle prices.

EPA also recognizes significant unresolved concerns regarding the impact of the current standards on United States auto industry employment. The Center for Automotive Research (CAR),[25] a nonprofit

[24] Trinity Consultants & NERA Economic Consulting, Critical Assessment of Certain Technical And Economic Assumptions Made in EPA'S Final Determination On the Appropriateness of the Model Year 2022–2025 Light-duty Vehicle Greenhouse Gas Emission Standards Under the Midterm Evaluation 2 (Oct. 2017).

[25] McAlinden et al., Center for Automotive Research (2016). The Potential Effects of the 2017–

Continued

automotive research center, developed a cost-benefit study referenced by multiple commenters that estimated employment losses up to 1.13 million due to the standards if the standards increased prices by $6,000 per vehicle. Other stakeholders submitted comments critical of the CAR report.

Commenters expressed differing points of view on the potential effects of the standards on employment and the macroeconomy and predicting the exact effect of the GHG emission standards on the macroeconomy is rather difficult.

Some commenters pointed to negative effects on the economy and employment due to higher costs from the standards. The Alliance commented that each job in the auto sector creates 6.5 additional jobs, and stated that auto sector employment is generally related to vehicle sales, which is expected to decline. The Alliance, Global Automakers, and FCA expressed concern that cost increases associated with the MY 2022–2025 standards could reduce sales and employment, and put downward pressure on the macroeconomy. The Alliance and Global Automakers argued that reduced revenues from a sales drop due to the standards would reduce spending on research and development.

Other commenters stated that the standards could lead to macroeconomic and employment benefits through their effects on innovation. Commenters also stated that innovation and investment resulting from the standards have contributed to the recovery of the auto industry and the wider economy. Some commenters stated that reopening the standards increases uncertainties that may reduce investments in advanced technologies.

The UAW, while not objecting to a reevaluation of the standards, stated that EPA should ensure that the regulations recognize the long-term importance of manufacturing a diverse fleet of motor vehicles in the United States by American workers and radically weakening the standards will adversely impact investments in key technologies and put domestic manufacturers behind in making fuel-saving technologies being used to meet the standards. Some commenters stated they believe there would be positive effects on employment from the standards through their effects on investments.

The automotive supplier commenters discussed their views on the importance of the standards in maintaining the competitive advantage U.S. companies currently have in the global marketplace. For example, MEMA commented that reducing the stringency of the standards in the U.S. increases the likelihood that work on these emissions-reducing technologies would shift to other markets.

A number of commenters cited Carley *et al.*,[26] which included a study of the macroeconomic impacts of the standards, conducted by researchers at Indiana University. The study found that the short-term effects of the standards are negative, but the long-term effects of the standards are positive for employment but will not overtake the negative effects until at least 2025. Several commenters identified concerns in the Carley et.al. analysis that contributed to short-term negative effects. Graham, a coauthor of the report, responded to these comments by supporting the IU report assumptions.

EPA finds that a more rigorous analysis of job gains and losses is needed to determine the net effects of alternate levels of the standards on employment and believes this is an important factor to consider in adopting appropriate standards. EPA intends to include such an analysis as part of the basis for the new rule.

Factor 6: The Impacts of the Standards on Automobile Safety

EPA and NHTSA considered some potential safety impacts in the 2012 rulemaking, and EPA considers safety to be an important factor in the reconsideration of the MY 2022–2025 standards. For example, fleet turnover is important to an overall safety analysis, as newer cars tend to be safer and more efficient than older cars due to safety technology innovation and regulatory requirements. EPA intends to further assess the scope of its safety analysis in the upcoming rulemaking to examine the possible impacts of fleet turnover on safety. The Administrator finds that this safety analysis is an additional reason to undertake the forthcoming rulemaking.

Factor 7: The Impact of the Greenhouse Gas Emission Standards on the Corporate Average Fuel Economy Standards and a National Harmonized Program

Many stakeholders commented on the importance of maintaining a National Program for GHG emissions and CAFE standards, and stakeholders urged EPA and NHTSA to continue coordinating with the California Air Resources Board. For example, Global Automakers commented, ''Harmonization between the federal and California programs must be maintained. EPA, NHTSA and California need to work together to maintain the One National Program as all parties committed to at its inception.'' Toyota commented that its ultimate objective ''remains a true, single national standard governing fuel economy and greenhouse gas emissions in the future.'' Nissan and Mitsubishi similarly commented that harmonization between federal and California programs must be maintained, urging California, EPA and NHTSA to work together.

Automotive suppliers also commented on the importance of maintaining the National Program. For example, the MEMA stated ''[t]he One National Program provides industry stakeholders with economies of scale and increases domestic investment in emissions-reducing and fuel-efficiency technologies and jobs. Anything that falls short of a National Program will fail to provide the long-term planning certainty the industry needs to make the long-term business and technology investment decisions to meet MYs 2022–2025 standards and beyond.'' The International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (UAW) commented that all stakeholders should work towards a single National Program and that ''California and non-governmental organizations must have a seat at the table along with manufacturers and workers.''

EPA believes that a national harmonized program is very important and will continue to work toward maintaining a national harmonized program through MY 2025 and beyond. To that end, EPA, in collaboration with NHTSA, will initiate a notice and comment rulemaking in a forthcoming **Federal Register** notice to further consider appropriate standards for MY 2022–2025 light-duty vehicles, as appropriate. This coordination will ensure that GHG emission standards and CAFE standards are as aligned as much as possible given EPA and NHTSA's different statutory authorities.

EPA and NHTSA have been communicating with stakeholders, including CARB and automobile manufacturers, to try and ensure that a national harmonized program remains intact to minimize unnecessary cost and burdens in the development of the notice and comment rulemaking.

2025 EPA/NHTSA GHG/Fuel Economy Mandates on the U.S. Economy. *http://www.cargroup.org/publication/the-potential-effects-of-the-2017-2025-epanhtsa-ghgfuel-economy-mandates-on-the-u-s-economy/*.

[26] Sanjay Carley, Denvil Duncan, John D. Graham, Saba Siddiki, and Nikolaos Zirogiannis. ''A Macroeconomic Study of Federal and State Automotive Regulations,'' Indiana University School of Public and Environmental Affairs, March 2017.

Factor 8: The Impact of Standards on Other Relevant Factors

The January 2017 Determination also identified regulatory certainty as an additional relevant factor that was considered as part of the determination. EPA understands that automakers and suppliers plan many years in advance.[27] Given such long lead times, regulatory certainty can increase the efficiency of business planning and investment cycles. The Administrator agrees that regulatory certainty is extremely important, but is reconsidering its conclusion that maintaining the current standards is the best way to provide such certainty.

Furthermore, industry cannot effectively plan for compliance with the current MY 2022–2025 GHG standards until it knows the outcome of the upcoming NHTSA rulemaking for MY 2022–2025 CAFE standards. Any regulatory certainty potentially provided by the January 2017 Determination is not supported by the fact that NHTSA had not yet begun their statutorily required rulemaking process, and EPA did not know at that time whether NHTSA would establish coordinated requirements. EPA now believes that the greatest potential regulatory certainty is provided in the long run by undertaking a new rulemaking, in partnership with NHTSA, and ensuring that the resulting standards are harmonized to the greatest degree possible.

IV. Revised Determination

Even with the wide range in perspectives, it is clear that many of the key assumptions EPA relied upon in its January 2017 Determination, including gas prices, and the consumer acceptance of advanced technology vehicles, were optimistic or have significantly changed. EPA has also both developed and received additional data and assessments since the January 2017 Determination regarding technology effectiveness and technology costs which warrant additional consideration. In addition, the reach and success of the program is significantly limited when consumers do not purchase new vehicles with low GHG emissions, either because they are priced out of them or are unwilling to spend additional money on advanced fuel-saving technologies.

[27] To note, some commenters raised concerns that reevaluating the standards increases uncertainty that might reduce investment in advanced technologies that could hurt jobs and United States competitiveness. As mentioned below, EPA disagrees with this concern as NHTSA must still complete a rulemaking for MY 2022–2025.

Based on our review and analysis of the comments and information submitted, the Administrator believes that the current GHG program for MY 2022–2025 vehicles presents difficult challenges for auto manufacturers and adverse impacts on consumers. On the whole, the Administrator believes the MY 2022–2025 GHG emission standards are not appropriate and, therefore, should be revised as appropriate. EPA, in partnership with NHTSA, will further explore the appropriate degree and form of changes to the program through a notice and comment rulemaking process.

As stated above, in this notice, the Administrator has determined that the standards are not appropriate in light of the record before EPA, and therefore, should be revised as appropriate. EPA is also withdrawing the January 2017 Determination with this notice. EPA, in partnership with NHTSA, will initiate a notice and comment rulemaking in a forthcoming **Federal Register** notice to further consider appropriate standards for MY 2022–2025 light-duty vehicles. This notice concludes EPA's MTE under 40 CFR 86.1818–12(h). Finally, EPA notes, as discussed above, that this revised determination is not a final agency action, as explained in the 2012 final rule. The effect of this action is rather to initiate a rulemaking process whose outcome will be a final agency action. Until that rulemaking has been completed, the current standards remain in effect and there is no change in the legal rights and obligations of any stakeholders.

Dated: April 2, 2018.

E. Scott Pruitt,

Administrator.

[FR Doc. 2018–07364 Filed 4–12–18; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[ER–FRL–9038–6]

Environmental Impact Statements; Notice of Availability

Responsible Agency: Office of Federal Activities, General Information (202) 564–7156 or *https://www2.epa.gov/nepa.*

Weekly receipt of Environmental Impact Statements
Filed 04/02/2018 Through 04/06/2018
Pursuant to 40 CFR 1506.9.

Notice

Section 309(a) of the Clean Air Act requires that EPA make public its comments on EISs issued by other Federal agencies. EPA's comment letters on EISs are available at: *https://cdxnodengn.epa.gov/cdx-nepa-public/action/eis/search.*

EIS No. 20180058, Final, USFS, WI, Townsend Project, Review Period Ends: 05/14/2018, Contact: Marilee Houtler 715–276–6333

EIS No. 20180059, Final, WAPA, CO, Estes to Flatiron Transmission Lines Rebuild Project Larimer County, Colorado Final Environmental Impact Statement (DOE/EIS–0483), Review Period Ends: 05/14/2018, Contact: Mark Wieringa 720–962–7448

EIS No. 20180060, Draft, USFS, CA, Tahoe National Forest Over-snow Vehicle Use Designation, Comment Period Ends: 05/29/2018, Contact: Joe Chavez 530–478–6158

EIS No. 20180061, Final, USFS, OR, Trout Creek, Review Period Ends: 05/29/2018, Contact: Joan Schmidgall 541–367–3809

EIS No. 20180062, Draft, NPS, CO, Great Sand Dunes National Park and Preserve Draft Ungulate Management Plan and EIS, Comment Period Ends: 05/31/2018, Contact: Tucker Blythe 719–378–6311

EIS No. 20180063, Draft Supplement, BR, WA, Kachess Drought Relief Pumping Plant and Keechelus Reservoir-to-Kachess Reservoir Conveyance (KDRPP/KKC) Projects Supplemental Draft Environmental Impact Statement, Kittitas and Yakima Counties, Washington, Comment Period Ends: 07/11/2018, Contact: Candace McKinley 509–575–5848 ext. 603

Dated: April 9, 2018.

Kelly Knight,

Director, NEPA Compliance Division, Office of Federal Activities.

[FR Doc. 2018–07690 Filed 4–12–18; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[EPA–HQ–OPP–2017–0350; FRL–9975–55]

Pesticide Maintenance Fee: Product Cancellation Order for Certain Pesticide Registrations

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: This notice announces EPA's order for the cancellations, voluntarily requested by the registrants and accepted by the Agency, of the products listed in Table 1 of Unit III., pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

Exhibit C

Declaration of Joshua M. Cunningham
Chief, Advanced Clean Cars Branch
California Air Resources Board

DECLARATION OF JOSHUA M. CUNNINGHAM

I, Joshua M. Cunningham, declare as follows:

1. My name is Joshua M. Cunningham and I am Chief of the Advanced Clean Cars Branch of the California Air Resources Board (CARB). I make this declaration based upon my knowledge and expertise in the matters within, and upon my review of the relevant rulemakings, reports, and other documents discussed below.

2. My resume is attached to this declaration. As Chief of the Advanced Clean Cars Branch since 2015, I am responsible for a broad regulatory program that includes emissions requirements for all new passenger vehicles sold in California. Prior to this work, I have been employed in a range of management and analytic positions at CARB since 2009. I have previously worked as a manager for the University of California at Davis's Institute of Transportation Studies, as a senior systems engineer for the United Technologies Corporations' Transportation Group, and as a product engineer for Delphi Chassis Systems, a subsidiary of General Motors at the time.

3. Additionally, I have broad experience in automotive engineering and policy and in greenhouse gas emissions and air pollutant reduction program design and management. CARB has recognized me with a Sustained Superior Accomplishment Award. My technical work has also been recognized with an Outstanding Technical Paper of 2010 by SAE International, formerly known as the Society of Automotive Engineers, an engineering association for transportation fields. I hold a patent for fuel cell technology controls, and have also received fellowships from the U.S. government for my work. I have a Masters of Science in Transportation Technology and Policy from the University of California at Davis and a Bachelor of Science in Mechanical Engineering from Michigan State

University. I have been directly involved in designing and analyzing greenhouse gas and other air pollution vehicle standards for CARB, and in association with the United States Environmental Protection Agency (EPA) and, with regard to fuel economy standards, the National Highway Traffic Safety Administration (NHTSA).

I. The History of State and Federal Regulation of Vehicle Emissions and the Establishment of the National Program

4. Prior to 1967, California adopted the nation's first vehicle emissions standards. *See* M. L. Brubacher & J. C. Raymond (1969) California Vehicle Exhaust Control, Journal of the Air Pollution Control Association, 19:4, 224-229, DOI: 10.1080/00022470.1969.10466478, available at: https://doi.org/10.1080/00022470.1969.10466478; U.S. Sen. Rep. 89-192, Automotive Air Pollution, January 15, 1965, p. 8 [1965 standards of the California Department of Public Health]. Since 1967, California's emissions standards have been administered by CARB. *See* Cal. stats. 1967, ch. 1545.

5. With Congress's adoption of the 1970 Clean Air Act (Act) amendments and the establishment of the EPA, the federal government began regulating vehicle emissions at the national level. Importantly, Congress preserved California's ability to adopt its own emission standards. In 1977, Congress recognized the success of California's emissions control program by amending the Act to allow other states to adopt California's standards at their discretion. *See* 42 U.S.C. § 7507 (Section 177).

6. In 1975, Congress enacted the Energy Policy and Conservation Act, which established corporate average fuel economy (CAFE) standards for vehicles and charged the Department of Transportation with administering them. Thus, starting with the model year (MY) 1978, vehicle manufacturers have been required to comply with EPA and CARB emission standards that limit air pollutants from

vehicles, and CAFE standards administered by the National Highway Traffic Safety Administration (NHTSA).

7. Greenhouse-gas emissions threaten public health in California in many ways, including by increasing the number of hot days under which smog can form and heat related illnesses expand, increasing wildfire risk, threatening the state's water supply and eroding its coastline. In order to address these impacts, California's Legislature and Governors have made reducing the state's greenhouse gas emissions a priority. Because emissions from vehicles constitute the largest single component of California's greenhouse gas emissions, the California Legislature, Governors Schwarzenegger and Brown, and CARB's Board have determined that strengthening the greenhouse gas emission standards for new motor vehicles are critical to mitigating the effects of climate change in the State, and integral to the State's strategy to achieve the economy-wide reductions that the science and State law require to protect the public health and welfare of California's residents.[1]

8. In 2002, California enacted Assembly Bill 1493, which directed CARB to develop and adopt greenhouse gas emission standards for passenger vehicles and light-duty trucks. In 2004, CARB fulfilled this directive and established the nation's first greenhouse gas emission standards for vehicles. Cal. Code Regs., tit. 13, § 1961.1. Currently, twelve states have adopted California's greenhouse gas emission standards pursuant to Section 177 of the Clean Air Act.

9. In 2009, EPA issued findings (collectively, the "Endangerment Finding") in which it determined that the accumulation of greenhouse gases in the atmosphere threaten the public health and welfare of current and future generations of Americans, and that emissions from new motor vehicles contribute to this threat.

[1] See *California's 2017 Climate Change Scoping Plan*, November 2017, p. 47, available at: https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf

The next year, EPA followed California's lead and adopted federal greenhouse gas emission standards for passenger vehicles for the first time. 40 C.F.R. § 86.1818-12.

10. CARB, EPA and NHTSA entered into extensive negotiations to harmonize their respective vehicle standards. As a result of an agreement reached by the three agencies and the vehicle manufacturers, the agencies created a unified "National Program." Pursuant to this agreement, EPA and NHTSA agreed to harmonize EPA's greenhouse gas emission standards and NHTSA's CAFE standards, and CARB agreed to enact a regulation whereby it would accept compliance with EPA's federal greenhouse gas emission standards as compliance with California's (distinct but comparably rigorous) standards. This agreement has given vehicle manufacturers the option of designing to a single, harmonized set of vehicle standards and to undertake a single compliance review process for each model year. Initially, the National Program was established in 2010 for MY 2012-2016 vehicles. In 2012, EPA, NHTSA and CARB completed separate but harmonized rulemakings that extended the standards to MY 2017-2025 vehicles. (NHTSA is statutorily limited to setting five years' worth of CAFE standards at a time, and therefore only established final CAFE standards for MY 2017-2021 vehicles.). I was personally involved in developing CARB's rulemaking proposal and ensuring that the agencies' regulations used a common in-use fleet analysis and environmental impact analysis.

11. An important feature of the National Program was the inclusion of a technically-grounded assessment process to evaluate if the standards were performing appropriately over time. Because the agencies were setting standards through MY 2025, EPA and CARB agreed to conduct a Mid-Term Evaluation of the federal emission standards to identify whether changes would be required for the MY 2022- 2025 standards. This review was to be concluded by no later than

April 1, 2018 so that vehicle manufacturers would have sufficient time to plan fleet design and development for MY 2022-2025 based on the results of the review process. NHTSA agreed to coordinate its rulemaking to establish CAFE standards for MY 2022-2025 vehicles with EPA and CARB's Mid-Term Evaluation. *See* 77 Fed. Reg. 62,624, 62,628, 62,784 (Oct. 15, 2012).

12. At the federal level, the Mid-Term Evaluation is codified at 40 C.F.R. § 86.1818-12(h). This regulation provides that the Mid-Term Evaluation be based upon a draft Technical Assessment Report (Draft TAR) authored by EPA, NHTSA and CARB, and which was completed in July 2016.[2] CARB staff, including myself and staff I supervise, collaborated on this report, which is over a thousand pages long, took several years to research and complete, and reflects the state of knowledge regarding the technological feasibility of meeting the MY 2022-2025 federal greenhouse gas emission standards, the costs for meeting the standards, and various other factors. The analyses and conclusions in the Draft TAR remain robust today.

13. EPA's commitment to a rigorous technical assessment as part of the Mid-Term Evaluation process, and which would be used to inform its determination regarding the ongoing appropriateness of the federal standards, was a key consideration in California's parallel commitment as part of the National Program framework to accept compliance with the federal emission standards in lieu of compliance with California's distinct emission standards. CARB agreed to accept compliance with the federal emission standards based on the following terms in the National Program agreement: (1) the federal standards that EPA established for MY

[2] EPA, NHTSA, CARB. July 2016. Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025 (footnotes omitted). See https://nepis.epa.gov/Exe/ZyPDF.cgi/P100OXEO.PDF?Dockey=P100OXEO.PDF

2017-2025 vehicles were comparable to California's standards in terms of how effectively they regulated greenhouse gas emissions; and (2) EPA agreed that its Mid-Term Evaluation would be based on an extensive fact-based, technical assessment of the state of the National Program, *i.e.*, the Draft TAR, and CARB would participate in developing and preparing the Draft TAR.

14. Therefore, under the harmonized National Program for vehicle standards, California's greenhouse gas regulations for MY 2017-2025 for light-duty vehicles accept compliance with the federal standards as an option for vehicle manufacturers, provided that those standards are equivalently protective as the CARB standards.[3] CARB agreed to this, initially in a letter to EPA and then through CARB's adoption of the so-called "deemed-to-comply" option in California's regulation.[4] In light of California's unique ability under the federal Clean Air Act to regulate vehicle emissions and its decision to accept compliance with the federal standards, EPA and NHTSA agreed to give CARB an important participatory role in the Mid-Term Evaluation process. This was critical to CARB to ensure that the National Program to which it was signing on—and the federal standards to which it was linking its and twelve other states' vehicle emission programs—would remain robust and effective in reducing vehicle greenhouse gas emissions.

15. These decisions affect the country as a whole. The dozen states that have adopted California's vehicle greenhouse gas emission standards, collectively with California, comprise approximately 35% of the United States vehicle market. Therefore, decisions made regarding the California program have sweeping

[3] Cal. Code Regs., tit. 13, § 1961.3(c).

[4] *See* Air Resources Board Resolution 12-35, November 15, 2012, pp. 3-7, available at https://www.arb.ca.gov/regact/2012/leviiidtc12/res12-35.pdf; see also 76 Fed. Reg. 74854, 74863 (Dec. 1, 2011).

implications for the automobile market as a whole and for environmental conditions throughout the country.

II. The 2016 Draft TAR and the Subsequent Determinations

16. The Draft TAR finds that automakers are on track to meet the MY 2022-2025 standards, and that they will be able to do so under a wide range of possible technological paths, including paths that continue to rely substantially on gasoline-powered vehicles. Specifically, the Draft TAR explains:

> The agencies' analyses each project that the MY2022-2025 standards can be met largely through improvements in gasoline vehicle technologies, such as improvements in engines, transmissions, light-weighting, aerodynamics, and accessories. The analyses further indicate that only modest amounts of hybridization, and very little full electrification (plug-in hybrid electric vehicles (PHEV) or electric vehicles (EV)) technology will be needed to meet the standards.[5]

17. A primary function of the Draft TAR was to summarize the state of technologies that are currently in production by automakers, pending near term release, or those that could be feasibly deployed within the timeframe required by the National Program. The Draft TAR and EPA's November 2016 Proposed Determination discussed a suite of advanced engine and other technologies available for manufacturers to comply with the MY 2025 standards (the most stringent of the existing standards). Looking at trends from the previous five years, EPA determined that emerging emission reduction technologies have been able to expand market share rapidly. Examples of these technologies include gasoline direct injection (GDI) engines and turbo-charged, downsized engines. Based on the analysis of these and other technologies, the Draft TAR found that vehicle manufacturers will have various ways in which to meet the current MY 2022-2025

[5] Draft TAR, p. ES-9.

standards, and will be able to do so with similar or reduced costs as originally projected when the standards were set in 2012.

18. The Draft TAR also re-affirms that these technological changes will result in substantial consumer savings. EPA projected net lifetime vehicle consumer savings of $1,620 and a payback of about 5 years; NHTSA projected somewhat smaller—but still substantial—savings.[6] These net lifetime savings reflect that consumers are expected to received benefits that more than offset the moderate average incremental new vehicle cost that will occur as a result of the MY 2022-2025 standards. EPA estimated this incremental cost in its compliance analysis in the Draft TAR at $894 (slightly lower than the cost increase forecast in the 2012 rulemaking) and notes that, for the vast majority of consumers who finance their new vehicle purchases, they would see net savings within the first year after purchase.

19. The Draft TAR (at p. 12-1) explains that the MY 2022-2025 standards "will significantly reduce harmful GHG emissions" and "achieve a significant reduction in projected fuel consumption."

> EPA estimates that under the GHG standards, GHG emissions would be reduced by about 540 million metric tons (MMT) and oil consumption would be reduced by 1.2 billion barrels. . . . NHTSA estimates that under the augural MY2022-2025 CAFE standards, GHG emissions would be reduced by about 748 MMT and oil consumption would be reduced by about 1.6 billion barrels.[7]

To put this differently, EPA subsequently estimated that the MY 2022-2025 standards will result in a reduction in greenhouse gas emissions of 102 MMT in 2030, 185 MMT in 2040, and 234 MMT in 2050. (Proposed Determination, Table IV.7) EPA estimates that the transportation sector contributed 1,823 MMT in

[6] Draft TAR, p. ES-10.
[7] Draft TAR, ES-11.

greenhouse gas emissions in 2016.[8] Thus, based on 2016 levels, the MY 2022-2025 standards are expected to reduce transportation-based greenhouse gas emissions in the U.S. by 5.6% in 2030, 10.2% in 2040, and 12.8% in 2050.

20. Taking these and other benefits into account, and considering compliance costs, EPA estimates that the current MY 2022-2025 standards will produce between $58 and $98 billion in net benefits to the country (Proposed Determination, Table IV.13).

21. In my professional judgment, the conclusions in the Draft TAR remain robust and well-supported.

22. Consistent with, and based on, the findings and analyses in the Draft TAR, EPA issued a final determination in January 2017 (2017 Determination) that the federal emission standards for MY 2022-2025 remain appropriate and do not need to be changed.

23. CARB's Governing Board also weighed this evidence. CARB's professional and technical staff concluded that the automakers were well on track to meet the standards, writing that "[m]anufacturers have successfully employed a variety of technologies that reduce GHG emissions and increase fuel efficiency many at a faster rate of deployment than was originally projected, notably, large penetration rates of advanced engine and transmissions across the industry in the last five years."[9]

24. CARB's Governing Board concurred, in Resolution 17-3 (March 24, 2017).[10] The Board further directed staff to begin developing proposals for post-

[8] https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks

[9] CARB, California's Advanced Clean Cars Midterm Review Summary Report for the Technical Analysis of the Light Duty Vehicle Standards (2017), available at: https://www.arb.ca.gov/msprog/acc/mtr/acc_mtr_finalreport_full.pdf.

[10] Available at: https://www.arb.ca.gov/msprog/acc/mtr/res17-3.pdf

2025 vehicle standards that would be consistent with California's need to continue to reduce motor vehicle pollution, including greenhouse gas pollution.

25. My staff are now beginning development of these more rigorous, post-2025 model year standards, which will use as a baseline the National Program's existing MY 2025 standards.

III. EPA's Reversal of the 2017 Determination and Issuance of a Revised Determination Undermines the National Program and Has Forced CARB to Act to Preserve Its Ability to Meet Its Policy Objectives

26. In 2006, the California Legislature enacted Assembly Bill 32, which requires California to reduce its greenhouse gas emission to 1990 levels by the year 2020. California achieved this milestone in 2016, four years ahead of schedule.[11]

27. In 2016, California enacted Senate Bill 32, which requires the State to reduce its greenhouse gas emissions to 40% below 1990 levels by the year 2030.

28. The largest source of greenhouse gas emissions in California is, by far, the transportation sector. In 2016, this sector was responsible for approximately 41% of total statewide emissions, and over 50% of statewide emissions when including emissions from oil production and petroleum refining.[12] For comparison, the next largest contributor, the industrial sector, was responsible for 23% of the State's greenhouse gas emissions in 2016. Notably, while emissions from the electricity and industrial sectors have decreased in recent years, emissions from the transportation sector increased by 2% in 2016.[13]

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[11] CARB, Climate Pollutants Fall Below 1990 Levels for First Time, https://ww2.arb.ca.gov/news/climate-pollutants-fall-below-1990-levels-first-time

[12] CARB, Greenhouse Gas Emissions Inventory, https://www.arb.ca.gov/cc/inventory/data/data.htm

[13] CARB, California Greenhouse Gas Emissions for 2000 to 2016: Trends of Emissions and Other Indicators, p. 1, https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2016/ghg_inventory_trends_00-16.pdf

29. In order for California to achieve the environmental goals mandated by SB 32, mobile source emissions—*i.e.*, emissions from vehicles—must be reduced dramatically.[14] For this reason, the current National Program MY 2022-2025 standards for vehicle greenhouse gas emissions are essential to meeting California's mandated climate goals.[15]

30. Unfortunately, on April 13, 2018, EPA announced that it was withdrawing its 2017 Determination that the existing federal MY 2022-2025 standards remain appropriate. 83 Fed. Reg. 16,077. EPA simultaneously issued a revised final determination (Revised Determination) concluding, contrary to the findings and analysis in the Draft TAR and its prior determination, that the current federal standards are "not appropriate" and must be revised.

31. EPA's Revised Determination destabilizes the National Program, disrupts California's vehicle emission programs, and threatens public health in multiple regards. EPA's actions are also entirely contrary to the agreement with CARB that formed the basis of the National Program and that led CARB to agree to tie its vehicle emissions program to the federal standards and accept compliance with the federal standards as compliance with California's standards.

32. EPA's Revised Determination has forced CARB to take action in order to provide the public and regulated entities certainty as to the status of California's program, mitigate the increased climate harms that will result from a weakening of the federal standards, and ensure that California can meet its emissions reduction goals.

33. EPA's announcement that the current federal standards are no longer appropriate and will be revised also introduces substantial uncertainty into the auto market and threatens to slow the progress of research, development and

[14] CARB, California's 2017 Climate Change Scoping Plan at ES-1, available at: https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf

[15] *See id.* at 25, 28.

implementation of technology to reduce vehicle emissions, with effects even before a final federal decision on new standards is made, given the long lead-times inherent in vehicle production.

34. Based upon my extensive experience working in, and regulating, the industry, I know that vehicle development cycles run 3-5 years from product design decisions, through engineering, testing, and manufacturing readiness development. These cycles can be shorter if the new vehicle is largely based on an existing platform, but longer where a new engine and base platform are being developed, and must incorporate systems and designs that have completed a company's basic research phase. New drivetrains and vehicle platforms take time to develop given the complexity of many vehicle systems (e.g. electrical, engine, exhaust after-treatment, body, suspension, etc.). Every element of the vehicle must be individually designed and tested, commonly leveraging contracts with suppliers to do so. Systems, and then full vehicles, need to be built and tested for durability and performance, followed by crash testing, all of which can lead to design changes along the way. Finally, manufacturing processes and test assembly lines need to be developed, followed by sample cars off the assembly lines to identify errors in the process.[16] I have been a participant in these cycles in the course of my professional career.

35. Based on the observed past practice described above, I believe the automakers are currently in the midst of planning and developing their MY 2020 through 2024 vehicles, and will be considering design decisions for vehicles in subsequent model years. Thus, the planning decisions that automakers are making

[16] Edwards, M. et al "How Automakers Plan Their Products: A Primer for Policymakers on Automotive Industry Business Planning," Center for Automotive Research (CAR), July 2007. http://www.cargroup.org/publication/how-automakers-plan-their-products-a-primer-for-policymakers-on-automotive-industry-business-planning/

right now and during the coming months will determine the amount of greenhouse gas emissions those vehicles will produce.

36. As discussed above, it is crucially important to California's goals concerning climate change, and the well-being of its residents, that the State continue to effectively regulate greenhouse gas emissions from vehicles. Thus, California must ensure that, if EPA—as indicated in its Revised Determination and its subsequent Notice of Proposed Rulemaking (NPRM)—weakens its standards, California's comparably rigorous standards will still apply in our State. The Revised Determination has forced CARB to consider, and then take, regulatory steps to ensure this is the case.

37. Specifically, CARB has begun a process to clarify that the "deemed to comply" option—by which CARB currently accepts compliance with the federal program—would not apply to unsupported, weakened federal standards. Although CARB believes that it was never the provision's intent to incorporate such standards, the automakers have filed comments stating a contrary view.

38. Based on EPA' Revised Determination that the federal standards are not appropriate, CARB considered and ultimately concluded it had to take action now because of the planning and development cycles described above, because of the length of time required to complete California rulemakings, and because the 177 States that have adopted California standards also require lead time to institute their own administrative and/or regulatory actions.

39. Accordingly, on August 7, 2018, CARB released a proposed regulatory change for California's GHG regulations, and a notice that the proposal will be considered by our Board on September 27 and 28, 2018, available at: https://www.arb.ca.gov/regact/2018/leviii2018/leviiinotice.pdf. A true and correct copy is attached hereto. This proposal focuses on clarifying the conditions under which the "deemed-to-comply" option can be used by automakers.

40. As a result, CARB has and continues to incur costs, and those costs will continue to increase. A number of CARB staff who otherwise would be focused on other projects have been required to focus on taking the actions described above. Beginning in early 2018, this staffing resource impact so far has included, at least, the equivalent of a manager and five staff experts from the vehicle regulatory development and analysis support programs, along with the equivalent of at least four legal staff experts. This is in addition to time commitments from our executive officers and Chair of the Board. I anticipate that these impacts will continue through at least December 2018. EPA's Revised Determination thus has caused, and continues to cause, direct and concrete resource impacts to CARB.

41. CARB has no choice but to take these actions in the face of EPA's April 13, 2018 Revised Determination. If CARB did not act to clarify its rules, this would mean that EPA's revised federal emission standards could be determined to apply to MY 2022-2025 vehicles sold in California, and any relaxation in those federal standards would result in an increase in vehicle emissions, thereby undercutting California's progress toward its greenhouse gas emissions goals.[17] The same would be true for the Section 177 States that have adopted the deemed-to-comply provision.

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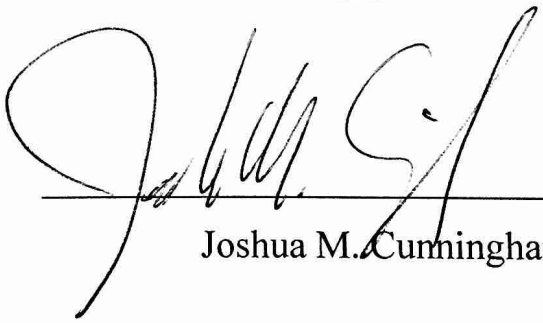
[17] CARB 2017 Scoping Plan Update, https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf

42. CARB estimates that if federal vehicle standards were held constant in model years 2022 through 2025, and California's standards were not applied, California's light duty sector in-use greenhouse gas emissions would be 10-15% higher in 2030. *See* CARB, Proposed Amendments to the Low-Emission Vehicle III Greenhouse Gas Emission Regulation, Standardized Regulatory Impact Assessment (SRIA) Equivalent Document (August 7, 2018), p. 13. When also including increased greenhouse gas emissions from fuel production facilities, the combined vehicle and fuel production emission benefits lost represent 7% of the total reductions needed for California to meet the 2030 target required by law. If the light duty vehicle regulations cannot achieve the planned emission benefits, either regulations on other sectors will need to be strengthened to make up for the shortfall, or costly state financial incentives will be needed to accelerate deployment of clean technology faster than vehicle regulations.

I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed on August ___, 2018 at Sacramento, California.



Joshua M. Cunningham

joshua m. **cunningham**

PROFILE

Manager and policy analyst with 17 years of engineering and environmental policy experience in automotive advanced technologies and fuels. Broad experience that includes work in both the private and public sectors. Strong background in collaborative programs, bringing multiple stakeholders together to tackle complex challenges.

EXPERIENCE

California Air Resources Board (CARB), Sacramento, CA (3/2009 – present)

Chief, Advanced Clean Cars Branch (4/2015 – present)

- Managing a broad program that includes the clean vehicle emission standards and electric vehicle requirements of all new cars sold in California
- Program also includes engineering and planning support for hydrogen and electric vehicle charging infrastructure, as well as partnerships to address EV market barriers

Manager, Transportation Systems Planning Section (4/2013 – 3/2015)

- Managing a team focused on analyzing multi-sector strategies to achieve long-term (2030-2050) air quality and greenhouse gas emission reductions
- Developing analytical tools (Vision emission projection model) to evaluate specific strategies, including vehicle technologies, alternative fuels, and travel behavior

Director of Programs, Plug-in Electric Vehicle Collaborative (1/2011 – 3/2013)

- Launched public-private-partnership and developed annual work-plan, managing topic working groups for this multi-stakeholder program focused on fostering the EV market
- Lead coordinator and technical writer for a multi-stakeholder Strategic Plan for California on plug-in electric vehicles: The PEV Collaborative's "Taking Charge"

Air Resources Engineer, ZEV Implementation Section *(3/2009 – 12/2010)*

- Conducted economic and emissions impact analyses of the automotive industry from the Zero Emission Vehicle (ZEV) Regulation (regulation change, January 2012)
- Contributed to the Governor's 2012 Zero Emission Vehicle Executive Order, and subsequent ZEV Action Plan, working on the Governor's Office inter-agency team

Institute of Transportation Studies (UC Davis), Davis, CA (4/2005 – 02/2009)

Program Manager, Sustainable Transportation Energy Pathways (STEPS)

- Coordinated research priorities, developed sponsor relationships, formed research collaborations, led major proposals, and organized program events
- Program budget of $1.3M/yr; 20 public & private sponsors; 40 researchers
- Successfully led the effort to secure a $1M seed grant from the California Clean Energy Fund (CalCEF) to launch the UC Davis Energy Efficiency Center (EEC)

United Technologies Corp (UTC), Fuel Cells Div., South Windsor, CT (9/2002 - 3/2005)

Senior Systems Engineer, Transportation Group

- Analyzed and designed fuel and air systems, and power controls, for the Hyundai Tucson fuel cell vehicle & California Bay Area AC Transit fuel cell bus
- Project team leader, BMW fuel cell system designed for freezing conditions
- Special assignments on Advanced Systems and Intellectual Property Teams

Delphi Chassis Systems (General Motors), Dayton, OH (9/1996 - 8/1998)

Product Engineer, Advanced Suspension Development

- Lead engineer for air compressor in automatic leveling system for production vehicles
- Extensive project management experience leading cross-functional product teams
- Developed component technical specifications and design validation test plans

EDUCATION

Masters of Science (MS) - Transportation Technology and Policy (TTP)
University of California, Davis (Davis, California); Graduated 2001

Bachelor of Science (BS) – Mechanical Engineering
Michigan State University (East Lansing, Michigan); Graduated 1996

National Science Foundation Overseas Study Program
Rheinisch-Westfaelische Technische Hochschule (Aachen, Germany); Completed 1995

AWARDS

- CARB Sustained Superior Accomplishment Award, Long-term emission planning (2016)
- CARB Gold Superior Accomplishment Award, Advanced Clean Cars rulemaking (2011)
- SAE Outstanding Technical Paper of 2010; selected for publication in an SAE international journal for passenger vehicles. Paper 2010-01-2306 (2010)
- Patent award (#8, 124, 290) for fuel cell operation with cryogenic hydrogen storage (developed 2004, final patent awarded in 2012)
- UTC FuelCells Senior Management Achievement Award (2004)
- ENO Transportation Fellow, Center for Transportation Leadership Development (2000)
- U.S. Department of Energy GATE Fellowship for graduate studies (1999-2000)

PUBLICATIONS

- PEV Collaborative, "Taking Charge: Establishing California Leadership in the Plug-in Electric Vehicle Marketplace", UC Davis, December 2010
- Cunningham, J.M., "Achieving an 80% GHG Reduction by 2050 in California's Passenger Vehicle Fleet: Implications for the ZEV Regulation", SAE paper # 2010-01-2306, October 2010
- Cunningham, J.M., et al, "Why Hydrogen and Fuel Cells are Needed to Support California Climate Policy", ITS-Davis, UCD-ITS-RR-08-06, Davis CA (2008)
- Cunningham, J.M., et al, "A Comparison of High Pressure and Low Pressure Operation of PEM Fuel Cell Systems", SAE paper #2001-01-0538 (2001)
- Cunningham, J.M., et al, "Requirements for a Flexible and Realistic Air Supply Model for Incorporation into a Fuel Cell Vehicle System Simulation", SAE paper #1999-01-2912 (1999)

VOLUNTEER SERVICE & ACTIVITIES

- Board member, Valley Climate Action Center: A non-profit corporation in partnership with the City of Davis to develop low-carbon strategies in the community
- Board member, Air & Waste Management Association (AWMA), Sacramento Chapter (2015-2016)
- Habitat for Humanity, Dayton Ohio chapter (1996-1998)
- Operation Crossroads Africa: Volunteer service in Ghana assisting local non-profit organizations with community development (1996)
- Musician (percussion) in competitive Drum and Bugle Corps, as well as Michigan State University marching band drumline (1992-1994)

TITLE 13. CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC HEARING TO CONSIDER PROPOSED AMENDMENTS TO THE LOW-EMISSION VEHICLE III GREENHOUSE GAS EMISSION REGULATION

The California Air Resources Board (CARB or Board) will conduct a public hearing at the time and place noted below to consider approving for adoption the Proposed Amendments to the Low-Emission Vehicle III Greenhouse Gas Emission Regulation.

DATE: September 27, 2018

TIME: 9:00 A.M.

LOCATION: California Environmental Protection Agency
California Air Resources Board
Byron Sher Auditorium
1001 I Street
Sacramento, California 95814

This item will be considered at a meeting of the Board, which will commence at 9:00 a.m., September 27, 2018, and may continue at 8:30 a.m., on September 28, 2018. Please consult the agenda for the hearing, which will be available at least ten days before September 27, 2018, to determine the day on which this item will be considered.

WRITTEN COMMENT PERIOD AND SUBMITTAL OF COMMENTS

Interested members of the public may present comments orally or in writing at the hearing and may provide comments by postal mail or by electronic submittal before the hearing. The public comment period for this regulatory action will begin on August 10, 2018. Written comments not physically submitted at the hearing must be submitted on or after August 10, 2018, and received **no later than 5:00 p.m. on** September 24, 2018. CARB requests that when possible written and email statements be filed at least ten days before the hearing to give CARB staff and Board members additional time to consider each comment. The Board also encourages members of the public to bring to the attention of staff in advance of the hearing any suggestions for modification of the proposed regulatory action. Comments submitted in advance of the hearing must be addressed to one of the following:

Postal mail: Clerk of the Board, California Air Resources Board
1001 I Street, Sacramento, California 95814

Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

Please note that under the California Public Records Act (Gov. Code, § 6250 et seq.), your written and oral comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request.

Additionally, the Board requests but does not require that persons who submit written comments to the Board reference the title of the proposal in their comments to facilitate review.

AUTHORITY AND REFERENCE

This regulatory action is proposed under the authority granted in California Health and Safety Code, sections 38550, 38566, 39500, 39600, 39601, 43013, 43018, 43018.5, 43101, 43104, and 43105. This action is proposed to implement, interpret, and make specific California Health and Safety Code, sections 39002, 39003, 39667, 43000, 43009.5, 43013, 43018, 43018.5, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, and 43211.

INFORMATIVE DIGEST OF PROPOSED ACTION AND POLICY STATEMENT OVERVIEW (GOV. CODE, § 11346.5, subd. (a)(3))

Sections Affected:

Proposed amendment to California Code of Regulations, title 13, sections 1961.2 and 1961.3 and to the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as last amended September 2, 2015, incorporated by reference in Title 13, CCR, section 1961.2.

Background and Effect of the Proposed Regulatory Action:

Overview

In order to address the need to further reduce vehicle emissions and achieve California's goal of reducing climate changing greenhouse gas emissions, in January 2012, CARB adopted its second generation of greenhouse gas emission standards for light-duty vehicles as part of the Low-Emission Vehicle III (or LEV III) program. The LEV III regulations established increasingly stringent greenhouse gas standards for 2017 through 2025 model year light-duty vehicles, and maintained the stringency for subsequent model years. These regulations were adopted by the Board as part of the Advanced Clean Cars rulemaking package that also includes the state's zero-emission vehicle (ZEV) regulation.

California's greenhouse gas emission programs for light-duty vehicles (passenger vehicles) are a fundamental component of the State's strategy to protect the health of its citizens and its natural resources, including from the threats of climate change.[1] California's programs have operated successfully in tandem with complementary standards set by other agencies for many years. Recognizing the value of a national

[1] California Air Resources Board. *California's 2017 Climate Change Scoping Plan.* (November 2017). available at: https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf

program, California has accepted compliance with greenhouse gas emission standards adopted by the United States Environmental Protection Agency (U.S. EPA) for the 2012 through 2025 model years. To do so, CARB adopted the so-called "deemed to comply" option, which allows compliance with U.S. EPA's regulations as an alternative to complying with California's regulations for these model years, because the U.S. EPA standards, at the time, would deliver equivalent greenhouse gas emission reductions as California's standards.[2,3]

One important element of the originally adopted federal greenhouse gas emission standards was a requirement that U.S. EPA later conduct a midterm evaluation (MTE) to re-assess the appropriateness of the greenhouse gas emission standards for the 2022 through 2025 model years. This report was required by law to be based upon a comprehensive joint Technical Assessment Report,[4,5] consisting of hundreds of pages of analysis and documentation, which was prepared jointly by U.S. EPA, CARB, and National Highway Traffic Safety Administration (NHTSA) staff. The purposes of the MTE was to evaluate updated information to determine if the standards should be strengthened, maintained at their current level of stringency, or weakened. On January 13, 2017, U.S. EPA released its Final Determination[6] to maintain the current National Program of greenhouse gas emission standards for 2022 through 2025 model year vehicles, finding that automakers are well positioned to meet the standards at lower costs than previously estimated.

CARB also conducted a California-specific Midterm Review[7] of the appropriateness of these standards, which also examined a number of other issues relating to the LEV III regulations and ZEV regulation, and issued a report on the findings. Based on the CARB Midterm Review, the Board concluded (in Resolution 17-3[8]) that:

> Given U.S. EPA has issued a Final Determination affirming the 2022 through 2025 model year federal greenhouse gas standards will remain as adopted, it is appropriate to continue California's participation in the 2017 through 2025 model year National Program by maintaining the "deemed to comply" provision allowing for compliance with the adopted U.S. EPA greenhouse gas standards for the 2022 through 2025 model years.

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[2] All manufacturers are currently exercising the option of complying with the federal greenhouse gas emission standards.

[3] Although California's light-duty greenhouse gas regulations also apply to model years beyond 2025, the "deemed to comply" option is not available for the 2026 and subsequent model years. Consequently, the 2026 and subsequent model years are not addressed in this rulemaking.

[4] *See* 40 C.F.R. § 86.1818-12(h)(2).

[5] U.S. EPA, NHTSA, CARB, *Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025* (July 2016), available at: https://nepis.epa.gov/Exe/ZyPDF.cgi/P100OXEO.PDF?Dockey=P100OXEO.PDF

[6] U.S. EPA, *Final Determination on the Appropriateness of the Model Year 2022-2025 Light-duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation* (January 2017, EPA-420-R-17-001), available at: https://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OAR-2015-0827-6270&attachmentNumber=1&contentType=pdf.

[7] California Air Resources Board. *California's Advanced Clean Cars Midterm Review*, (January 18, 2017), available at: https://www.arb.ca.gov/msprog/acc/mtr/acc_mtr_finalreport_full.pdf.

[8] State of California, Air Resources Board, Resolution 17-3. March 24, 2017. Agenda Item No.: 17-3-8. Advanced Clean Cars Midterm Review. available at: https://www.arb.ca.gov/msprog/acc/mtr/res17-3.pdf.

On April 13, 2018, the U.S. EPA issued a notice withdrawing its previous Final Determination for the MTE of the federal passenger vehicle greenhouse gas regulations and issuing a revised 11-page Final Determination that the federal greenhouse gas standards are not appropriate, "may be too stringent," and should be changed.[9] The U.S. EPA did this without properly explaining why it was departing from the extensive evidence within the Technical Assessment Report, and without sharing any data or analysis with CARB or adequately explaining the reasons for reaching a different conclusion than had been reached by the previous well-reasoned Final Determination.

On August 1, 2018, as a consequence of the U.S. EPA's new Final Determination, the Acting Administrator for the U.S. EPA and the Deputy Administrator for NHTSA signed a joint Notice of Proposed Rulemaking (NPRM) that would, if finalized, significantly weaken the U.S. EPA's standards and which purports to attack California's long-standing authority in this area. The NPRM stated it would provide a 60-day comment period, commencing from the time of publication in the Federal Register.

The NPRM proposes to arrest U.S. EPA's carbon dioxide (CO_2) emissions targets at the levels set for model year 2020. The proposal would also limit the standards to CO_2 tailpipe emissions and would fail to address other, more potent greenhouse gas emissions from vehicles. The agencies also proposed to find CARB's greenhouse gas and ZEV standards preempted by federal law, and to withdraw the waiver of federal preemption that the U.S. EPA granted to California in 2013 for the greenhouse gas and ZEV requirements of its Advanced Clean Cars program, at 78 Federal Register 2,112 (Jan. 9, 2013).

This proposal is contrary to the facts and the law. It is belied by the comprehensive, multi-year analysis of the initial Final Determination that found the standards cost-effective and achievable. It frustrates Congressional intent, upheld by the Supreme Court and lower federal courts, in the Clean Air Act and the Energy Policy and Conservation Act to conserve energy and protect the environment by setting maximum feasible standards. It jeopardizes the successful coordinated National Program for reducing these emissions that has helped position the auto industry for continued innovation and competitiveness in an international market.

This threat of weakening the standards of the unified National Program, left unaddressed, could substantially slow progress towards the emission reductions needed to address the serious threat climate change poses to California, the country, and the world. Thus, U.S. EPA has now stated both that the current rigorous standards are inappropriate - necessitating this rulemaking - and doubled down by stating that it intends to abandon the rigorous federal standards that the record supports. This will force upon regulated entities and the public considerable uncertainty as to the fate of the unified National Program. And it will obscure the clear path that it laid through the coming years to save money and resources and achieve the pollution reductions necessary to protect our health and environment. Issuance of this federal NPRM affirms the importance of CARB taking this proposed action to be clear California is maintaining the current standards.

[9] 83 Fed.Reg. 16,077 (April 13, 2018).

Current Proposal

CARB is proposing amendments to the LEV III greenhouse gas emission regulation to clarify that the "deemed to comply" option is available only for the currently adopted federal greenhouse gas regulations (incorporated in the Code of Federal Regulations and last amended on October 25, 2016). These clarifying amendments will ensure that the effects of any federal weakening for model years 2021 through 2025 are not felt in California during those model years. Weakening the standards, as U.S. EPA has proposed, would be unfounded and contrary to the intent of the Clean Air Act. Such an unfounded weakening removes a material predicate of California's decision to accept compliance with U.S. EPA standards. This clarification is thus consistent with the fundamental understandings underlying the current unified National Program for light-duty emission control.

CARB may also consider other changes to the sections affected, as listed on page 2 of this notice, during the course of this rulemaking process. Specifically, CARB requests comments on potential flexibilities that might allow for continued compliance with the federal standards, or reward national actions to promote cleaner vehicles.

Objectives and Benefits of the Proposed Regulatory Action:

The proposed amendments will ensure that appropriate and necessary greenhouse gas emission reductions and public health protections[10] are achieved by California's standards. They are also important for maintaining the pace of greenhouse gas emission reductions that are necessary to achieve our statutory targets, and to address extraordinary and compelling conditions in California.[11] Achieving these targets is critical for helping to combat the effects of climate change, including raging wildfires, coastal erosion, disruption of water supply, threats to agriculture, spread of insect-borne diseases, and continuing health threats from air pollution. The proposed amendments are also consistent with the extensive technical determinations from the 2017 Final Determination and CARB's MTR, showing that the standards are appropriate. These proposed amendments will provide predictability for manufacturers to make the necessary investments in cleaner vehicles for Californians that have reduced climate, public health and welfare impacts, promote innovation, and are less costly to operate.

CARB remains committed to a national program that is based on a robust technical foundation and sound economic analysis, such that it fulfills CARB's statutory mandates to protect public health and welfare and the environment. CARB has been, and remains, willing to consider well-founded and necessary changes to the program,

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[10] Although the vehicle standards in question directly regulate greenhouse gas emissions, and the LEV III criteria pollutant emission fleet average standards are not being changed, reducing greenhouse gases is critically important to protect public health in California. Greenhouse gases worsen climate change; in turn, climate change results in hotter weather conditions that are already eroding California's ability to attain and maintain compliance with ambient air quality standards. Moreover, criteria pollutant emissions in California from the production and delivery of petroleum and gasoline could change as a result of the federal action, thus increasing public health risks.

[11] Senate Bill 32 (Chapter 249, Statutes 2016, Pavley) requires that the state reach 40 percent emission reductions below 1990 levels by 2030 Executive Order S-3-05 sets a goal of 80 percent emission reductions below 1990 levels by 2050.

including flexibilities that reduce compliance costs, so long as they continue to provide the necessary greenhouse gas emission reductions. Federal action that is consistent with these principles could render this CARB rulemaking unnecessary.

There are no expected benefits to public safety or worker safety as a result of this rulemaking.

Comparable Federal Regulations:

As mentioned, although the current California and federal greenhouse gas regulations for 2021 through 2025 model year light-duty vehicles are equivalent in stringency, U.S. EPA has stated that the federal standards "are inappropriate and may need to be weakened."[12] The proposed amendments are necessary to preserve the emission benefits of the current California LEV III greenhouse gas regulation by safeguarding against the unwarranted relaxation of the standards and resulting loss of California emission reductions for model years 2021 through 2025 due to the linkage of the California regulation and federal passenger vehicle greenhouse gas regulation.

An Evaluation of Inconsistency or Incompatibility with Existing State Regulations (Gov. Code, § 11346.5, subd. (a)(3)(D)):

During the process of developing the proposed regulatory action, CARB conducted a search of any similar regulations on this topic and concluded these regulations are neither inconsistent nor incompatible with existing state regulations.

MANDATED BY FEDERAL LAW OR REGULATIONS (Gov. Code, §§ 11346.2, subd. (c), 11346.9)

The proposed regulatory action is not mandated by federal law or regulations.

DISCLOSURE REGARDING THE PROPOSED REGULATION

Fiscal Impact/Local Mandate Determination Regarding the Proposed Action (Gov. Code, § 11346.5, subds. (a)(5)&(6)):

The determinations of the Board's Executive Officer concerning the costs or savings incurred by public agencies and private persons and businesses in reasonable compliance with the proposed regulatory action are presented below.

Under Government Code sections 11346.5, subdivision (a)(5) and 11346.5, subdivision (a)(6), the Executive Officer has determined that the proposed regulatory action would not create costs or savings to any State agency or in federal funding to the State, costs or mandate to any local agency or school district, whether or not reimbursable by the State under Government Code, title 2, division 4, part 7 (commencing with section 17500), or other nondiscretionary cost or savings to State or local agencies.

[12] 83 Fed.Reg. 16,077 (April 13, 2018).

Housing Costs (Gov. Code, § 11346.5, subd. (a)(12)):

The Executive Officer has also made the initial determination that the proposed regulatory action will not have a significant effect on housing costs.

Significant Statewide Adverse Economic Impact Directly Affecting Business, Including Ability to Compete (Gov. Code, §§ 11346.3, subd. (a), 11346.5, subd. (a)(7), 11346.5, subd. (a)(8)):

The Executive Officer has made an initial determination that the proposed regulatory action would not have a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states, or on representative private persons.

Results of The Economic Impact Analysis/Assessment (Gov. Code, § 11346.5, subd. (a)(10)):

The proposed amendments do not qualify as major regulations, because they would leave current regulatory conditions intact. Accordingly, the proposed amendments will not have an economic impact on California businesses and individuals compared to a baseline of current conditions, and formal requirements for major regulations do not apply. However, in the interest of transparency, staff have prepared a thorough economic analysis of these proposed amendments, commensurate with analyses done for major regulations, and it is available as Appendix D to the Initial Statement of Reasons (ISOR). This Standard Regulatory Impact Assessment (SRIA) Equivalent Document was submitted to the California Department of Finance on June 7, 2018. Comments received from the California Department of Finance are in Appendix E to the ISOR and are summarized below.

Effect on Jobs/Businesses:

The Executive Officer has determined that the proposed regulatory action would not affect the creation or elimination of jobs within the State of California, the creation of new businesses or elimination of existing businesses within the State of California, or the expansion of businesses currently doing business within the State of California. A detailed assessment of the economic impacts of the proposed regulatory action can be found in the Economic Impact Analysis in the ISOR.

Benefits of the Proposed Regulation:

The objective of the proposed regulatory action is to preserve the California greenhouse gas emission reductions anticipated from the LEV III light-duty vehicle greenhouse gas emission regulation.

A summary of these benefits is provided, please refer to "Objectives and Benefits," under the Informative Digest of Proposed Action and Policy Statement Overview Pursuant to Government Code 11346.5(a)(3) discussion beginning on page 4.

California Department of Finance Comments on the SRIA Equivalent Document and CARB Responses:

Comment from the California Department of Finance:

Finance generally concurs with the methodology used to estimate impacts of proposed regulations. If the federal standards were to change, the timing and details would be important to model in order to assess any impacts to California. However, if the sensitivity analysis captures most of the components, only the magnitudes of estimates may change.

CARB Response:

Thank you for your review. We will update the analysis in the Standard Form 399 and other documents, as appropriate, if there are any developments at the federal level.

Business Report (Gov. Code, §§ 11346.5, subd. (a)(11); 11346.3, subd. (d)):

In accordance with Government Code sections 11346.5, subdivisions (a)(11) and 11346.3, subdivision (d), the Executive Officer finds the reporting requirements of the proposed regulatory action which apply to businesses are necessary for the health, safety, and welfare of the people of the State of California. The proposed amendments do not include new reporting requirements or modify existing reporting requirements.

Cost Impacts on Representative Private Persons or Businesses (Gov. Code, § 11346.5, subd. (a)(9)):

In developing this regulatory proposal, CARB staff evaluated the potential economic impacts on representative private persons or businesses. CARB is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with the proposed action.

Effect on Small Business (Cal. Code Regs., tit. 1, § 4, subds. (a) and (b)):

The Executive Officer has also determined under California Code of Regulations, title 1, section 4, that the proposed regulatory action would not affect small businesses, because they would not change the stringency of the current regulations. Because the stringency would not change in California, the regulations will continue to result in net cost savings for small business through more efficient motor vehicles, which will be more cost-effective to own and operate than in the absence of the standards, as previously estimated when the regulations were initially adopted.

Consideration of Alternatives (Gov. Code, § 11346.5, subd. (a)(13)):

Before taking final action on the proposed regulatory action, the Board must determine that no reasonable alternative considered by the Board, or that has otherwise been identified and brought to the attention of the Board, would be more effective in carrying out the purpose for which the action is proposed, would be as effective and less burdensome to affected private persons than the proposed action, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provisions of law.

ENVIRONMENTAL ANALYSIS

When the Advanced Clean Cars Program was proposed in 2012, CARB prepared an environmental analysis (EA) under its certified regulatory program (California Code of Regulations, title 17, sections 60000 through 60008) to comply with the requirements of the California Environmental Quality Act (CEQA; Public Resources Code section 21080.5). The EA, included in Appendix B of the ISOR entitled Appendix B: Draft Environmental Analysis for the Advanced Clean Cars Program, dated December 7, 2011, determined the Advanced Clean Cars Program could result in adverse impacts to aesthetics, air quality, and noise, biological resources, cultural resources, geology/soils, hazards/hazardous materials, hydrology/water quality, traffic and utilities, however the portion of the program specific to the LEV III regulation did not find any adverse environmental impacts. Staff has determined that no additional environmental review is required for the current proposed amendments because there are no changes that involve new significant environmental effects or a substantial increase in severity of previously identified significant effects in the prior 2011 EA. The basis for reaching this conclusion is provided in Chapter VI of the ISOR.

SPECIAL ACCOMMODATION REQUEST

Consistent with California Government Code Section 7296.2, special accommodation or language needs may be provided for any of the following:

- An interpreter to be available at the hearing;
- Documents made available in an alternate format or another language; and
- A disability-related reasonable accommodation.

To request these special accommodations or language needs, please contact the Clerk of the Board at (916) 322-5594 or by facsimile at (916) 322-3928 as soon as possible, but no later than 10 business days before the scheduled Board hearing. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Consecuente con la sección 7296.2 del Código de Gobierno de California, una acomodación especial o necesidades lingüísticas pueden ser suministradas para cualquiera de los siguientes:

- Un intérprete que esté disponible en la audiencia;

- Documentos disponibles en un formato alterno u otro idioma; y
- Una acomodación razonable relacionados con una incapacidad.

Para solicitar estas comodidades especiales o necesidades de otro idioma, por favor llame a la oficina del Consejo al (916) 322-5594 o envié un fax a (916) 322-3928 lo más pronto posible, pero no menos de 10 días de trabajo antes del día programado para la audiencia del Consejo. TTY/TDD/Personas que necesiten este servicio pueden marcar el 711 para el Servicio de Retransmisión de Mensajes de California.

AGENCY CONTACT PERSONS

Inquiries concerning the substance of the proposed regulatory action may be directed to the agency representative Mike McCarthy, Chief Technology Officer, Emissions Compliance, Automotive Regulations and Science Division at (626) 771-3614 or (designated back-up contact) Sarah Carter, Staff Air Pollution Specialist, Emissions Compliance, Automotive Regulations and Science Division at (626) 575-6845.

AVAILABILITY OF DOCUMENTS

CARB staff has prepared a Staff Report: Initial Statement of Reasons (ISOR) for the proposed regulatory action, which includes a summary of the economic and environmental impacts of the proposal. The report is entitled: "Public Hearing to Consider Proposed Amendments to the Low-Emission Vehicle III Greenhouse Gas Emission Regulation."

Copies of the ISOR and the full text of the proposed regulatory language, in underline and strikeout format to allow for comparison with the existing regulations, may be accessed on CARB's website listed below, or may be obtained from the Public Information Office, California Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, First Floor, Sacramento, California, 95814, beginning on August 7, 2018.

Further, the agency representative to whom nonsubstantive inquiries concerning the proposed administrative action may be directed is Bradley Bechtold, Regulations Coordinator, at (916) 322-6533. The Board staff has compiled a record for this rulemaking action, which includes all the information upon which the proposal is based. This material is available for inspection upon request to the contact persons.

HEARING PROCEDURES

The public hearing will be conducted in accordance with the California Administrative Procedure Act, Government Code, title 2, division 3, part 1, chapter 3.5 (commencing with section 11340).

Following the public hearing, the Board may take action to approve for adoption the regulatory language as originally proposed, or with non-substantial or grammatical modifications. The Board may also approve for adoption the proposed regulatory

language with other modifications if the text as modified is sufficiently related to the originally proposed text that the public was adequately placed on notice and that the regulatory language as modified could result from the proposed regulatory action. If this occurs, the full regulatory text, with the modifications clearly indicated, will be made available to the public, for written comment, at least 15 days before final adoption.

The public may request a copy of the modified regulatory text from CARB's Public Information Office, California Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, First Floor, Sacramento, California, 95814.

FINAL STATEMENT OF REASONS AVAILABILITY

Upon its completion, the Final Statement of Reasons (FSOR) will be available and copies may be requested from the agency contact persons in this notice, or may be accessed on CARB's website listed below.

INTERNET ACCESS

This notice, the ISOR and all subsequent regulatory documents, including the FSOR, when completed, are available on CARB's website for this rulemaking at http://www.arb.ca.gov/regact/2018/leviii2018/leviii2018.htm

CALIFORNIA AIR RESOURCES BOARD

Richard W. Corey
Executive Officer

Date: August 6, 2018

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.arb.ca.gov.

Exhibit D

Declaration of Michael McCarthy
Chief Technology Officer, ECARS
California Air Resources Board

DECLARATION OF MICHAEL MCCARTHY

I, Michael McCarthy, declare as follows:

1. My name is Michael McCarthy and I am Chief Technology Officer of the Emission Compliance, Automotive Regulations, and Science (ECARS) Division of the California Air Resources Board (CARB). I make this declaration based upon my knowledge and expertise of the matters within, and upon my review of the relevant documents discussed below.

2. My resume is attached to this declaration. I have a degree in Mechanical Engineering from UCLA. I have worked at CARB since 1992, when I began work as an Air Resources Engineer. In that role I focused on technical feasibility demonstrations of prototype emission controls for the low emission vehicle (LEV) I programs and the on-board diagnostics (OBD) program, created and led the OBD enforcement testing program, and was lead staff on OBD regulation. From 2000 to 2013, I was a supervisor, managing all aspects of light- and heavy-duty vehicle OBD requirements including regulation development, certification, and enforcement. I was also a technical advisor on other light-duty vehicle emission control programs including LEV II and LEV III emission standards for criteria pollutants and greenhouse gases.

3. Since 2013, I have been in my current role. In that role, I led CARB's midterm review of the current light-duty vehicle regulations, including the greenhouse gas regulations that CARB and the United States Environmental Protection Agency (EPA) jointly administer. I am also leading the development of future light-duty vehicle emission standards including tailpipe criteria pollutant, evaporative emission, and greenhouse gas standards.

4. I have been a member of several Society of Automotive Engineers (SAE) International Standards and International Standards Organization (ISO) Committees based on my expertise, and received the 2006 Henry Souther Standards Award from SAE International. I have also received a Gold Superior Accomplishment Award and a Sustained Superior Accomplishment Award from CARB, and a Professional Engineers in California Government (PECG) recognition award in 2016 for participation in the VW diesel enforcement case.

5. I have drawn upon this expertise in leading CARB's efforts to design and review light-duty vehicle standards. I led CARB's participation in the Mid-Term Evaluation of the model year (MY) 2022-2025 standards that culminated with a final determination in January 2017 (2017 Determination) that the standards remain both technologically and financially feasibly and otherwise appropriate.

6. The Mid-Term Evaluation was expressly created as part of an agreement by EPA, NHTSA, CARB, and auto manufacturers to establish and then to extend a National Program of light-duty vehicle standards. In 2010, EPA, NHTSA and CARB established the National Program, which established federal greenhouse gas emission and harmonized corporate average fuel economy (CAFE) standards for MY 2012-2016 fleets. This program included three major components: (1) EPA issued its first-ever federal vehicle emission standards for greenhouse gases (GHGs); (2) CARB, which had already established vehicle GHG emission standards, agreed to amend its regulations to accept automaker compliance with the federal standards in lieu of compliance with CARB's standards; and (3) NHTSA implemented CAFE standards that were harmonized with the federal emission standards. The National Program was aimed at creating a set of vehicle standards that would achieve the pollution reduction and fuel economy objectives of the Clean Air Act and the CAFE program, as well as those

set by California law, while giving automakers the option of complying with a single, nationwide set of harmonized standards to follow.

7. Then, in 2012, the agencies extended the National Program to MY 2017-2025. *See* 40 C.F.R. § 86.1818-12; *see also* letter from Mary D. Nichols to Ray LaHood and Lisa Jackson, dated July 28, 2011 (true and correct copy attached hereto). As part of the agreement extending the National Program, EPA agreed to conduct an evidence-based review of the appropriateness of the MY 2022-2025 federal standards and, by April 1, 2018, issue its determination as to whether the standards remained appropriate under the Clean Air Act based on a number of specified factors and the record before the agency. In EPA's final regulations establishing the MY 2017-2025 standards and the Mid-Term Evaluation, EPA stated that the Mid-Term Evaluation would be "as robust and comprehensive as that in the original setting of the [model year] 2017-2025 standards." 77 Fed. Reg. 62,624, 62,784 (Oct. 15, 2012).

8. The review was important to CARB, not only because it had agreed to accept compliance with the existing federal standards as compliance with the State standards, but also because CARB has extensive experience in conducting such reviews and knows they are important opportunities to potentially modify the standards, including strengthening the standards in cases where technological progress has been better, and/or costs have been lower, than originally projected. Accordingly, CARB's Governing Board directed CARB's Executive Officer to "participate in EPA's mid-term review of the 2022 through 2025 model year passenger vehicle greenhouse gas standards being proposed under the 2017 through 2025 MY National Program" and indicated that CARB would conduct a complementary review.[1]

[1] CARB Resolution 12-11 (Jan. 2012) at 20, available at: https://arb.ca.gov/regact/2012/cfo2012/res12-11.pdf

9. Similarly, EPA provided in its final regulations that CARB would play an important role in the Mid-Term Evaluation:

> The agencies [EPA and NHTSA] will conduct a comprehensive mid-term evaluation and agency decision-making process for the MYs 2022–2025 standards as described in the proposal. … NHTSA and EPA fully expect to conduct this mid-term evaluation in coordination with the California Air Resources Board, given our interest in maintaining a National Program to address GHG emissions and fuel economy.

77 Fed. Reg. at 62,628. EPA also affirmed that "any adjustments to the standards will be made with the participation of CARB and in a manner that ensures continued harmonization of state and Federal vehicle standards." *Id.* at 62,784. EPA observed in its rulemaking that CARB's Board had committed to participate in this review. *See id.* at 62,630 n. 10; *see also id.* at 62,652 (observing that "[s]everal organizations and associations stressed the importance of involving CARB and broad public participation in the review process" and committing EPA to do so).

10. CARB was to be involved from the start of this process, helping to prepare the extensive technical assessment report on which EPA's determination was to be based. This document was to be at the core of the review. As the final federal rule explains:

> EPA, NHTSA and CARB will jointly prepare a draft Technical Assessment Report (TAR) to inform EPA's determination on the appropriateness of the GHG standards and to inform NHTSA's rulemaking for the CAFE standards for MY 2022–2025. The TAR will examine the same issues and underlying analyses and projections considered in the original rulemaking, including technical and other analyses and projections relevant to each agency's authority to set standards as well as any relevant new issues that may present themselves. There will be an opportunity for public comment on the draft TAR, and appropriate peer review will be performed of underlying analyses in the TAR. The assumptions and modeling underlying the TAR will be available to the public, to the extent consistent with law.

77 Fed. Reg. at 62,784.

11. EPA's own regulation expressly required that its determination of the appropriateness of the MY 2022-2025 standards be based upon the TAR. 40 C.F.R. § 86.1818-12(h)(2).

12. Initially, and for many years, EPA and NHTSA honored their commitment to include, and coordinate with, CARB in the development of the Draft TAR and the mid-term review. Joint work began in approximately December 2012 between CARB, EPA, and NHTSA to coordinate efforts on research and analysis for the Mid-Term Evaluation and continued through the release of the 1,217-page Draft TAR in July 2016.

13. Between December 2012 and the publication of the Draft TAR in July 2016, I and other CARB staff collectively spent thousands of hours on meetings, research and analysis, drafting, and other work directly related to the preparation of the Draft TAR. I participated in bi-weekly, joint "three-agency" meetings between the agencies' technical experts during that 3.5-year period. These meetings evolved to become weekly and even daily meetings as deadlines drew near. During the meetings, EPA, NHTSA and CARB staff shared technical analysis and findings, provided feedback and review of each other's analyses, and discussed consensus positions on specific detailed technical findings. These meetings, which collectively exceeded 100 separate meetings, generally included four or more participants (including subject matter experts) from CARB as well as staff from each of the other agencies. Collectively, approximately 15 to 20 different CARB staff contributed to the Mid-Term Evaluation.

14. As part of CARB's participation in the research and development of the Draft TAR, I attended, by conference call or in person, three-agency meetings with numerous important stakeholders, including every automotive manufacturer subject to the standards (including General Motors, Ford, Fiat Chrysler, Honda, Nissan,

Toyota, Volvo, Volkswagen, Daimler, BMW, Hyundai/Kia and Tesla), major automotive component suppliers, trade associations, and non-governmental organizations such as environmental groups. I also travelled to automotive manufacturers' facilities for meetings, many with representatives of all three agencies, in Michigan, Ohio, Tennessee, California, Germany, Japan, and South Korea, as well as additional meetings held at NHTSA's and EPA's offices. Generally, the meetings involved detailed discussions of current and upcoming technologies and confidential product plans related to what manufacturers would likely need to do to comply with the MY 2022-2025 standards.

15. In July 2016, EPA, NHTSA and CARB jointly issued the Draft TAR. The findings and analysis in the Draft TAR reflect the expert judgment of all three agencies based on the extensive evidence gathered during the previous three-and-a-half years. Each agency was responsible for portions of the research and analysis that went into the Draft TAR. I led the CARB team's role, which included authoring the section on alternative fuel infrastructure (including zero emission vehicle (ZEV) infrastructure) to help assess the status, feasibility, and role for alternative fuel technologies in meeting the GHG standards. CARB also took the lead role in determining the number of ZEVs to include in baseline files for EPA's OMEGA modeling to represent compliance with the ZEV regulation for California and the Section 177 states so that compliance with the separate greenhouse gas emission standards could be accurately modeled as the incremental difference to the fleet given all other existing regulations. For other sections and analysis, I led the CARB team that provided input to data, analysis, and proposed findings or results from the other agencies. I believe the Draft TAR accurately and comprehensively reflects the state of the science and technological progress in the automotive industry, and remains robust today. It conclusively shows, with substantial factual

support, that the existing federal standards for MY 2022-2025 vehicles are achievable and will cost the same or less than was projected in 2012, and that the industry is on track to meet them.

16. Based upon the comprehensive analysis in the Draft TAR that confirmed that multiple technologies are available at lower costs than originally projected to meet the existing standards, that vehicle manufacturers were positioned to be able to continue to utilize such technologies, that manufacturers have multiple compliance pathways available to them, and that consumers have been responsive to these technologies, EPA issued a final determination in January 2017 (2017 Determination) that it was appropriate to maintain the federal standards for MY 2022-2025 at their current levels. I concurred, and I continue to concur with this conclusion. Under the regulations establishing the Mid-Term Evaluation, EPA's 2017 Determination that the federal emission standards for MY 2022-2025 remained appropriate meant that the standards would remain in place. 77 Fed. Reg. 62,784.

17. I also led CARB's work in preparation of a parallel CARB mid-term review report that was released in January 2017 summarizing CARB's analysis of the appropriateness of the greenhouse gas standards as well as a re-evaluation of the feasibility of CARB's 1 milligram per mile particulate matter standard and of CARB's ZEV regulation. The part of this work reviewing the greenhouse gas standards drew heavily on the analysis in the Draft TAR.

18. Based on recommendations my team made to the Board in March 2017, the Board concurred that the current CARB Advanced Clean Car program requirements including the greenhouse gas standards remain appropriate and do not warrant change. Further, given EPA's 2017 Determination concluding that the current EPA greenhouse gas standards were appropriate and did not need to be

changed, the Board directed staff to continue to allow compliance with the EPA greenhouse gas standards at their current level of rigor in lieu of compliance with the CARB standards.

19. Beginning in January 2017, EPA and NHTSA suspended their collaboration with CARB on the Mid-Term Evaluation. EPA and NHTSA terminated the regular recurring meetings between the three agencies and stopped sharing technical analyses and any new findings and information concerning the MY 2022-2025 standards, and also did not include CARB in any joint discussion of comments. Even after the announcement by NHTSA that it was initiating a rulemaking and by EPA that it was reconsidering its determination, these agencies have not engaged CARB in any three-agency meetings to share or discuss any new or updated analysis by any of the agencies or submitted by any of the commenters. NHTSA has not shared any new or additional work since the Draft TAR with CARB. Neither I nor, to my knowledge, any other technical staff at CARB have been invited or had any opportunity to participate in three-agency meetings to update each other on newer work or to discuss any factors or new information that may be relevant to the feasibility of the standards or prior analysis done in the draft TAR. To date, neither I nor, to my knowledge, any other technical staff at CARB have seen any new or updated analysis done by NHTSA to support a decision to reopen EPA's 2017 Determination or to support a future proposed CAFE or GHG rulemaking change. While CARB staff had a few sporadic interactions with EPA after January 2017 concerning the standards, those interactions bore no resemblance to the interactions before that point in time and, as far as I have been able to tell, these were not incorporated into EPA's April 13, 2018 revised final determination (Revised Determination).

20. I have reviewed EPA's Revised Determination withdrawing the 2017 Determination and concluding that the existing MY 2022-2025 standards are not appropriate. EPA purports to base its decision on "more recent information" that it claims "suggests that the current standards may be too stringent" and cites generally to a "significant record that has been developed since the January 2017 Determination." 83 Fed. Reg. 16,077, 16,077-78 (Apr. 13, 2018). EPA further states that it "has also both developed and received additional data and assessments since the January 2017 Determination regarding technology effectiveness and technology costs which warrant additional consideration." *Id.* at 16,078.

21. To my knowledge, and as reflected in the preceding paragraph, EPA never identified this "significant" post-2017 Determination record, including the additional data and assessments EPA alleges it developed, prior to its issuance of the Revised Determination. Had it made this record available for public comment before issuing its Revised Determination, as envisioned by the regulations governing the Mid-Term Evaluation process and as EPA did before issuing its 2017 Determination, CARB and other stakeholders would have been able to review the new portions of the record and provide meaningful responses and information and analyses that would have been directly relevant to EPA in undertaking its reconsideration. Instead, because of EPA's failure to identify the complete record on which it intended to rely in issuing its Revised Determination, CARB was deprived of the opportunity to meaningfully participate in the process that led to the Revised Determination.

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/ / /

22. Furthermore, based on my review of the Revised Determination and my extensive involvement in preparing, and my knowledge of, the Draft TAR, I have concluded that the Revised Determination is not based on the Draft TAR. Although the Revised Determination references the Draft TAR a handful of times, it does not utilize the findings and analysis in the Draft TAR in any substantive or meaningful way. The Revised Determination purports to consider the comments received by EPA on the Draft TAR but, unlike the review and analysis used by EPA to respond to and address those same comments in the November 2016 proposed determination and the 2017 Determination, the Revised Determination does not analyze in a meaningful way or otherwise substantiate why the analyses and conclusions should be different. The Revised Determination does not offer any new evidence or analysis that would justify departing from the conclusions in the Draft TAR.

I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed on August ___, 2018 at El Monte, California.

Michael McCarthy

MICHAEL McCARTHY

Los Angeles, CA · 626-771-3614
michael.mccarthy@arb.ca.gov

EXPERIENCE

10/1992 TO 06/1999

AIR RESOURCES ENGINEER, CALIFORNIA AIR RESOURCES BOARD

Support development of the Low Emission Vehicle tailpipe standards and On-board Diagnostic requirements including: implement and test prototype emission controls, analyze resultant data, technical writing for rulemakings

06/1999 TO 06/2013

AIR RESOURCES SUPERVISOR, CALIFORNIA AIR RESOURCES BOARD

Manager of the Advanced Engineering Section, overseeing the On-board Diagnostics (OBD) program including: regulatory development work, rulemaking adoption, annual vehicle certification, and development of an enforcement program for light-duty vehicle OBD systems and heavy-duty vehicle OBD systems.

06/2013 TO CURRENT

CHIEF TECHNOLOGY OFFICER, CALIFORNIA AIR RESOURCES BOARD

CTO of the ECARS Division, overseeing rulemaking development for current and future light-duty vehicle criteria pollutant standards, greenhouse gas standards, and the Zero Emission Vehicle program including: leading CARB's midterm review of the Advanced Clean Cars regulations and CARB's participation in the joint midterm evaluation of U.S. EPA's national greenhouse gas vehicle standards with U.S. EPA and NHTSA, and developing new standards for model years 2026 and beyond.

EDUCATION

JUNE 1992

B.S. MECHANICAL ENGINEERING, UCLA

Specialty in Digital Designs and Control Systems

OTHER EXPERIENCE/AWARDS

- Past committee member of several SAE International and ISO Standards (J1979, J1962, J1699, J1939, ISO 15765)
- Past member of Federal Advisory Committee Act (FACA) workgroup on Inspection and Maintenance Programs
- Co-organizer, SAE International "OBD Symposium" for 10+ years
- SAE International "Henry Souther Standards Award" Recipient, 2006
- CARB "Award of Excellence", 2007
- Professional Engineers in California Government "Professional Achievement Award", 2016
- Contributor to technical papers on vehicle emission testing and measurement of vehicle emissions

Air Resources Board

Mary D. Nichols, Chairman
1001 I Street • P.O. Box 2815
Sacramento, California 95812 • www.arb.ca.gov

Linda S. Adams
Acting Secretary for Environmental Protection

Edmund G. Brown Jr.
Governor

July 28, 2011

The Honorable Ray LaHood
Secretary
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

The Honorable Lisa Jackson
Administrator
Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Secretary LaHood and Administrator Jackson:

California recognizes the benefit for the country of continuing the historic National Program to address greenhouse gases and fuel economy that the Environmental Protection Agency (EPA), the National Highway Traffic Safety Administration (NHTSA), and California began in 2009 with the standards for model years 2012 through 2016, and that those federal agencies and California are continuing for model years 2017 and beyond.

California fully supports the proposal and adoption of a continued National Program that we understand will be subject to full notice-and-comment rulemaking, affording all parties, including California, the right to participate fully, comment, and submit information, the results of which are not pre-determined but depend upon processes set by law. California welcomes the opportunity to be a partner in helping to advance a continued, harmonized National Program, which California understands does not alter California's longstanding authority under the Clean Air Act to have its own motor vehicle emissions program. California also commits to working with EPA and NHTSA, other states, and other stakeholders to help our country address the need to reduce dependence on oil, to save consumers money, and to address global climate change by continuing this kind of strong, coordinated National Program.

In order to promote the adoption of the continued National Program, California commits to take the following actions, subject to the further understandings described thereafter below. California also stands ready to enter into any appropriate agreements permissible by law to effectuate these commitments.

(1) California commits that if EPA proposes federal GHG standards and NHTSA proposes CAFE standards for model years (MYs) 2017 and beyond substantially as described in the July 2011 Notice of Intent, and the agencies adopt standards substantially as proposed, California will not contest such standards.

(2) California commits to propose to revise its standards on GHG emissions from new motor vehicles for model-years MYs 2017 through 2025, such that compliance with the GHG emissions standards adopted by EPA for those model years that are substantially as described in the July 2011Notice of Intent, even if amended after 2012, shall be deemed compliance with the California GHG emissions standards, in a manner that is applicable to states that adopt and enforce California's GHG standards under Clean Air Act (CAA) Section 177.

(3) California commits to propose that its revised ZEV program for the 2018-2021 MYs include a provision providing that over-compliance with the federal GHG standards in the prior model year may be used to reduce in part a manufacturer's ZEV obligation in the next model year.

California's commitment to take the above actions contemplates that all of the following will occur:

(1) Manufacturers of motor vehicles and other parties affiliated with such manufacturers and/or under their control will use their best efforts to ensure that the trade association(s) to which they belong will not contest the actions discussed in paragraphs (2) and (3) above or in paragraphs (3) through (6) below.

(2) EPA proposes federal GHG standards and NHTSA proposes CAFE standards for MYs 2017 and beyond substantially as described in the July 2011 Notice of Intent, and the agencies adopt standards substantially as proposed.

(3) Manufacturers of motor vehicles and other parties affiliated with such manufacturers and/or under their control, commit that if EPA proposes

national GHG standards and NHTSA proposes CAFE standards for MYs 2017 and beyond substantially as described in the July 2011 Notice of Intent, and the agencies adopt standards substantially as proposed, said parties will not contest or challenge any part of those final rules or support any contest or challenge of those final rules.

(4) California submits its amended GHG emissions standards for motor vehicles for MYs 2017-2025 to EPA requesting a waiver of preemption under Section 209 of the CAA, and EPA grants California's request for MYs 2017-2025.

(5) Manufacturers of motor vehicles and other parties affiliated with such manufacturers and/or under their control commit to not contest or challenge any part of California's emission standards for MYs 2017 through 2025 in any state or federal administrative or judicial forum, including but not limited to preemption claims relating to the Energy Policy Conservation Act (EPCA) or the 2007 Energy Independence and Security Act of 2007, or support any such contest or challenge.

(6) Manufacturers of motor vehicles and other parties affiliated with such manufacturers and/or under their control, do not contest or challenge any part of a final decision by EPA granting California's eventual request for a waiver of preemption under Section 209 of the CAA for model years 2017-2025, or support any such contest or challenge, but this does not apply to subsequent changes made by CARB, including changes resulting from the midterm evaluation.

(7) California will fully participate in the mid-term evaluation, however, California reserves all rights to contest final actions taken or not taken by EPA or NHTSA as part of or in response to the mid-term evaluation.

California believes that the actions discussed in the letter could occur under a timeline as follows:

EPA and NHTSA issue the [July 2011] Notice of Intent.

EPA and NHTSA issue a Notice of Proposed Rulemaking.

California holds a hearing on a proposed rule consistent with the actions described above.

EPA and NHTSA issue a Final Rule.

California issues a Final Rule that revises its regulations.

EPA, NHTSA, and California conduct a mid-term evaluation for the standards for MYs 2022-2025.

Sincerely,

Mary D. Nichols
Chairman

Exhibit E

Declaration of Marc Nielsen

Legislative Director

District of Columbia Department of Energy and Environment

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

STATE OF CALIFORNIA, et al., Petitioners, v. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, et al., Respondents.	Case No. 18-1114 (and consolidated cases 18-1118 and 18-1139)

DECLARATION OF MARC NIELSEN

I, Marc Nielsen, declare and state as follows:

1. I am over the age of eighteen (18) years, competent to testify to the matters contained herein, and testify based on my personal knowledge and information.

2. I am the Legislative Director for the District of Columbia ("District") Department of Energy & Environment ("DOEE"). I have served in this position since August 21, 2016. In this role, I serve as principal advisor to the DOEE Director and staff on matters concerning District and federal environmental legislation and regulations impacting or related to the Department and identify the need for legislative and regulatory reforms to achieve the Department's objectives. I also act as the principal liaison for coordinating requests from the Council of the District of Columbia on all legislative matters affecting DOEE, coordinating legislative communications and interactions between DOEE staff and the Executive Office of the Mayor, and soliciting input from the regulated community and stakeholders on proposed regulations. Pursuant to the Department's mission, I identify the need for legislative and

regulatory reforms to achieve the Department's objectives. Previously, I served as an Assistant Attorney General in the District of Columbia Office of the Attorney General, assigned to DOEE's Office of the General Counsel, providing legal guidance and representation for DOEE's Environmental Services Administration, Natural Resources Administration, and Operations Services Administration.

3. I have a Bachelor of Arts in political science from Brigham Young University and a Juris Doctor from the University of the District of Columbia David A. Clarke School of Law.

4. DOEE's mission is to improve the quality of life for the residents and natural inhabitants of the nation's capital by protecting and restoring the environment, conserving our natural resources, mitigating pollution, increasing access to clean and renewable energy, and educating the public on ways to secure a sustainable future. The agency's core responsibilities include, but are not limited to, enforcing environmental regulations; monitoring and assessing environmental risks; developing energy and environmental policies; issuing permits; and providing residents and local businesses with funding, technical assistance, and information on initiatives designed to ensure a more resilient and sustainable city.

5. I submit this declaration in support of the State Petitioners in the above-captioned proceeding and in opposition to Respondents' and Movant-Intervenors' Motions to Dismiss the Petition. As described below, the District has been and continues to be harmed by the United States Environmental Protection Agency's ("EPA") Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022–2025 Light-Duty Vehicles, 83 Fed. Reg. 16077 (Apr. 13, 2018) ("2018 MTE Determination"). The District has ambitious but achievable greenhouse gas emission ("GHG") reduction goals developed, in part, on the anticipated reductions in GHGs from the existing federal GHG emission standards for model year 2022–2025 light-duty vehicles.

In response to EPA's determination that the current federal greenhouse gas emission standards for model year 2022–2025 light-duty vehicles are not appropriate, the District has determined that it is necessary to adopt California's emission standards in order to meet its GHG reduction goals. This requires staff time and resources to develop, implement, and enforce new clean air regulations. As explained below, given the statutory two-year lead time required for the District to adopt California's standards, the District must take action now and cannot wait to see the ultimate revisions to the federal standards.[1]

The District Is Harmed by Climate Change and So Has Committed to GHG Reduction Goals

6. As a densely populated area located at the confluence of two tidal rivers, the District is particularly vulnerable to the effects of climate change caused in large part by GHG emissions, including dangerous heat waves, flooding caused by rising tides and heavy rains, and severe weather. The District is already experiencing a changed climate. In 2012, the District had a record-breaking heatwave during which temperatures soared above 95°F for eleven straight days.[2] Water levels along the Potomac and Anacostia Rivers have increased 11 inches in the past 90 years due to a combination of sea level rise and subsidence. As a result, nuisance flooding in riverfront areas has already increased by more than 300% according to the National Oceanic and Atmospheric Administration.[3] The District is projected to experience even worse effects, especially without action to substantially reduce GHG emissions. By 2080, the U.S. Army Corps of Engineers conservatively predicts up to 3.4 feet of additional sea level rise in the

[1] *See* 42 U.S.C. § 7507(2) (Clean Air Act, § 177).
[2] Climate Ready DC at 2, https://doee.dc.gov/sites/default/files/dc/sites/ddoe/service_content/attachments/CRDC-Report-FINAL-Web.pdf ["Climate Ready DC"].
[3] *Id.* at 3.

District.[4] Heat emergencies are projected to increase from 30 days per year (historic average) to 30-45 days by the 2050s, and to 40-75 days by the 2080s.[5] Historically, the average summer high temperature in the District was 87°F – by the 2080's, the average temperature is projected to increase significantly to between 93°F and 97°F.[6] Whether the District experiences the lower or higher end of these projections depends in part on how steeply GHG emissions fall. The combined impact of rising tides and heavier rains pose significant threats to the District's infrastructure, community resources, cultural assets, natural resources, government and military facilities, visitors and residents.

7. In response to the threats facing the residents of, and visitors to, the District, the District adopted two key GHG reduction goals. First, the District committed to reducing carbon emissions 50 percent below 2006 levels by 2032 and 100 percent by 2050, as established in the District's 2013 Sustainable DC plan.[7] Second, the District committed to proportionally upholding the commitment made by the United States in the Paris Agreement to reduce greenhouse gas emissions between 26 and 28 percent from 2005 levels by 2025.[8]

8. The District established plans to meet these goals and address climate change. The District's Clean Energy DC plan lays out how the District can meet the goal of reducing GHG emissions by 50% below 2006 levels by 2032, putting the District on the path to meet all

[4] *Id.*
[5] *Id.* at 2.
[6] *Id.*
[7] Sustainable DC, at 7, http://www.sustainabledc.org/wp-content/uploads/2017/02/Web-Ready-File-2.6.17.pdf; Press Release: Mayor Bowser Commits to Make Washington, DC Carbon-Neutral and Climate Resilient by 2050, *available at* https://doee.dc.gov/release/mayor-bowser-commits-make-washington-dc-carbon-neutral-and-climate-resilient-2050.
[8] *Id.*

of its GHG reduction goals.[9] The District's 2016 Climate Ready DC plan is its plan to adapt to a changing climate. These plans are ambitious but achievable, especially with support from the federal government, and if parallel actions are taken by neighboring states.

The District's Need to Adopt California's Light-Duty Vehicle GHG Standards

9. Addressing vehicle emissions is an important component of the District's plan to meet its GHG reduction goals and to improve local air quality. Approximately 21% of the District's annual GHG emissions come from vehicles.[10] Vehicle emissions contribute to poor air quality in the District, putting residents at higher risk for asthma and other respiratory illnesses. In 2008, the Council of the District of Columbia passed the Clean Cars Act of 2008, which found that the adoption of California vehicle emissions standards would improve District air quality and help to address global warming. The Act required the Mayor to establish and maintain a low emissions vehicle program by adopting California vehicle emissions standards and compliance requirements applicable to model year 2011 and thereafter, as is authorized by § 177 of the Clean Air Act.[11]

10. Promulgating regulations to implement the California emissions standards would take significant staff time and resources, diverting staff from other competing, and often urgent, priorities. With the proposal of a new national program of vehicle standards in 2009, and establishment by EPA and the National Highway Traffic Administration ("NHTSA") of the

[9] *See* Clean Energy DC (Aug. 2018) at v, *available at* https://doee.dc.gov/cleanenergydc ["Clean Energy DC"]. The Draft Clean Energy DC Plan was issued in 2016 and is *available at* https://doee.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/Clean_Energy_DC_2016_final_print_single_pages_102616_print.pdf.

[10] Clean Energy DC at 191 (citing the 2011 District of Columbia GHG Inventory, http://doee.DC.gov/sites/default/files/dc/sites/ddoe/publication/attachments/GHGinventory-1205-.pdf).

[11] D.C. Official Code §§ 50-731, 50-732.

national program for GHG emissions and fuel economy standards in 2010, DOEE was able to rely on the federal vehicle GHG emission standards and achieve comparable emission reductions without the need to use staff time to promulgate regulations adopting the California standards. Clean Energy DC projected that the current federal standards will reduce the District's GHG emissions by 7.1% by 2032 (relative to the District's 2006 baseline for reducing GHG emissions).[12]

11. Accordingly, the District was alarmed when EPA re-opened the 2017 MTE and reversed its prior conclusion that the 2022-2025 fuel efficiency standards were appropriate and would reduce GHG emissions significantly. At the same time, EPA announced plans to issue draft regulations to roll-back the 2022-2025 national vehicle emissions and fuel economy standards. In response, on May 2, 2018, Mayor Bowser issued Mayor's Order 2018-044 to implement the Clean Cars Act. DOEE is currently drafting regulations to adopt the California vehicle emissions standards and compliance requirements, which would be applicable to model year 2022 and after.

12. I understand that Respondents argue that the States are not harmed by the 2018 MTE Determination because the same emission standards remain in place until a new final rule is issued and the content of any future final rule is undetermined until then. I also understand that Respondents and Movant-Intervenors argue that the States do not face hardship from the MTE 2018 Determination for the same reason. This is untrue. The 2018 Determination has required the District to focus staff time and resources to respond to this unexpected development in order to promulgate the regulations needed to maintain the District's planned levels of GHG reductions, staff time and resources that would otherwise be focused on other, urgent priorities.

[12] Clean Energy DC at xiv.

Increased staff time and resources will be needed in the future to implement and enforce these regulations.

13. The District cannot wait to see the content of EPA's final regulations to take these actions because by then it may be too late to adopt California standards for model year 2022 and to establish a working registration and enforcement program. In particular, Clean Air Act, § 177 requires that a state wishing to adopt California's standards "adopt such standards at least two years before commencement of such model year." 42 U.S.C. § 7507(2). Because MY 2022 vehicles will go on sale in calendar year 2021, and the annual production period may commence as early as January 2, 2019, the District must begin taking the steps required to adopt California's standards now in order to ensure that it can meet the two-year lead time requirement to apply California's standards to MY 2022 vehicles. Moreover, given the time it takes for vehicles to turnover, any delay in adopting these standards will delay the District's efforts to reduce GHG emissions and make it more difficult to achieve its goals.

Conclusion

14. For these reasons, the District has been harmed by, and faces hardship from, the 2018 MTE Determination.

I declare under penalty of perjury that the foregoing is true and correct and of my own personal knowledge.

Executed on August 28, 2018, in Washington, District of Columbia.

Marc A. Nielsen
Legislative Director
District of Columbia Department of Energy and Environment

Exhibit F

Declaration of Bruce Carlisle

Director, Office of Coastal Zone

Massachusetts Executive Office of Energy and Environmental Affairs

ORAL ARGUMENT NOT YET SCHEDULED

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

STATE OF CALIFORNIA, *et al.*, Petitioners, v. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, *et al.*, Respondents.	No. 18-1114 (and consolidated cases 18-1118, 18-1139, and 18-1162)

DECLARATION OF BRUCE CARLISLE

I, Bruce Carlisle, declare as follows:

1. I am currently employed by the Massachusetts Executive Office of Energy and Environmental Affairs (EEA) as Director of the Office of Coastal Zone Management (CZM). CZM is the lead policy and planning agency on coastal and ocean issues in Massachusetts. I have held this position for seven years. I have been employed by CZM since 1994, having held positions with increasing responsibility. I previously held the position of Assistant Director for six years.

2. I have extensive professional knowledge and experience regarding the impacts of climate change on coastal resources and communities in Massachusetts,

as well as Massachusetts' efforts to plan and prepare for such impacts. My job duties include providing oversight and administration for CZM and directing policy development, planning efforts, and technical approaches for CZM program areas. I supervise a team of 35 multidisciplinary professionals working in a range of program areas, including climate change adaptation, coastal resilience, and shoreline and floodplain management, collectively administered as CZM's StormSmart Coasts Program. Most of the staff I oversee have many years of professional experience in coastal and environmental management, planning, science, policy, or other related fields. I routinely collaborate, engage, and partner with scientific and technical subject matter experts in federal agencies and academia. As part of my management responsibilities, I oversee CZM's work to provide information, strategies, tools, and financial resources to support communities and people working and living on the Massachusetts coast to address the challenges of erosion, flooding, storms, sea level rise, and other climate-change-related impacts. For instance, I am responsible for directing and overseeing all sea level rise assessment and data compilation projects undertaken by CZM, including the development of Massachusetts-specific sea level rise projections, maps, guidance documents and summaries, and other decision-support tools and services. I am also responsible for directing and overseeing CZM's work to provide policy and planning support and technical assistance to other state

agencies, local communities, and private entities regarding adapting and increasing resilience to current and future impacts of climate change on our coast. For example, I oversee CZM's StormSmart Coasts Program that offers competitive grants, hands-on technical and planning assistance, and decision-support tools to Massachusetts cities and towns for the purposes of planning for and adapting to sea level rise and other climate-change-related coastal hazards.

3. In my role with CZM, I have chaired and participated in various legislative and executive branch official groups, including the Massachusetts Coastal Erosion Commission, the Massachusetts Ocean Advisory Commission, the Coastal Zone and Ocean Subcommittee of the Massachusetts Climate Change Adaptation Advisory Committee, and was lead author for the formal reports of these bodies. I also represent the Commonwealth of Massachusetts (Commonwealth) on several multi-state organizations, including the Coastal States Organization, Northeast Regional Ocean Council, Gulf of Maine Council on the Marine Environment, and Northeast Regional Ocean Planning Body. I have testified before the United States Senate Committee on Commerce, Science, and Transportation on climate change issues in the coastal zone, focusing on priority modeling and information needs, and I have provided congressional and state legislative briefings on managing climate change impacts for coastal communities and economies.

4. I have a Bachelor's degree and a Master's degree in Environmental Policy from Tufts University.

5. I am aware of and familiar with the science related to global climate change. My knowledge comes from my review of scientific peer-reviewed literature and consensus assessment reports, attendance at professional conferences and workshops, and professional exposure to other research and material. As a result of my professional experience and my knowledge of the peer-reviewed literature and reports, as well as my knowledge of the Massachusetts coastal resources and policies and planning related thereto, I can attest to the following.

6. The purposes of this declaration are to: (i) briefly describe the serious harms that climate change, caused in part by motor vehicle emissions, is causing and will continue to cause to Massachusetts' coastal resources, infrastructure, and communities; and (ii) briefly summarize existing state and local initiatives, programs, and plans to respond to and prepare for such impacts. I am submitting this declaration in support of the Opposition by the State Petitioners to Respondents' and Movant-Intervenors' Motions to Dismiss (*State of California, et al. v. U.S. Environmental Protection Agency, et al.*, United States Court of Appeals for the District of Columbia Circuit, No. 18-1114 (and consolidated cases)), and in support of Petitioners' standing to seek review of the U.S. Environmental Protection Agency's action taken in its Mid-Term Evaluation of Greenhouse Gas

Emissions Standards for Model Year 2022–2025 Light-Duty Vehicles, 83 Fed. Reg. 16,077 (April 13, 2018).

7. I have reviewed the declaration of Christine Kirby, Assistant Commissioner in charge of the Bureau of Air and Waste and the Director of Air and Climate Programs for the Massachusetts Department of Environmental Protection (MassDEP) (Kirby Decl.), which is being filed concurrently with this Declaration. To avoid duplication, I adopt and incorporate herein by reference the portions of Ms. Kirby's declaration concerning Massachusetts' Global Warming Solutions Act (GWSA), MassDEP's role in implementing the GWSA and facilitating Massachusetts' compliance with emission-reduction mandates, the critical need to reduce emissions from the transportation sector for Massachusetts to meet its emission-reduction mandates, and MassDEP's upcoming rulemaking to ensure that its vehicle emission standards continue to reduce greenhouse gas (GHG) emissions as expected from 2022 and subsequent model year vehicles. Kirby Decl. ¶¶ 7–32.

Climate Change Threatens Massachusetts' Coastal Resources and Communities

8. The accelerated rate of global sea level rise and the severity and timing of coastal impacts due to this rise in sea level are largely dependent on current and future global GHG emissions and reduction measures. Continued increases in GHG emissions, including from motor vehicles, will result in increases

in global temperature, yielding additional contributions to global sea level rise (*i.e.*, increased contributions from thermal expansion of warmer waters and melting of land-based ice sheets).[1]

9. Human-caused climate change has led to a rise in global mean sea levels of 7 to 8 inches since 1900, and a rate of rise greater than any preceding century in the last 2,800 years.[2] Global average sea levels will continue to rise by 1 to 4 feet by 2100, and emerging science regarding Antarctic ice sheet stability indicates sea level rise of as much as 8 feet by 2100 cannot be ruled out.[3] Due to the relationship of the East Coast to the Gulf Stream and melting Antarctic ice sheets, sea level rise will be higher than the global average on the East and Gulf Coasts of the United States.[4]

10. A March 2018 report entitled *Massachusetts Climate Change Projections* (2018 Projections Report), developed by a team of scientists from the U.S. Department of the Interior's Northeast Climate Adaptation Science Center at the University of Massachusetts Amherst, summarizes and presents the best available, peer-reviewed science on climate change downscaled, or localized,

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[1] *See generally* U.S GLOBAL CHANGE RESEARCH PROGRAM, CLIMATE SCIENCE SPECIAL REPORT: FOURTH NATIONAL CLIMATE ASSESSMENT, VOLUME I (D.J. Wuebbles et al. eds., 2017), https://science2017.globalchange.gov/.
[2] *Id.* at 10.
[3] *Id.*
[4] *Id.*

projections that show how the climate is likely to change in Massachusetts through the end of this century.[5] The 2018 Projections Report projects significant changes in the climate of Massachusetts as a result of human-caused greenhouse gas emissions.

11. A key component of the 2018 Projections Report is future sea level projections for the state's coastline. The analysis for Massachusetts consisted of a probabilistic assessment of future relative sea level rise at tide gauge stations with long-term records at Boston Harbor, MA, Nantucket, MA, Woods Hole, MA, and Newport, RI.[6] The sea level projections are based on a methodology that provides complete probability distributions for different greenhouse gas emissions scenarios.[7] Working with the principal investigators (Robert DeConto and Robert Kopp), a group from CZM, and a team of external peer reviewers, I participated in the review and synthesis of the downscaled projections, which are made available by the Commonwealth to set forth a standard set of sea level rise projections to be used by municipalities, state government, industry, and the private sector, and

[5] MASSACHUSETTS CLIMATE CHANGE PROJECTIONS (2018), https://nescaum-dataservices-assets.s3.amazonaws.com/resources/production/MA%20Statewide%20and%20MajorBasins%20Climate%20Projections_Guidebook%20Supplement_March2018.pdf.

[6] *See id.* at 11 (citing Robert M. DeConto & Robert E. Kopp, *Massachusetts Sea Level Assessment and Projections*, Technical Memorandum (2017).

[7] *See id.* (citing Robert E. Kopp et al., *Probabilistic 21st and 22nd century sea level projections at a global network of tide gauge sites*, 2 EARTH'S FUTURE 383–406 (2014)).

others to assess vulnerability and identify and prioritize actions to reduce risk. By 2100, Massachusetts is projected to experience between 4.0 and 7.6 feet of sea level rise relative to mean sea level from the year 2000, with up to 10.2 feet possible when accounting for higher ice sheet contributions to sea level rise under a high emissions scenario.

12. Massachusetts has 2,819 miles of tidal coastline, and a coastal zone (defined as areas landward to 100 feet inland of major roads or railways from New Hampshire to Rhode Island) that encompasses 59 square miles. Approximately 4.9 million people or 75% of the Commonwealth's population (as of the 2010 U.S. census) reside in coastal counties. In 2014, the total output of the Massachusetts coastal economy was $249.2 billion, representing over 54% of the state's annual gross domestic product, and coastal counties accounted for 53% of the state's employment and wages.[8] Approximately 170,000 year-round residents are currently (as of the 2010 U.S. census) located within coastal flood hazard areas, as defined by the Federal Emergency Management Agency (FEMA), and are susceptible to 1% annual chance coastal storm flooding under current sea level

[8] NAT'L OCEAN ECONOMICS PROGRAM, STATE OF THE U.S. OCEAN AND COASTAL ECONOMIES: COASTAL STATES SUMMARIES – 2016 UPDATE 29 (2016), http://midatlanticocean.org/wp-content/uploads/2016/03/CoastalStatesSummaryReports_2016.pdf.

conditions.[9] Accelerated sea level rise will lead to more regular flooding of developed and natural coastal areas due to more frequent tidal inundation, and will also exacerbate erosion along beaches, dunes, and coastal banks.

13. In addition, there is very high confidence that sea level rise will increase the frequency and extent of extreme flooding associated with coastal storms, such as hurricanes and nor'easters.[10] Coastal storm events will cause inundation of larger areas, and will occur more frequently, damaging or destroying coastal engineering structures such as seawalls, critical infrastructure such as waste water treatment plants and transportation systems, and private property.

14. More frequent and severe storm surge and inundation will create serious risks for public safety and health, especially where sewer mains and pump stations are impacted. Frequent tidal flooding from sea level rise may also lead to increases in respiratory diseases due to mold from dampness in homes.[11] Saltwater intrusion—or the increased penetration of saltwater into sources of freshwater—from sea level rise will impact water resources (such as drinking

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[9] *See* MARK CROWELL ET AL., ESTIMATING THE UNITED STATES POPULATION AT RISK FROM COASTAL FLOOD-RELATED HAZARDS, in COASTAL HAZARDS , 151, 167 (CHARLES W. FINKL ed., 2013), https://tinyurl.com/yaolf6bk.

[10] *See* U.S GLOBAL CHANCE RESEARCH PROGRAM, *supra*, at 27.

[11] *See generally* CENTERS FOR DISEASE CONTROL & PREVENTION, U.S. DEP'T OF HEALTH & HUMAN SERVS., COASTAL FLOODING, CLIMATE CHANGE, AND YOUR HEALTH: WHAT YOU CAN DO TO PREPARE (2017), https://www.cdc.gov/climateandhealth/pubs/CoastalFloodingClimateChangeandYourHealth-508.pdf.

water) by contaminating freshwater sources with salt water and also through the corrosion of water supply infrastructure.

15. The Massachusetts coastline includes a diverse array of ecosystems including, among others, sandy beaches, rocky shores, barrier beaches, islands, estuaries, and salt marshes. These ecosystems offer immense recreational, cultural, and aesthetic value to the residents of and visitors to the Commonwealth, while also serving important ecological functions. For instance, some natural coastal resources, including barrier beaches, salt marshes, and estuaries, provide valuable resilience services to the Commonwealth by buffering inland coastal communities and the built environment from storm surges and flooding. Salt water will also impact these coastal resources, as saltwater intrusion into estuarine habitats such as salt marshes and freshwater wetlands will alter the composition of the plant species and affect wildlife that depend on these ecosystems.

Massachusetts is Experiencing Economic Impacts from Climate Change and Will Expend Significant Resources to Prepare for the Impacts of Climate Change on Our Coastal Areas.

16. The Commonwealth is already experiencing the impacts of climate change. The relative sea level trend at the Boston tide station is 2.82 millimeters

per year based on monthly mean sea level data from 1921 to 2017, which is equivalent to a change of 0.89 feet in less than 100 years.[12]

17. These impacts are directly harming the welfare of Massachusetts residents and causing significant economic losses. Coastal storms currently result in severe coastal flooding with extensive damage to public infrastructure, private homes and businesses, and a significant demand for emergency services. For example, a recent coastal storm on March 2–3, 2018, which reached the third-highest water level recorded at the Boston Harbor tide gauge, resulted in public damages and expenditures for response and recovery. The Massachusetts Emergency Management Agency determined that these costs exceeded $24 million across six coastal counties. On April 30, 2018, Massachusetts Governor Charles Baker requested a federal disaster declaration, which the Trump Administration approved on June 25, 2018.

18. Rising sea levels will only increase the frequency and duration of these types of coastal events; and the associated magnitude of coastal flooding and damage costs, including costs associated with the increased demand on first responders, will escalate accordingly.

[12] *See* Nat'l Oceanic & Atmospheric Admin., *Relative Sea Level Trend 8443970 Boston, Massachusetts*, TIDES & CURRENTS https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?id=8443970.

19. Sea level rise and other impacts of a changing climate pose major risks to communities in Massachusetts' coastal zone. Looking out to the end of the century, a recent study analyzed the number of coastal homes and commercial properties throughout the United States that will be at risk from chronic, disruptive tidal flooding (*i.e.*, at least 26 floods per year) under future sea level conditions.[13] In Massachusetts, over 89,000 existing homes and 8,000 commercial properties may experience tidal flooding by 2100 under a high-emissions scenario (*i.e.*, 6.6 feet of sea level rise over this century). The current market value of residential buildings at risk is estimated at $63 billion, and homeowners currently contribute over $400 million to the local property tax base.[14]

20. The Massachusetts coast is afforded protection from coastal landforms such as beaches and dunes, and from engineered infrastructure such as revetments and seawalls. These coastal engineered structures will experience greater impacts from flooding and wave energy from the anticipated increase in frequency and intensity of coastal storm events associated with accelerated sea level rise. With these greater impacts will come more frequent need for maintenance of coastal

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[13] *See* UNION OF CONCERNED SCIENTISTS, UNDERWATER: RISING SEAS, CHRONIC FLOODS, AND THE IMPLICATIONS FOR US COASTAL REAL ESTATE (2018), https://www.ucsusa.org/global-warming/global-warming-impacts/sea-level-rise-chronic-floods-and-us-coastal-real-estate-implications#.W3cY0c4zrcs.

[14] *See* Massachusetts-specific data available at: https://www.ucsusa.org/sites/default/files/attach/2018/06/underwater-data-by-state.xlsx.

engineered structures as well as beaches in the form of sediment nourishment at significant cost. For example, the Town of Winthrop needed additional protection from storm surge and flood impacts for a suburban neighborhood with existing engineered shoreline structures and an eroding beach. At a total project cost of over $22 million, 460,000 cubic yards of sand, gravel, and cobble were placed along 4,200 linear feet of shoreline. The community gained approximately 150 feet of beach width at high tide and increased protection against wave energy and coastal storms. Other communities in Massachusetts are currently working to design beach nourishment projects and address erosion and failing coastal engineered structures that will be exacerbated by sea level rise and increased flooding from coastal storms.

21. Coastal engineered structures have been built on over a quarter of the Commonwealth's ocean-facing shoreline to protect public and private infrastructure and assets from flooding and erosion. The Commonwealth and its municipalities own approximately 92 miles of seawalls and revetments along the coastline. As a result of wave forces on the coastal structures and lowered beach elevations, the Commonwealth and local governments routinely invest millions of dollars to repair and reinforce these structures so they can adequately protect coastal communities. For example, a seawall reconstruction project was recently completed in the Town of Marshfield to address public safety issues. The

Commonwealth provided a $1.85 million grant to the town, which was matched with roughly $620,000 in local funds. The 600-foot section of seawall sustained damages during a coastal storm in January 2015, and the state-funded project increased the height of the seawall by two to three feet to better protect a public road, utilities, and homes. The Town of Marshfield has 32 additional coastal engineered structures totaling 3.2 miles of shoreline (18,625 feet) that have been identified as needing repairs and retrofits to address the current and future threats of coastal storms. With higher flood levels and greater storm surges, significantly more investments will be required to achieve the current flood-design protections afforded by these engineered structures across the coast.

22. The Commonwealth owns a substantial portion of the state's coastal property. The Commonwealth owns, operates, and maintains approximately 177 coastal state parks, beaches, reservations, and wildlife refuges located within the Massachusetts coastal zone. The Commonwealth also owns, operates, and maintains numerous properties, facilities, and infrastructure in the coastal zone, including roads, parkways, piers, and dams. Rising sea levels along the Massachusetts coast will result in either the permanent or temporary loss of the Commonwealth's coastal property through inundation, storm surge, flooding, and erosion events. These projected losses of coastal property will likely destroy or damage many of the state-owned facilities and infrastructure described above. The

Commonwealth likely will be required to expend significant resources to protect, repair, or rebuild the affected properties, facilities, and infrastructure. According to the Commonwealth's 2013 *State Hazard Mitigation Plan*,[15] the replacement cost of state-owned buildings exposed to FEMA's 1% annual chance flood event in coastal counties exceeds $1.6 billion.

23. The Massachusetts coastal zone is home to several major ports including the Port of Boston and New Bedford/Fairhaven Harbor. Recent economic studies indicate the income generated from the Massachusetts maritime economy supports 2.6% of the state's direct employment and 1.3% of gross domestic product.[16] In 2015, New Bedford/Fairhaven Harbor alone generated $3.2 billion in direct business revenue from seafood processing and fleet operation businesses.[17] By nature of their purpose, the state's ports and harbors are generally low-lying, coastal-dependent areas of high density-built environment and are susceptible to service interruption and associated revenue loss when flooded or

[15] Available at: https://www.mass.gov/files/documents/2017/01/mp/massachusetts-state-hazard-mitigation-plan.pdf.

[16] *See* DAVID R. BORGES ET AL., UMASS DARTMOUTH PUBLIC POLICY CTR., NAVIGATING THE GLOBAL ECONOMY: A COMPREHENSIVE ANALYSIS OF THE MASSACHUSETTS MARITIME ECONOMY 11 (2018), https://www.mass.gov/files/documents/2018/01/24/Maritime_Economy.pdf.

[17] MARTIN ASSOCIATES & APEX COMPANIES, LLC, ECONOMIC IMPACT STUDY OF NEW BEDFORD/FAIRHAVEN HARBOR 5 (2016), http://www.portofnewbedford.org/New%20Bedford%20Economic%20Impact%20Assessment%20September%202016.pdf.

otherwise impacted by coastal events. Additionally, coastal dependent businesses, maritime schools, and public facilities and departments will face disruptions in service in post-storm conditions.

24. The Commonwealth is committed to protecting public safety, human health, the environment, and public resources through programs and policies that address sea level rise and other climate-change-related coastal hazards. EEA and CZM provide information, strategies, and tools to help other state agencies and communities plan for and address the challenges of erosion, flooding, storms, sea level rise, and other climate change impacts.

25. Of more than $29 million requested over the past 5 years alone, CZM has awarded $14.4 million in state-funded grants to local communities to support sea level rise adaptation planning and implementation through the Coastal Resilience Grant Program. Local governments have matched these state funds with roughly $7.5 million in local funds and in-kind services for coastal resilience. In 2017–2018, EEA also awarded roughly $8.5 million in municipal grants for climate vulnerability planning and implementation statewide through the Municipal Vulnerability Preparedness (MVP) Program. Local governments have matched MVP grants with over $2 million in local funds and staff time. These grant programs are extremely competitive. The total amount of funding requested

in 2018 for these programs was $5.4 million (from CZM) and $7.4 million (from EEA). There is a growing need at the local level for support.

26. Municipalities, private entities, and other partners have begun to support planning to address the impacts of sea level rise and other climate change impacts in Massachusetts and fund implementation of adaptation measures. Adaptation planning efforts include vulnerability assessments to determine areas and infrastructure susceptible to coastal impacts, prioritization of vulnerable assets and areas, and development of adaptation alternatives to mitigate climate risks in the near and long term. One example is the City of Boston's "Climate Ready Boston" initiative, which is developing district-level adaptation plans to address near-term coastal flooding and establish a framework for the funding and implementation of long-term, broader scale solutions. For the East Boston and Charlestown districts, the City of Boston identified near-term (2030–2050) and long-term (2050–2070) actions for addressing the future flood risks created by sea level rise; work is underway on similar studies for South Boston and Downtown Boston. The City of Boston's report estimates the costs for these actions range from $202 million to $342 million for these two districts alone.[18] Another example

[18] *See* COASTAL RESILIENCE SOLUTIONS FOR EAST BOSTON AND CHARLESTOWN: FINAL REPORT (2017), https://www.boston.gov/sites/default/files/climatereadyeastbostoncharlestown_finalreport_web.pdf.

of planning for the impacts of coastal climate change is the *Great Marsh Coastal Adaptation Plan* led by the National Wildlife Federation in partnership with the Ipswich River Watershed Association.[19] The plan assesses climate impacts and vulnerability for the Great Marsh region and each of its six communities (Salisbury, Newburyport, Newbury, Rowley, Ipswich, and Essex), examining the risk and exposure of critical infrastructure and natural resources, and identifies areas of special concern. The plan states that in Newburyport, estimated one-time damages to buildings and structures (not contents) from a 1% annual exceedance probability storm (also known as the 100-year storm) under 1.09 feet of sea level rise would be $18.3 million and under 3.45 feet of sea level rise the damages would increase to $32.4 million.[20]

27. In conclusion, any increase in the rate of sea level rise and the frequency, magnitude, and severity of coastal flooding, erosion, and storms related to increased GHG emissions, including from motor vehicle emissions, will impact the Commonwealth and its residents and will require the Commonwealth to expend additional resources and incur additional costs.

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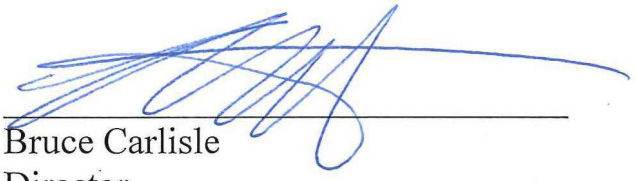
[19] *See* TAJ SCHOTTLAND ET AL., GREAT MARSH COASTAL ADAPTATION PLAN (2017), https://www.nwf.org/-/media/Documents/PDFs/NWF-Reports/NWF-Report_Great-Marsh-Coastal-Adaptation-Plan_2017.ashx.

[20] *Id.* at 49, tbl. 3.3-3.

I declare under penalty of perjury that the foregoing is true and correct.

Executed in Boston, Massachusetts on August 29, 2018.



Bruce Carlisle
Director
Massachusetts Office of Coastal Zone Management

Exhibit G

Declaration of Christine Kirby

Ass't Commissioner, Bureau of Air and Waste

Director, Air and Climate Programs

Massachusetts Department of Environmental Protection

ORAL ARGUMENT NOT YET SCHEDULED

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

STATE OF CALIFORNIA, *et al.*, Petitioners, v. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, *et al.*, Respondents.	No. 18-1114 (and consolidated cases 18-1118, 18-1139, and 18-1162)

DECLARATION OF CHRISTINE KIRBY

I, Christine Kirby, declare as follows:

1. I am currently employed by the Massachusetts Department of Environmental Protection (MassDEP) as both the Assistant Commissioner in charge of the Bureau of Air and Waste and the Director of Air and Climate Programs. I have held the former position for 1.5 years and the latter for 5.5 years. I have been employed by MassDEP since 1985, having previously held the positions of Deputy Division Director of the Mobile Source Section for 8 years, and Branch Chief for Transportation Programs for 7 years.

2. My job duties include overseeing the promulgation and implementation of MassDEP regulations that establish emission standards and other emission-related requirements applicable to on-road mobile sources. I have managed the Massachusetts Low Emission Vehicle (LEV) program since 1997 in my various capacities as Branch Chief, Deputy Director, Director, and Assistant Commissioner. As part of my management responsibilities, I have been involved in numerous revisions to keep the LEV program up-to-date with the California standards in order to ensure that Massachusetts meets its air-quality obligations and greenhouse gas-reduction goals. I have also been the Massachusetts point of contact with the California Air Resources Board (CARB) on development and implementation of the California standards.

3. I am currently the chair of the Mobile Source Committee of the Ozone Transport Commission, which is a multi-state organization created under the Clean Air Act and is responsible for advising the United States Environmental Protection Agency (EPA) on transportation issues and for developing and implementing regional solutions to the ground-level ozone problem in the Northeast and Mid-Atlantic regions. I also serve on the Board of Directors of the Northeast States for Coordinated Air Use Management (NESCAUM), an association of the air quality agencies in eight Northeast states that provides scientific, technical, analytical, and policy support to the air quality programs of those agencies, especially regarding

implementation of national environmental programs required under the Clean Air Act and other federal legislation.

4. I have a Bachelor of Arts degree from Clark University.

5. This declaration refers to an action of Respondents EPA, the "Mid-Term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light-Duty Vehicles," 83 Fed. Reg. 16,077 (Apr. 13, 2018) (Revised Final Determination). I am personally familiar with the Revised Final Determination.

6. I am submitting this declaration in support of State Petitioners' Opposition to Respondents' and Movant-Intervenors' Motions to Dismiss in *State of California, et al. v. U.S. Environmental Protection Agency, et al.*, United States Court of Appeals for the District of Columbia Circuit, No. 18-1114 (and consolidated cases), and in support of State Petitioners' standing to seek review of the Revised Final Determination.

Massachusetts is Legally Obligated to Reduce Economywide Greenhouse Gas Emissions

7. The Commonwealth of Massachusetts (Commonwealth) is committed to protecting public health and the environment through programs and policies that address air pollution and climate change.

8. Massachusetts state law imposes legally binding requirements on the Commonwealth to reduce emissions of climate-warming greenhouse gases from

sources across the economy. *See Kain v. Mass. Dep't Envtl. Prot.*, 474 Mass. 278, 287–88 (2016). The Global Warming Solutions Act of 2008 (GWSA) mandates that the Commonwealth reduce statewide greenhouse gas emissions at least 80% below the 1990 emissions level by 2050 and meet interim emissions-reduction limits. MASS. GEN. LAWS ch. 21N, §§ 3(b) & 4(a). Specifically, the GWSA required the Commonwealth's Secretary of Energy and Environmental Affairs (Secretary) to adopt a 2020 statewide greenhouse gas emissions limit between 10% and 25% below the 1990 emissions level. *Id.* § 4(a).

9. In 2010, the Secretary established the emissions limit for 2020 to be 25% below the 1990 emissions level.[1]

10. The GWSA also directs the Secretary to develop implementation plans for obtaining sufficient emissions reductions to meet the 2020, 2030, 2040, and 2050 emissions limits, and to update the Commonwealth's implementation plans at least once every 5 years. MASS. GEN. LAWS ch. 21N, §§ 3(b), 4(h).

11. In 2010, the Secretary published the first GWSA implementation plan, entitled the "Massachusetts Clean Energy and Climate Plan for 2020," which included a menu of policies to reduce greenhouse gas emissions from all significant emitting sectors, including transportation. As required by the GWSA,

[1] *See* Ian A. Bowles, *Determination of Greenhouse Gas Emission Limit for 2020* (Dec. 28, 2010), https://tinyurl.com/y8uaromz.

the Secretary updated the "Massachusetts Clean Energy and Climate Plan for 2020" in 2015. The "2015 update to the Massachusetts Clean Energy and Climate Plan for 2020" (MA Climate Plan) supersedes the 2010 plan and describes policies that Massachusetts relies on to achieve its legally binding 2020 emissions-reduction requirement. MASS. EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS, 2015 UPDATE: MASSACHUSETTS CLEAN ENERGY AND CLIMATE PLAN FOR 2020 (Dec. 31, 2015) [MA Climate Plan]. The policies set forth in the MA Climate Plan represent the Commonwealth's comprehensive strategy to address greenhouse gas emissions from emissions sources across the economy. Although the MA Climate Plan focuses on achieving the Commonwealth's near-term emissions-reduction requirement for 2020, the MA Climate Plan also looks ahead to the 2050 emission-reduction requirement and describes policies and plans that will help achieve this long-term limit, as well as to-be-determined interim limits for 2030 and 2040.

12. The GWSA also requires the Secretary to convene an advisory committee to advise the Commonwealth on matters related to implementation of the GWSA, including strategies to achieve emissions-reduction targets. MASS. GEN. LAWS ch. 21N, § 8. The required advisory committee, known as the GWSA Implementation Advisory Committee, has begun advising the Commonwealth on

development of the forthcoming "Massachusetts Clean Energy and Climate Plan for 2030."[2]

13. By Executive Order, Massachusetts Governor Charles Baker directed the Secretary to consult with the GWSA Implementation Advisory Committee regarding emissions limits for 2030 and 2040, as well as strategies to reduce emissions from the transportation sector.[3] This Executive Order further requires the Secretary to develop and publish every five years a comprehensive energy plan, which shall include strategies to meet the Commonwealth's energy demands for the transportation sector.[4]

14. By separate Executive Order, Governor Baker established the Commission on the Future of Transportation in the Commonwealth to advise the Governor on how to ensure that transportation planning, forecasting, operations, and investments for 2020 through 2040 can best account for likely demographic,

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[2] *See, e.g.*, Mass. Executive Office of Energy & Environmental Affairs, Meeting Slidedeck for GWSA IAC Meeting (Feb. 15, 2018), https://www.mass.gov/event/february-15-2018-meeting-of-the-gwsa-implementation-advisory-committee-iac-2018-02-15t143000.

[3] *See* Exec. Order No. 569, § 1.1 (Mass. 2016) https://www.mass.gov/executive-orders/no-569-establishing-an-integrated-climate-change-strategy-for-the-commonwealth.

[4] *Id.*, §§ 1.3, 1.5.

technological, climate, and other changes in future mobility and transportation behaviors, needs, and options.[5]

15. MassDEP plays a critical role in implementing the GWSA and facilitating the Commonwealth's compliance with emissions-reduction requirements. For instance, MassDEP monitors state-level emissions trends, collects data on emissions from various sources, and records and reports annual statewide and sector-specific emissions through the Commonwealth's Greenhouse Gas Emissions Inventory. MassDEP is also responsible for implementing numerous policies and programs included in the MA Climate Plan. The Commonwealth's highest court, the Massachusetts Supreme Judicial Court, has recognized that MassDEP shoulders a crucial responsibility in state-wide emissions-reductions efforts. Section 3(d) of the GWSA requires MassDEP to promulgate regulations that address multiple sources or categories of sources of greenhouse gas emissions, impose a limit on emissions that may be released from such sources, limit the aggregate emissions released from each group of regulated sources or categories of sources, set emission limits for each year, and set limits that decline on an annual basis. *See Kain*, 474 Mass. at 292. MassDEP has promulgated two regulations that impose declining limits on the transportation

[5] *See* Exec. Order No. 579, § 1 (Mass. 2018), https://www.mass.gov/executive-orders/no-579-establishing-the-commission-on-the-future-of-transportation-in-the.

sector. *See* 310 MASS. CODE REGS. 60.05 ("GWSA Requirements for Transportation"); *id.* 60.06 ("CO_2 Emission Limits for State Fleet Passenger Vehicles").

Reductions in Transportation-Sector Emissions Are Critical to Achieving Massachusetts' Required Greenhouse Gas-Emissions Reductions

16. Significant reductions in transportation-sector greenhouse gas emissions are critical to achieving Massachusetts' emission-reduction requirements for 2020 and beyond. The transportation sector is the single largest source of greenhouse gas emissions in the Commonwealth, accounting for 38.9% of Massachusetts' statewide emissions in 2015.[6] Motor vehicles, including light-duty cars and trucks, are a leading source of emissions in the transportation sector. If Massachusetts' transportation-sector emissions were to remain, through 2050, at the 2015 level of 29.7 million metric tons of carbon dioxide equivalent ($MMTCO_2e$), or even at the lower end of the projected range of 2020 levels—29 MMTCO2e, Massachusetts would not be able to meet its required 2050 emissions limit of 18.9 $MMTCO_2e$ (which is equivalent to 80% below the 1990 emissions

[6] *See* MASS. DEP'T ENVTL. PROT., STATEWIDE GREENHOUSE GAS (GHG) EMISSIONS BASELINE & PROJECTION UPDATE, APPENDIX C: MASSACHUSETTS ANNUAL GREENHOUSE GAS EMISSIONS INVENTORY: 1990–2015, WITH PARTIAL 2016 AND 2017 DATA (2018), https://www.mass.gov/doc/appendix-c-massachusetts-annual-greenhouse-gas-emissions-inventory-1990-2015-with-partial-2016/download.
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level). *See* MA Climate Plan, *supra*, at 13, tbl. 3 (projecting 2020 emissions). Even if emissions from all other sectors of the economy were eliminated, emissions from the transportation sector alone would exceed Massachusetts' economy-wide 2050 emissions limit if they did not decline after 2020.

Greenhouse Gas Emissions Standards for Motor Vehicles Are Key to Massachusetts' Compliance with Mandated Emissions Reductions

17. I have reviewed the Declaration of Joshua M. Cunningham, Chief of the Advanced Clean Cars Branch of CARB, submitted in support of the State Petitioners' Opposition to the Motion to Dismiss (Cunningham Decl.). I adopt and incorporate herein by reference the portions of Mr. Cunningham's declaration describing California's vehicle emission standards, the history of state and federal regulation of vehicle emissions, and the establishment of the national program. *See* Cunningham Decl., ¶¶ 4 – 44.

18. The Massachusetts Clean Air Act, MASS. GEN. LAWS ch. 111, §§ 142A–142O, specifically section 142K, requires MassDEP to adopt and implement California's emissions standards for new motor vehicles if such standards, in the aggregate, are at least as protective as federal motor-vehicle emissions standards. *See* MASS. GEN. LAWS ch. 111, § 142K. MassDEP initially adopted California's Low Emission Vehicle (LEV) program under regulations promulgated in 1991. *See* 310 MASS. CODE. REGS. 7.40.

19. The LEV program is applicable to 1995 and subsequent model year passenger cars, medium-duty passenger vehicles, and light-duty trucks sold, leased, or registered in Massachusetts. The LEV program requires most new vehicles to be equipped with California-certified advanced emission-control systems in order to be sold, leased, or registered in Massachusetts. These advanced emission-control systems reduce tailpipe emissions of so-called criteria pollutants, including particulate matter, carbon monoxide, sulfur oxides, and nitrogen oxides.

20. As required by state law, MassDEP amended its LEV program regulations in 1999 to adopt amendments to California's LEV program that applied to model year 2004–2007 vehicles. These amendments, known as the "LEV II regulations," included more stringent emissions requirements for criteria pollutants and for zero-emission vehicles (*e.g.*, battery-electric vehicles and fuel-cell vehicles). The LEV II regulations also extended emissions standards to certain categories of heavier sport utility vehicles and pickup trucks.

21. MassDEP amended its LEV program regulations again in 2012 to adopt further amendments to California's LEV program, known as the "Advanced Clean Cars Program" or "ACC regulations." The ACC regulations included the "LEV III regulations," which combined stringent emissions limits for criteria pollutants for 2015 and subsequent model year vehicles, with greenhouse gas

emissions standards for 2017 to 2025 model year vehicles. The ACC regulations also included revised zero-emission vehicle requirements.

22. Reducing greenhouse gas emissions from motor vehicles is a key objective of Massachusetts's ACC regulations. Under the LEV program, automobile manufacturers must decrease greenhouse gas emissions on a fleetwide basis for 2017 and subsequent model year cars and light trucks. As described in ¶¶ 13-15 of the Cunningham Decl., the greenhouse gas standards under the LEV program are designed to be harmonized with federal fuel economy and tailpipe emissions standards for 2017 to 2025 model year vehicles, such that vehicles that comply with federal standards are deemed to also comply with Massachusetts' ACC regulations.

23. Massachusetts is committed to reducing near-term and long-term greenhouse gas emissions from the transportation sector by maintaining the current LEV regulations. Massachusetts relies on the current LEV regulations as a key component of its strategy to satisfy GWSA mandates. The current LEV regulations are among the emissions-reduction policies included in the MA Climate Plan as part of the Commonwealth's strategy to meet both near-term and long-term emissions-reduction requirements. *See* MA Climate Plan, *supra*, at 26. Greenhouse gas emission reductions associated with the LEV program are critical to the Commonwealth's long-term compliance with the GWSA. The MA Climate

Plan estimates that the ACC regulations will reduce greenhouse gas emissions by 3.7 $MMTCO_2e$ in 2020, accounting for greater emission reductions than any other transportation-sector policy in Massachusetts. *Id.* According to the MA Climate Plan, "[b]ecause of these standards, per-mile [greenhouse gas] emissions from 2025 model year vehicles are forecast to be 34% lower, on average, compared to 2016 model year vehicles." *Id.* The MA Climate Plan expects continued reductions in transportation-sector emissions after 2020 from the ACC regulations. *See id.* MA Climate Plan, *supra*, at 28, fig. 8.

24. Reducing emissions of ozone precursors from motor vehicles is also a key objective of Massachusetts's LEV program, including the ACC regulations.

25. The federal Clean Air Act sets timelines and milestones for states to meet and maintain the national ambient air quality standard (NAAQS) for ozone and other criteria air pollutants. If a state's ambient air fails to meet a standard, the state must develop and implement pollution-control strategies to attain the standard. Once a state's ambient air meets the standard, the state must develop strategies to maintain that standard while accounting for future economic growth.

26. Ground-level ozone, or smog, is a chemical that adversely affects human health and the environment. It is not typically emitted directly from sources, but rather is the product of chemical reactions in the atmosphere.

Specifically, ozone is formed when oxides of nitrogen (NOx) react with volatile organic compounds (VOCs) in the presence of sunlight and heat.

27. From the time of promulgation to the present day, the LEV program has been a crucial and necessary part of Massachusetts' efforts to attain and maintain the NAAQS for ozone under the federal Clean Air Act by reducing emissions of VOCs and NOx.

Due to the Revised Final Determination, Massachusetts Must Take Action to Ensure the LEV Program Continues to Reduce Greenhouse Gas Emissions in Furtherance of GWSA Requirements

28. I am personally aware that EPA concluded in its Revised Final Determination that current federal greenhouse gas emissions standards for 2022 to 2025 model year light-duty vehicles are not appropriate and should be revised. *See* 83 Fed. Reg. at 16,087. I am also personally aware that the Revised Final Determination withdrew and superseded EPA's robust previous Final Determination issued on January 12, 2017, the "Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation." *See id.*

29. I am personally aware that on August 24, 2018, EPA and the National Highway Traffic Safety Administration (NHTSA) proposed a joint rulemaking to establish new federal fuel economy and greenhouse gas emissions standards for 2021 to 2026 model year light-duty vehicles, "The Safer Affordable Fuel-Efficient

(SAFE) Vehicles Rules for Model Years 2021-2026 Passenger Cars and Light Trucks." 83 Fed. Reg. 42,986 (Aug. 24, 2018). I understand that this proposal indicates EPA and NHTSA's preferred regulatory alternative is to freeze greenhouse gas emissions standards at the current 2020 levels for 2021 to 2026 model year light-duty vehicles. *Id.* at 42,988, 42,990.

30. As long as federal greenhouse gas emissions standards remain harmonized with the existing greenhouse gas emissions reduction requirements of the LEV program, Massachusetts can rely on the LEV program to continue to achieve expected reductions in greenhouse gas emissions. However, as a result of EPA's Revised Final Determination, Massachusetts can no longer be assured that its LEV Program will continue to achieve anticipated reductions in greenhouse gas emissions from motor vehicles. Revised federal greenhouse gas emissions standards may no longer require 2022 to 2025 model year vehicles to obtain reductions in emissions equivalent to the reductions required under Massachusetts' existing greenhouse gas emissions standards. As such, the Revised Final Determination undermines Massachusetts' strategy to achieve emissions-reduction limits mandated by the GWSA.

31. Because EPA's Revised Final Determination upended Massachusetts' reliance on the harmonized national program to achieve anticipated reductions in greenhouse gas emissions, Massachusetts must take steps to expeditiously amend

its LEV Program regulations, consistent with state law, to ensure forthcoming model year vehicles are subject to appropriate emissions standards.

32. I am personally aware that, as a result of EPA's Revised Final Determination, CARB is undertaking a rulemaking to amend its ACC regulations. Specifically, CARB is advancing a proposal to amend the provision of its regulations stating that vehicles that comply with federal greenhouse gas emissions standards are "deemed to comply" with California's motor vehicle emissions standards—known as the "Deemed to Comply Compliance Option." CARB proposes to clarify that the Deemed to Comply Compliance Option is available only to vehicles that meet current federal emissions standards, and would not apply to any weakened federal standards for 2022 to 2025 model year vehicles.

33. MassDEP has always interpreted the Deemed to Comply Compliance Option in its and California's regulations to be available only for vehicles that meet current federal motor vehicle emission standards, which are harmonized with the state's LEV program. Accordingly, I submitted comments to CARB on May 31, 2018, indicating MassDEP's support of CARB's pending action to codify this interpretation in its regulations.[7]

[7] *See* MassDEP comment letter to Sarah Carter of CARB on Potential Alternatives to Clarification of the "Deemed to Comply" Provision, May 31, 2018, available at www.arb.ca.gov/lists/com-attach/25-leviii-ghgdtc2018-ws-VDcFYgBzBTRSC1A8.pdf.

34. Under Massachusetts state law, upon CARB's adoption of these proposed amendments to California's LEV program regulations, MassDEP must then take regulatory action to incorporate the amendments into Massachusetts' LEV program regulations. *See* MASS. GEN. LAWS ch. 111, § 142K.

35. Because it is critically important for Massachusetts to ensure that its LEV program continues to reduce greenhouse gas emissions as expected from 2022 and subsequent model year vehicles as a key component of Massachusetts' strategy to achieve mandatory GWSA emissions-reduction limits, MassDEP is preparing to commence its own rulemaking process soon after CARB adopts any changes to California's regulations.

The Revised Final Determination Necessitates Massachusetts Undertake Burdensome Administrative Action and Harms the Commonwealth

36. The rulemaking process necessary to amend Massachusetts' LEV program will require significant expenditure of MassDEP resources.

37. MassDEP has already begun to devote substantial resources to evaluating and preparing the necessary regulatory amendments, and to coordinating with CARB and other states that have adopted California's LEV program. For instance, beginning in April 2018, MassDEP has participated in numerous calls—roughly on a biweekly basis—to consult and coordinate with staff from CARB and other states agencies regarding the scope of the states' respective

regulatory revisions and the schedule for such revisions. In addition to me, the staff present on these calls typically has included an attorney from MassDEP's Office of General Counsel and three employees from MassDEP's Division of Air and Climate Programs, which is responsible for implementing Massachusetts' LEV program.

38. I and other MassDEP managers, along with multiple other MassDEP technical staff and attorneys from the Office of General Counsel, must devote significant resources to this rulemaking. Consistent with state administrative law requirements, the rulemaking process will include development of the proposed regulation and technical support materials, and conducting the required public process, including notice requirements and holding a public hearing.

39. MassDEP has also expended and will continue to expend considerable resources to review and evaluate CARB's proposed amendments to its ACC regulations in order to determine the scope of necessary revisions to MassDEP's regulations. In addition to me, this evaluation has involved four attorneys from MassDEP's Office of General Counsel and other staff from MassDEP's Division of Air and Climate Programs. MassDEP also intends for a senior-level manager to travel from Massachusetts to Sacramento, California to attend and deliver testimony on behalf of Massachusetts at the CARB hearing scheduled for September 27–28, 2018. *See* Cunningham Decl., ¶ 39. The costs associated with

attending and testifying at this hearing, including travel costs and staff time, are expected to be significant.

40. All of the resources that MassDEP is devoting, and must continue to devote, to this rulemaking process are resources that otherwise would be available to focus on other critical priorities of the Commonwealth.

41. In conclusion, EPA's Revised Final Determination has interfered with the ongoing implementation and operation of Massachusetts' regulatory programs and policies. Because of EPA's Revised Final Determination, Massachusetts has had to undertake costly actions, and must continue to take actions, to protect the benefits due to residents of the Commonwealth from its LEV Program—benefits that EPA's action has effectively assured will be curtailed. These necessary state actions require expenditure of limited agency resources that otherwise would be devoted to other matters important to the Commonwealth. In short, the Revised Final Determination has directly and concretely impacted Massachusetts resources.

I declare under penalty of perjury that the foregoing is true and correct.

Executed in Boston, Massachusetts on August 29, 2018.

Christine Kirby
Assistant Commissioner
Bureau of Air and Waste
Massachusetts Department of
Environmental Protection

Exhibit H

Declaration of Steven E. Flint

Director, Division of Air Resources

New York State Department of Environmental Conservation

IN THE UNITED STATES COURT OF APPEALS

FOR THE DISTRICT OF COLUMBIA CIRCUIT

STATE OF CALIFORNIA, et al., Petitioners, v. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, et al., Respondents.	No. 18-1114 (lead)
NATIONAL COALITION FOR ADVANCED TRANSPORTATION, Petitioner, v. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, Respondent.	No. 18-1118 (con.)
CENTER FOR BIOLOGICAL DIVERSITY, et al., Petitioners, v. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, Respondent.	No. 18-1139 (con.)

DECLARATION OF STEVEN E. FLINT

Pursuant to 28 U.S.C § 1746, I, Steven E. Flint, P.E., declare as follows:

1. I am the Director of the Division of Air Resources (DAR) at the New York State Department of Environmental Conservation (NYSDEC), where I have worked since 1980. I provide this declaration in support of the brief filed in this action by the State Petitioners in opposition to the Motions to Dismiss filed by the U.S. Environmental Protection Agency and Acting Administrator Andrew Wheeler ("EPA") and the automobile industry trade association intervenors on the side of EPA. The State of New York filed this case because of our strong interest in the state-level environmental protections allowed under Sections 209 and 177 of the Clean Air Act (the CAA or Act) (42 U.S.C. §§ 7543, 7507). As an administrator of New York's program adopting California's vehicle emissions standards under Section 177, it is clear to me that New York will suffer harm if those state-level environmental protections are undermined, as they would be if the EPA action challenged in this lawsuit is not invalidated.

PERSONAL BACKGROUND AND QUALIFICATIONS

2. I have Bachelor of Science and Master of Science in Civil and Environmental Engineering degrees from Clarkson College. I am a licensed Professional Engineer in New York.

3. I have been the Director of the Division of Air Resources for approximately 2 years. In addition to my current position of Director of DAR, I have held the positions of Assistant Director of Air Resources; Director, Bureau of Mobile Sources and Technology Development; Chief of Light and Heavy Duty Vehicle Section of the Bureau of Mobile Sources and Technology Development; and other engineering positions within DEC.

4. My responsibilities include overseeing DAR's central office in Albany, which carries out the development of mobile source regulations and technology development, air quality planning, monitoring and research functions, and stationary source permitting. In addition, I work with nine regional offices, which are responsible for air permitting and enforcement throughout the state.

5. Another of my responsibilities is overseeing DEC's air quality planning efforts, including regulating and mitigation of greenhouse gas (GHG) emissions.

6. I also oversee the development of CAA-mandated State Implementation Plans (SIP). SIPs detail how DEC will assure that, among other things, the air quality in New York will come into or maintain compliance with the National Ambient Air Quality Standards (NAAQS) for the "criteria pollutants," including ozone, particulate matter ($PM_{2.5}$) and sulfur dioxide (SO_2), set by EPA

under Sections 108 and 109 of the CAA. States are primarily responsible for ensuring attainment and maintenance of a NAAQS once EPA has established one.

7. As part of my job responsibilities, I have worked on efforts within New York to adopt motor vehicle emission control programs that reduce emissions of nitrogen oxides (NOx) and volatile organic compounds (VOCs), which are pollutants that lead to the formation of ozone and are commonly referred to as "ozone precursors," as well as GHG emissions. These control programs include 6 New York Code of Rules & Regulations (NYCRR) Part 217, Motor Vehicle Emissions and 6 NYCRR Part 218 (Part 218), Emission Standards for Motor Vehicles and Motor Vehicle Engines.

EPA's RECONSIDERATION OF THE MIDTERM EVALUATION IMPOSES AN ADMINISTRATIVE BURDEN ON NEW YORK

8. EPA's action harms New York because it requires the State to take administrative action, among other actions, to ensure that the protections provided by Part 218 are not impaired. Part 218 incorporates by reference California's stringent new motor vehicle emissions standards, as permitted by Section 177 of the CAA, and provides substantial GHG emission reductions from motor vehicles. These reductions are an important component of New York's goal to achieve a

statewide reduction in greenhouse gas emissions to forty percent (40%) below 1990 levels by 2030.

9. In 1990, New York was the first state in the nation to adopt California's standards, in the form of Part 218, which took effect beginning with the 1993 vehicle model year. With the exception of model year 1995, New York has continued to implement California's updates to its new motor vehicle program because this program provides substantial reductions in both criteria and GHG pollutants. Section 177 of the CAA allows a State to adopt California's standards so long as the State's standards are identical to California's and the State adopts the standards at least two years prior to the applicable vehicle model year. As to the standards at issue here, California adopted its greenhouse gas emission standards for model year 2017 to 2025 vehicles in 2012 and New York followed suit that same year. .

10. California's new motor vehicle emission standards and New York's incorporation of them into Part 218 provide vital reductions in harmful air emissions. As such, New York clearly has a very strong interest in California's standards, specifically in maintaining the most stringent standards possible to provide emissions reductions, particularly GHG reductions.

11. As a result of EPA's action challenged here, California has been forced to initiate its own state law rulemaking process to remove the so-called "deemed to

comply" language from its regulations for 2022-2025 model year vehicles. Due to the requirement for identicality with California standards in Section 177 of the CAA, New York must engage in its own state law process to revise Part 218 to match any changes to California's standards.

12. Provisions of the New York State Administrative Procedure Act (SAPA) govern how rulemaking proceeds in New York. In addition to SAPA, there are other administrative procedures to follow.

13. SAPA section 202.1, read in conjunction with ECL Article 19 indicate that the rulemaking effort would start with stakeholder outreach. DAR would then need to draft the actual rulemaking terms (express terms), a regulatory impact statement, a job impact statement, a rural area flexibility analysis, and a regulatory flexibility for small businesses document pursuant to SAPA, and provide a State Environmental Quality Review Act review in addition to drafting various required forms. After internal Department review of the regulatory package, the Governor's Regulatory Review Unit (RRU) would be required to approve the package.

14. Following RRU approval, DEC would file the proposed rulemaking package with the Department of State (DOS) for publication in the State Register approximately two weeks after filing. A comment period of no less than 60 days would be opened and a public hearing held after 60 days has passed. The comment

period would close five days after the public hearing. DAR would then assess and respond to public comments received, drafting an Assessment of Public Comments. When that was complete and approved internally, a final rulemaking package would be filed with DOS for publication in the State Register. Pursuant to Environmental Conservation Law 19-0303, the rulemaking would become effective 30 days after filing with DOS.

15. This process consumes time and resources the DEC could otherwise direct to other agency projects. In light of the time required for this administrative process, DEC cannot afford to wait and see if EPA later changes its mind and retains the currently applicable standards despite its final determination, challenged in this lawsuit, that the standards are inappropriate.

WITHOUT ADMINISTRATIVE ACTION BY NEW YORK AND OTHER STATES, NEW YORK WILL BE HARMED BY THE EPA ACTION

16. California's regulations—whether implemented in California, New York, or other states—help regulate and reduce emissions of both greenhouse GHGs and criteria pollutants.

17. Without expending resources to respond to EPA's actions as described above, New York's ability to regulate motor vehicle GHG emissions would be jeopardized, resulting in the failure to reduce GHG emissions including likely failing

to meet emission reduction goals in New York. Moreover, to the extent that other Section 177 states do not take action to maintain more stringent emissions standards, New York will be harmed by those states' increased GHG emissions.

18. In addition, New York will be harmed by increased GHG emissions arising from EPA's failure to meet its obligations to reduce greenhouse gas emissions from motor vehicles in non-177 states.

19. In New York, DEC in particular will be forced to expend efforts to evaluate and implement other methods of reducing GHG emissions in order to achieve the state's GHG reduction goals.

20. New York State has climate goals that call for reduction of greenhouse gas emissions by 40 percent (from 1990 levels) by 2030. Transportation is the largest sector of GHG emissions, and is growing as a result of increasing vehicle use. New York cannot reasonably expect to meet our climate goals without reductions in GHG emissions from the transportation sector.

21. EPA research anticipates significant reductions of harmful GHG emissions from light-duty vehicles meeting the standards set in the 2012 final rule. In July 2016, EPA, NHTSA and the California Air Resources Board (CARB) issued a draft Technical Assessment Report (TAR) that states, "Over the lifetimes of MY2021-2025 vehicles, EPA estimates that under the GHG standards, GHG

emissions would be reduced by about 540 million metric tons (MMT)".[1] Failure to implement the standards adopted in the 2012 final rule and confirmed by EPA's initial MTE will result in the failure to achieve this significant reduction of the emissions from light-duty vehicles emissions that contribute to climate change.

22. Similarly, without expending resources to respond to EPA's actions as described above, New York's ability to regulate motor vehicle criteria-pollutant emissions would be jeopardized. Moreover, while the impact of criteria air pollutant emissions is more dependent upon location of the emissions, to the extent that other upwind states do not take action to maintain more stringent emissions standards, New York will be harmed by those states' criteria pollutant emissions that travel beyond state borders, such as ozone and its precursors. Ground-level ozone, commonly referred to as smog, is a secondary air pollutant that forms in the atmosphere through a series of complex chemical reactions involving NOx and VOCs in the presence of sunlight and warm temperatures. NOx and VOC emissions from local urban sources over successive hot days combine with high-level

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[1] U.S. Environmental Protection Agency, U.S. Department of Transportation, and California Air Resources Board, "Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025", July 2016, Page ES-11. EPA-420-D-16-900. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi/P100OXEO.PDF?Dockey=P100OXEO.PDF

concentrations of ozone and ozone precursors that have been transported into the area from sources located outside the state by westerly to southerly winds.

23. EPA research anticipates reductions in emissions of particulate matter, SO_2, and ozone precursors from light-duty vehicles meeting MTE standards. The TAR reports under the 2012 final rule, the MY2022-2025 lifetime emission reductions of $PM_{2.5}$ are 10,663 short tons, SO_2 are 44,693 short tons, Volatile Organic Compounds (VOCs) are 227,857 short tons, and NOx are 67,760 short tons.[2] Failure to implement MTE standards will result in the failure to achieve these reductions of $PM_{2.5}$, VOC and NOx emissions from light-duty vehicles. It may also cause New York to fail to meet its national ambient air quality standards requirements.

INCREASED GHG EMISSIONS WOULD HARM NEW YORK

24. Climate change, which is fueled by GHG emissions, is already harming New York, and these harms are expected to increase if GHG emissions increase. Climate change is having and will continue to have adverse impacts on human health and property, including property damage from increased flooding, increased heat illnesses and mortality, respiratory illnesses from increased formation of ground-

[2] U.S. Environmental Protection Agency, U.S. Department of Transportation, and California Air Resources Board, "Draft Technical Assessment Report: Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025", July 2016, Table 12.75, Page 12-62. EPA-420-D-16-900. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi/P100OXEO.PDF?Dockey=P100OXEO.PDF

level ozone, and the introduction or spread of vector-borne illnesses. Climate change is harming and will continue to harm New York State's environment, including shorelines, drinking water sources, agriculture, forests, and wildlife diversity.

25. Anthropogenic emissions of the predominant GHG, CO_2, are contributing to the observed warming of the planet.[3] The Earth's lower atmosphere, oceans, and land surfaces are warming; sea level is rising; and snow cover, mountain glaciers, and Greenland and Antarctic ice sheets are shrinking. The Earth's climate is changing, with adverse consequences already well documented across the globe, in our nation and in the State. Extreme heat events are increasing and intense storms are occurring with greater frequency. Many of the observed climate changes are beyond what can be explained by natural variability of the climate.[4]

26. Similarly, New York's climate has also begun to change. Temperatures in New York State have risen on average 0.25°F per decade over the past century, with the greatest warming coming in recent decades. This warming includes an increase in the number of extreme hot days (days at or above 90°F) and a decrease in the number of cold days (days at or below 32°F). The 2011 New York State

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[3] Intergovernmental Panel on Climate Change Working Group I Fifth Assessment Report, Climate Change 2013: The Physical Science Basis, 2013, and available at: https://www.ipcc.ch/report/ar5/wg1/

[4] Ibid.

ClimAID assessment[5] and the 2014 update to ClimAID[6] present the numerous direct impacts that have already been observed in New York State. These impacts are described in more detail below.

27. Warming ocean waters contribute to sea level rise, with adverse impacts for New York State. Warmer ocean water, which results in thermal expansion of ocean waters, melting of land ice, and local changes in the height of land relative to the height of the continental land mass, are the major contributors of sea level rise. Warming ocean water has the potential to strengthen the most powerful storms, and combined with sea level rise will lead to more frequent and extensive coastal flooding. Sea level in the coastal waters of New York State and up the Hudson River has been steadily rising over the 20th century. Tide-gauge observations in New York indicate that rates of relative sea level rise were significantly greater than the global mean, ranging from 0.9 to 1.5 inches per decade.

28. Sea level rise increases the extent and magnitude of coastal flooding. For example, the twelve inches of sea level rise the New York City area has

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[5] Rosenzweig, C., W. Solecki, A. DeGaetano, M. O'Grady, S. Hassol, P. Grabhorn (Eds.) 2011. 'Responding to Climate Change in New York State: The ClimAID Integrated Assessment for Effective Climate Change Adaptation'. New York State Energy Research and Development Authority http://www.nyserda.ny.gov/climaid

[6] Horton, R., D. Bader, C. Rosenzweig, A. DeGaetano, and W.Solecki. 2014. Climate Change in New York State: Updating the 2011 ClimAID Climate Risk Information. New York State Energy Research and Development Authority (NYSERDA), Albany, New York.

experienced in the past century exacerbated the flooding caused by Hurricane Sandy by about twenty-five square miles, damaging the homes of an additional 80,000 people in the New York City area alone.[7] That flooding devastated areas of New York, including the Brooklyn-Queens Waterfront, the East and South Shores of Staten Island, South Queens, Southern Manhattan, and Southern Brooklyn, which in some areas lost power and other critical services for extended periods. Overall, Hurricane Sandy caused 53 deaths and the estimated costs of damage and loss in New York State exceeded 30 billion dollars.[8]

29. New York State tidal shoreline, including barrier islands, coastal wetlands, and bays, is expected to be particularly adversely affected by increased sea levels. New York State has 1,850 miles of tidal coastline,[9] and the State owns dozens of state parks within New York State's coastal boundary. Tidal shoreline property in the State held by private landowners is similarly at risk.

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[7] New York City Panel on Climate Change 2015 Report, Chapter 2: Sea Level Rise and Coastal Storms. Ann. N.Y. Acad. Sci. ISSN 0077-8923, available at: http://onlinelibrary.wiley.com/doi/10.1111/nyas.12593/full

[8] FEMA expenditures in New York State totaled $16.9 billion (https://www.fema.gov/news-release/2015/10/21/fema-aid-reaches-169-billion-new-yorks-hurricane-sandy-recovery). US HUD expenditures totaled $7 billion (HUD Archives News Release, HUD # 13-153, 10/28/13. https://archives.hud.gov/news/2013/pr13-153.cfm). Total insurance payments in New York State totaled $8.3 billion, including National Flood Insurance payments, and private auto, homeowner, and commercial property insurance. (Hurricane Sandy: Rebuilding Task Force: Hurricane Sandy Rebuilding Strategy, August 2013, page 29. https://www.hud.gov/sites/documents/hsrebuildingstrategy.pdf)

[9] U.S. Bureau of the Census, *Statistical Abstract of the United States 1987* at 187 (107th Ed.).

30. Climate change will increase the frequency and magnitude of flood damage and storms. Rising air temperatures associated with climate change intensify the water cycle by driving increased evaporation and precipitation. The resulting altered patterns of precipitation include more rain falling in heavy events, often with longer dry periods in between. Heavy downpours have increased in New York State over the past 50 years. By the end of the 21st century, coastal flood levels currently associated with a 100-year flood could occur approximately four times as often under conservative sea level rise scenarios.[10] This trend will increase localized flash flooding in urban areas and hilly regions.

31. New York State incurs significant costs from damage from flooding. Grants to the State from the FEMA Public Assistance Program made in the aftermath of flood disasters almost always require the State to fund a portion of the project. For example, in the aftermath of Hurricane Sandy, FEMA made 4,127 Public Assistance grants totaling nearly $10 billion to State and local governments for facilities damaged by the storm, including parks, beaches, marinas, water treatment plants, hospitals, schools, public housing and other public buildings. While FEMA

[10] Rosenzweig et al. p. 35

grants to New York covered 90% of the eligible costs of such projects, the State was left responsible for covering the remaining 10 percent.[11]

32. Flooding due to climate change exacerbates harm to public health and the environment in New York State. Flooding increases water pollution by carrying runoff from land areas containing road oils, salts, farm and lawn chemicals, pesticides, metals, and other pollutants into New York's water bodies. Flooding has also inundated and/or overloaded New York wastewater treatment plants, causing raw sewage to enter waterways. Polluted floodwaters can inundate communities and other vulnerable development within floodplains, impairing potable public and private water supplies, and rendering cleanup more hazardous. Contaminated floodwaters can also impede other water uses including swimming, beach-going, and fishing. The U.S. Secretary of Health and Human Services issued Public Health Emergency Declarations in New York[12] following Hurricane Sandy and Tropical Storm Lee, in large part because of post-flood conditions.

33. Climate change requires an increased commitment of State emergency response resources to protect lives and property in flood prone areas. For example,

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[11] https://www.fema.gov/news-release/2015/10/21/fema-aid-reaches-169-billion-new-yorks-hurricane-sandy-recovery

[12] https://www.phe.gov/emergency/news/healthactions/phe/Pages/default.aspx

swift-water or air-rescue teams rescued over one thousand state residents during the flooding caused by Hurricane Irene and Tropical Storm Lee. New York State committed extensive emergency resources in response to the storms, including: deploying 1,700 State Police and 3,200 National Guard members, opening 200 shelters to house 18,000 citizens, and staffing 74 Disaster Recovery Centers to assist citizens during the recovery period.[13] The storms closed 400 road segments and bridges and required repairs at 945 locations on the State highway system.

34. Climate change is also expected to result in less frequent summer rainfall, increased evaporation, and additional, and possibly longer, summer dry periods, potentially impacting the ability of water supply systems to meet demands. Reduced summer flows on large rivers and lowered groundwater tables could lead to conflicts among competing water users.

35. While shorter-term water level variations are anticipated to be large, over the long term, climate change is likely to lower the water levels of Lake Erie and Lake Ontario through increased evaporation. These Great Lakes are critical water sources to New York State: New York relies on them for drinking water; hydroelectric power; commercial shipping; and recreation, including boating and

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[13] New York State Responds – Hurricane Irene and Tropical Storm Lee: One Year Later. August 2012. Available at: https://www.governor.ny.gov/sites/governor.ny.gov/files/archive/assets/documents/Irene-Lee-One-Year-Report.pdf

fishing. New York State has approximately 331 miles of shoreline along Lake Ontario and approximately 77 miles along Lake Erie.[14] Decreased water levels in the Great Lakes could severely affect commercial shipping, reducing maximum loads carried by vessels. Each one-inch loss in draft in the Great Lakes shipping channels causes the ships used for inter-lake transportation to lose 270 tons of cargo capacity,[15] or approximately $30,000 per transit.[16]

36. New York State is likely to see widespread shifts in species composition in the State's forests and other natural landscapes within the next several decades due to climate change. Losses of spruce-fir forests, alpine tundra and boreal plant communities are expected. Climate change favors the expansion of some invasive species into New York, such as the aggressive weed, kudzu, and the insect pest, hemlock woolly adelgid. Increased CO_2 in the atmosphere due to climate change is likely to preferentially increase the growth rate of fast growing species, which are often weeds and other invasive species. Lakes, streams, inland wetlands and associated aquatic species will be highly vulnerable to changes in the timing, supply, and intensity of rainfall and snowmelt, groundwater recharge and duration

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[14] Michigan Department of Environmental Quality: Shorelines of the Great Lakes. http://www.michigan.gov/deq/0,1607,7-135-3313_3677-15959B,00.html.

[15] Climate Change and Water Quality in the Great Lakes Basin 2003: Report of the Great Lakes Water Quality Board to the International Joint Commission. Chapter 3.2, page18.

[16] Climate Change in the Great Lakes Region. Great Lakes Integrated Sciences Assessments, University of Michigan, 2014. http://glisa.umich.edu/media/files/GLISA_climate_change_summary.pdf

of ice cover. Increasing water temperatures will negatively affect brook trout and other native cold-water fish.

37. Climate change is expected to hurt agriculture in New York State. Increased summer heat stress will negatively affect cool-season crops, requiring farmers to take adaptive measures such as shifting to more heat-tolerant crop varieties and eventually resulting in a different crop mix for New York's farmers. The loss of long cold winters could limit the productivity of apples and potatoes, as these crops require longer cold dormant periods. New York's maple syrup industry also requires specific temperature conditions in order for the sugar maples to produce sap. It is projected that sugar maple trees will be displaced to the north as the climate changes and temperatures increase. Increased weed and pest pressure associated with longer growing seasons and warmer winters will be an increasingly important challenge. Water management will be a more serious challenge for New York farmers in the future due to increased frequency of heavy rainfall events, and more frequent and intense summer water deficits by mid-to late-century.

38. Dairy farmers will also be impacted by warmer air temperatures associated with climate change. Milk production is maximized under cool

conditions ranging from 41°F to 68°F.[17] New York is the third largest producer of milk in the United States, behind California and Wisconsin, with 14.8 billion pounds of milk produced in 2016.[18] During the unusually hot summer in 2005, declines in milk production of five to 15 pounds of milk per cow per day (an eight to 20 percent decrease) in many New York dairy herds were reported.[19] In 2016, New York reported approximately $2.5 billion dollars of cash receipts from its dairy industry.[20] A loss of milk production efficiency from heat effects could result in the loss of hundreds of millions of dollars annually for New York's dairy industry.

39. New York State's forests and the economy that depends on them will be hurt by climate change. Climate change will affect the forest mix in New York, which could change from the current mixed forest to a temperate deciduous forest. The habitat for existing tree species will decrease as suitable climate conditions shift northward. As forest species change, the resulting decrease in the vibrant display of New York State fall foliage could have a negative impact on regional tourism. New York State's Adirondack Park is the largest forested area east of the Mississippi and

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[17]Garcia, Alvaro. Dealing with Heat Stress in Dairy Cows. South Dakota Cooperative Extension Service. September, 2002. Page 1.

[18] Milk Production, Disposition and Income: 2016 Summary, at p. 10, United States Department of Agriculture, National Agricultural Statistics Service, April 2017, available https://www.nass.usda.gov/Publications/Todays_Reports/reports/mlkpdi17.pdf

[19] Frumhoff, Peter. Confronting Climate Change in the U.S. Northeast: Science, Impacts, and Solutions, Northeast Climate Impacts Assessment, July 2007, p. 69.

[20] Milk Production, Disposition and Income: 2016 Summary, at p. 12.

consists of six million acres including 2.6 million acres of state-owned forest preserve.[21] The Adirondack Park, one the most significant hardwood ecosystems in the world, is likely to be threatened by these changes. These changes will also further impact plant and wildlife species in the Adirondack Park and throughout the state, as the forest composition changes.

40. Demand for health services and the need for public health surveillance and monitoring will increase as the climate continues to change. Heat-related illness and death are projected to increase, while cold-related deaths are projected to decrease. Increases in heat-related death, however, are projected to outweigh reductions in cold-related death. Increased coastal and riverine flooding resulting from intense precipitation could lead to increased stress and mental health impacts, impaired ability to deliver public health and medical services, increased respiratory diseases such as asthma, and increased outbreaks of gastrointestinal diseases. Vector-borne diseases, such as those spread by mosquitoes and ticks (e.g., West Nile virus and Lyme disease), may expand or their distribution patterns may change, either of which may adversely affect additional populations. Water- and food-borne diseases are likely to increase without mitigation and adaptation intervention.

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[21] New York State Adirondack Park Agency (APA), http://www.apa.ny.gov/About_Park/index.html

Increased Criteria Air Pollutants Would Harm New York

41. Increases in the emission of criteria pollutants threaten to exacerbate New York's preexisting air quality problems, including harms to human health and the environment from ozone, $PM_{2.5}$ and SO_2. $PM_{2.5}$ emissions have a serious negative impact on New York and its citizens. In 2011, the New York City Department of Health and Mental Hygiene issued a report providing estimates of the impacts of $PM_{2.5}$ pollution on the health of New York City residents. That report estimates that $PM_{2.5}$ causes over 3,000 premature deaths every year in the State. It also attributes to $PM_{2.5}$ exposure more than 1,200 hospital admissions, and 5,000 asthma-related emergency department visits for children and adults.[22]

42. New York has a significant ozone problem. Climate change is likely to worsen the harms New York is already suffering from ozone. As NHTSA recognized during the rulemaking for the 2017-2025 CAFE standards, "increased temperatures from climate change are projected to increase ground-level ozone concentrations, triggering asthma attacks among children."[23]

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[22] New York City Department of Health and Mental Hygiene, *Air Pollution and the Health of New Yorkers: The Impact of Fine Particles and Ozone* at 16 (2011), *available at* https://www1.nyc.gov/assets/doh/downloads/pdf/eode/eode-air-quality-impact.pdf

[23] 77 Fed. Reg. at 63,148.

43. Breathing ozone can trigger a variety of health problems. These problems include chest pain, coughing, throat irritation, airway inflammation, reduced lung function and damaged lung tissue. Ozone can worsen bronchitis, emphysema and asthma, leading to increased medical costs. Exposure to ozone has also been linked to early deaths. People most at risk from breathing air containing ozone include people with asthma, children, older adults and people who are active outdoors, especially outdoor workers.

44. Ozone also interferes with the ability of plants and forests to produce and store nutrients, which makes them more susceptible to disease, insects, harsh weather and other pollutants. This harms crop production throughout the United States, resulting in significant losses and injury to native vegetation and ecosystems. Furthermore, ozone damages the leaves of trees and other plants, ruining the appearance of cities, parks and recreation areas. Ozone can also damage certain man-made materials, such as textile fibers, dyes, rubber products and paints.

Executed on 8/24/18 (date)

in Albany, New York Steven E Flint

(signature)

COLLEEN A. McCARTHY
Notary Public, State of New York
Qualified in Albany County
No. 02MC5046480
Commission Expires July 27, 2021

Exhibit I

Declaration of Ali Mirzakhalili
Administrator, Division of Air Quality
Oregon Department of Environmental Quality

DECLARATION OF ALI MIRZAKHALILI

I, Ali Mirzakhalili, declare as follows:

1. My name is Ali Mirzakhalili and I am the Division of Air Quality Administrator for the State of Oregon's Department of Environmental Quality (DEQ). In my capacity, I am responsible for overall administration of air quality programs in the State of Oregon which includes development and implementation of State Implementation Plans, stationary source regulation, permitting and enforcement and mobile source programs such as Low Emission Vehicles, Zero Emission Vehicle program and Clean Fuels Programs. Prior to joining DEQ, I served as the Director of the Air Quality Division for the State of Delaware for 17 years. I was in overall charge of all aspects of the air quality program including stationary and mobile source programs. I hold a Bachelor's degree in engineering from University of Delaware and a Master's of Science in Environmental Planning and Policy from Johns Hopkins University.

2. Greenhouse gas emissions threaten public health and the environment in many ways. The major threats that climate change presents for Oregon include, but are not limited to: increasing flooding; increasing wildfire activity; droughts; insect outbreaks that threaten forests; and rising sea levels, which will exacerbate coastal flooding and erosion hazards, and could put thousands of Oregonians, and their homes, at risk. Just this past week, Portland, Oregon set a new record – for the second time in four years – for the number of 90-degree days in a year. And smoke due to wildfires blanketed the area, resulting in DEQ issuing air quality advisories. These events are consistent with the long-predicted effects of climate change caused by greenhouse gas emissions.

3. In 2007, the Oregon Legislature adopted ORS 468A.205, declaring that "it is the policy of this state to reduce greenhouse gas emissions in Oregon" and adopting greenhouse gas emissions reduction goals. ORS 468A.205(1)(c) sets a goal of, by 2050, "achieving greenhouse gas levels that are at least 75 percent below 1990 levels."

4. The largest source of greenhouse gas emissions in Oregon is, by far, the transportation sector. In 2016, this sector was responsible for nearly 40% of total statewide emissions.

5. In order for Oregon to achieve the environmental goals established by ORS 468A.205, mobile source emissions – i.e., emissions from vehicles – must be reduced dramatically.

6. Under Section 177 of the Clean Air Act, states that choose to adopt vehicle standards that are more stringent than federal standards for new vehicles may only adopt California's vehicle emission standards. In 2005, pursuant to the Governor's request, the Oregon Environmental Quality Commission ("EQC") approved adoption by DEQ of California's low emission vehicle standards. Oregon is considered a "Section 177" state as a result of adopting California's rules. Oregon has periodically updated its rules to match changes in California's since 2005. Oregon Administrative Rule 340-257.

7. On April 13, 2018, EPA announced that it was withdrawing its 2017 Final Determination that the existing federal greenhouse gas emission requirements for model year (MY) 2022-25 vehicles remain appropriate. 83 Fed.Reg, 16,077. EPA simultaneously issued a revised Final Determination that the current federal standards "are not appropriate" and must be revised.

8. EPA's withdrawal of the 2017 Final Determination is forcing the California Air Resources Board (CARB) to issue a clarification regarding its regulation that will ensure that California will be able to enforce its own greenhouse gas standards for 2022-25 vehicles. In order to ensure that Oregon is also able to enforce its own greenhouse gas standards for 2022-25 vehicles, and thus continue to reduce greenhouse gas emissions from vehicles, Oregon DEQ is preparing to revise its rules to ensure that the California standards for MY2022-25 will be applicable in Oregon.

9. EPA's revised Final Determination has forced Oregon DEQ to take action in order to provide the public and regulated entities certainty as to the status of Oregon's program, mitigate the increased climate harms that will result from a weakening of the Federal standards, and ensure that Oregon can meet its emission reduction goals. If DEQ did not act, this could mean that EPA's revised federal emissions standards could be determined to apply to MY 2022-25 vehicles sold in Oregon, and any relaxation in those federal standards would result in an increase in vehicle emissions, thereby undercutting Oregon's progress toward its greenhouse gas emissions goals.

10. On information and belief, it is my understanding that automakers have multi-year planning and development cycles, and are likely already in the midst of planning and development for MY 2022 and beyond. Thus, the planning decisions that automakers are making right now and in the coming months will determine the amount of greenhouse gas emissions those vehicles will produce.

11. Immediately after EPA issued its revised determination Oregon DEQ concluded that it had to take action forthwith, in order to prepare to adopt the anticipated changes in California's rules, because of the planning and development cycles referred to above and the length of time required to complete Oregon rulemakings.

12. Rulemaking for the Oregon DEQ requires adoption of such rules by the EQC. DEQ officials notified the members of the EQC of the need for expedited rulemaking at the May, 2018 meeting of the EQC.

13. Pursuant to Oregon's Administrative Procedure Act ("OAPA"), DEQ convened a stakeholder advisory meeting with automobile manufacturers, automobile engine manufacturers, environmental groups, and electric vehicle groups on August 14, 2018, to discuss the fiscal impact of this rulemaking.

14. Although Oregon cannot formally adopt California's revised rules until California's revisions are complete themselves, Oregon can take steps to ensure adoption of

California's rules as soon as possible. Oregon DEQ currently plans to put a proposed rule, based on California's proposed rule, out for public comment in September.

15. Pursuant to the OAPA, DEQ must schedule and convene a public hearing on its proposed rule.

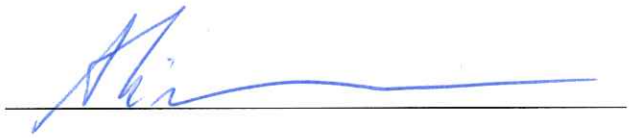
16. Pursuant to the OAPA, DEQ must prepare responses to comments (including comments at the public hearing and those otherwise submitted in writing).

17. Finally, DEQ must present its proposed rule to the EQC, and the EQC must review, deliberate and adopt the rule.

18. As a result, DEQ has incurred and will continue to incur costs. A number of DEQ staff, including management staff and the Director, who otherwise would be focused on other projects have been required to focus on the actions described above. The same is true of the members and staff of the EQC.

I certify under penalty of perjury under the laws of the State of Oregon that the foregoing is true and correct.

Executed on August 27, 2018 at Portland, Oregon.



Ali Mirzakhalili

Exhibit J

Declaration of Heidi Hales

Director, Air Quality and Climate Division

Vermont Department of Environmental Conservation

DECLARATION OF HEIDI HALES

I, Heidi Hales, declare as follows:

1. I am the Director of the Vermont Air Quality and Climate Division, which is the Division within the Vermont Department of Environmental Conservation that is charged with implementing the federal Clean Air Act, state air pollution control law, and routinely adopts and implements state air pollution control regulations within the bounds of the aforementioned authority. I hold a Bachelor of Arts degree in Biology with a minor in Chemistry and a Master of Arts in Conservation Biology from the University of Pennsylvania, and a doctorate from the Department of Plant and Soil Science at the University of Vermont, with a decertation focusing on the $\delta^{15}N$ and $\delta^{18}O$ of nitrate in precipitation, stream water and soil solution to study nitrogen export and transformations in forest soils. I have more than 13 years of experience at the Vermont Air Quality and Climate Division and Vermont Department of Health Environmental Health Division and have worked on a variety of programs including air quality planning and regulation, air toxics, climate change mitigation and adaptation, and compliance. This declaration is based on my experience managing air quality programs and implementing state and federal air quality laws and regulations in Vermont.
2. Vermont, along with several other states, is challenging the Environmental Protection Agency's (EPA) withdrawal of the January 2017 final determination in which EPA concluded that the federal greenhouse gas emission standards for model year (MY) 2022-2025 vehicles remain appropriate. In place of that determination, EPA substitutes a new determination that the standards are no longer appropriate and must be revised.
3. EPA's action substantially disrupts the existing "National Program", which harmonized the federal greenhouse gas emission standards for light duty vehicles with those of California and the several states, including Vermont, that have adopted California's greenhouse gas emission standards pursuant to the Clean Air Act. This harmony was achieved through California including in its regulations a provision stating that the state would accept compliance with the federal standards in lieu of compliance with the California standards for the 2017-2025 model years. Vermont incorporated this so-called "deemed to comply" provision into its low emission vehicle rules.

4. EPA's action will cause concrete harm to Vermont in several ways, including the need to expend resources to update Vermont's low emission vehicle rules. Vermont must update its rules now to provide automakers and the public certainty as to the status of Vermont's program in the face of lengthy vehicle planning and development cycles, and to ensure that Vermont will realize the greenhouse emission reduction benefits of the California greenhouse gas emission standards that Vermont has adopted.
5. Vermont will therefore commence a rulemaking action to amend existing regulations to incorporate changes proposed to the California rules, which clarify that the "deemed to comply" option is available only if the currently adopted federal greenhouse gas regulations remain in effect. This rulemaking will not change the California greenhouse gas emission standards that are already in place in Vermont.
6. In Vermont, any regulatory action commenced pursuant to the Vermont Administrative Procedure Act (VAPA) is costly and requires expending valuable, yet scarce, state resources. Such an effort typically includes staff time and other resources drafting the regulations, complying with the procedures of the Vermont Administrative Procedures Act, preparing for and attending rulemaking hearings, responding to comments and answering questions from the public and stakeholders, and the fees associated with publication of the draft and final rule electronically and in print publications.
7. The costs and expenditure of scarce state resources, including staff time, required to commence and complete the regulatory action described above will divert those resources from their current work and thereby harm the Vermont Air Quality and Climate Division's ability to carry out its mission of protecting human health and the environment by improving air quality in the state.
8. I declare under penalty of perjury that the foregoing is true and correct.

Executed this 27TH day of August 2018.

Heidi Hales

Heidi Hales

Exhibit K

Declaration of Julia Moore

Secretary

Vermont Agency of Natural Resources

DECLARATION OF JULIE MOORE

I, Julie Moore, declare as follows:

1. I am the Secretary of the Vermont Agency of Natural Resources (ANR), a position I have held since January 2017. I have worked in the environmental field for more than 21 years. I received a Bachelor of Science in Civil Engineering from the University at Buffalo and a Master of Science in Environmental Science and Policy from Johns Hopkins University. Prior to my current position, I worked as the Water Resources Group Leader at Stone Environmental, an environmental consulting firm in Vermont.
2. As Secretary of ANR, I oversee the management of Vermont's natural environmental on behalf of the people of Vermont. ANR is comprised of three departments: Department of Environmental Conservation, Department of Fish and Wildlife, and the Department of Forest, Parks, and Recreation. Together, these departments preserve and manage air and water quality, protect human health, conserve fish, plants, wildlife and their habitats, and conserve and manage Vermont's forests and public lands.
3. I make this declaration in support of the action by the States of California, Connecticut, Delaware, Illinois, Iowa, Maine, Maryland, Minnesota, New Jersey, New York, Oregon, Rhode Island, Vermont and Washington, the commonwealths of Massachusetts, Pennsylvania, and Virginia, and the District of Columbia challenging the final action of the Environmental Protection Agency (EPA) titled "Mid-term Evaluation of Greenhouse Gas Emissions Standards for Model Year 2022-2025 Light-duty Vehicles."
4. The statements made in this declaration are based on my review of various publicly available records, reports, statements and data compilations prepared by public agencies of the federal government and the State of Vermont.
5. Based on my review and analysis, the State of Vermont and its residents will be harmed by EPA's withdrawal of the January 2017 determination that the federal greenhouse gas emission standards for motor vehicles model year 2022-2025 remain appropriate, and EPA's issuance of a new determination that the federal standards are not appropriate.

I. Introduction

6. Vermont's climate is changing in response to the continued increase in atmospheric concentrations of greenhouse gases (GHG) like carbon dioxide (CO_2) and other climate-

forcing pollutants emitted through human activity. Throughout the northeastern United States, spring conditions are arriving earlier and bringing more precipitation. As recognized by the U.S. EPA, heavy rainstorms are more frequent, and summers are hotter with more extreme conditions that can include periods of drought, severe storms, and resultant floods that damage property and infrastructure.[1] The potential consequences of climate change are expected to include significant warming, a combination of droughts and flooding, changes in the makeup of forests, the continued spread of vector-borne diseases like Lyme disease, and increased frequency and expanded range of harmful cyanobacteria blooms. In Vermont, this warming could produce a shorter ski season, allow incursion of warmer climate tree species which would replace the current mix of hardwoods that produce our spectacular fall foliage[2], and result in changes in the quality and quantity of maple sap available for maple syrup production. Climate change is a critical issue facing Vermont's citizens, ecosystems, and economic vitality.

II. Greenhouse Gas Emissions in Vermont

7. The combustion of fossil fuels for transportation represents the single largest source of energy consumption and GHG emissions in Vermont.[3,4] According to Vermont Agency of Transportation data, the increase in vehicle miles traveled (VMT) in Vermont was over 30 percent between 1991 and 2001. VMT declined from 2001 through 2014 but have begun to increase steadily again over the past several years.[5] Even with improvements in GHG emission standards for light-duty vehicles in recent years, the increase in transportation-related GHG emissions tracks the increase in VMT.

8. Accordingly, ANR has determined that it is critically important that Vermont ensure that it is able to continue to apply rigorous GHG emissions standards to passenger and light-duty vehicles. To maintain the emissions reductions that were expected as a result of EPA's existing federal GHG emissions standards, but which EPA has now determined are not

[1] U.S. EPA report – What Climate Change Means for Vermont (https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-vt.pdf)
[2] http://fpr.vermont.gov/forest/ecosystem/climate_change
[3] Vermont Greenhouse Gas Emissions Inventory Updates: http://dec.vermont.gov/air-quality/climate-change
[4] Vermont Comprehensive Energy Plan: https://outside.vermont.gov/sov/webservices/Shared%20Documents/2016CEP_Final.pdf
[5] U.S. Dept. of Transportation – Traffic Volume Trends July 2017 (https://www.fhwa.dot.gov/policyinformation/travel_monitoring/17jultvt/17jultvt.pdf)

appropriate and must be revised, Vermont is in the process of taking steps to incorporate action that is being taken by the California Air Resources Board to clarify the scope of its "deemed to comply" regulation.

9. The California GHG standards will continue to reduce vehicle emissions, as well as upstream emissions, including those associated with refining, marketing and distribution of gasoline. In Vermont, fuel-cycle CO_2 reductions are estimated to be approximately 461 tons per day (tpd) in 2020 and 815 tpd in 2030.[6] The California GHG standards will result not only in the benefit of reduced GHG emissions, but also in emissions reductions for other pollutants that harm human health, such as fine particulate matter and hazardous air contaminants (e.g., benzene), and ozone-precursors like volatile organic compounds and oxides of nitrogen.

III. Climate Change Impacts in Vermont

10. Global warming is no longer a matter of the future or of places far away. Climate change is happening now and is already evident in Vermont. During the past 50 years, Vermont's climate has shown a clear warming trend in all seasons, especially in winter. Average winter temperatures have risen about 4.5 degrees Fahrenheit over this period, and the intensity of extreme winter cold is projected to decrease. Average summer temperatures have risen about 2 degrees Fahrenheit.[7] Historically unprecedented warming is projected to continue throughout the 21st century (Figure 1).

[6] *See CARB Report to Legislature* at 16.
[7] Vermont Agency of Natural Resources, *Resilience: A Report on the Health of Vermont's Environment* (2011), available at http://anr.vermont.gov/sites/anr/files/aboutus/documents/Resilience%202011.pdf

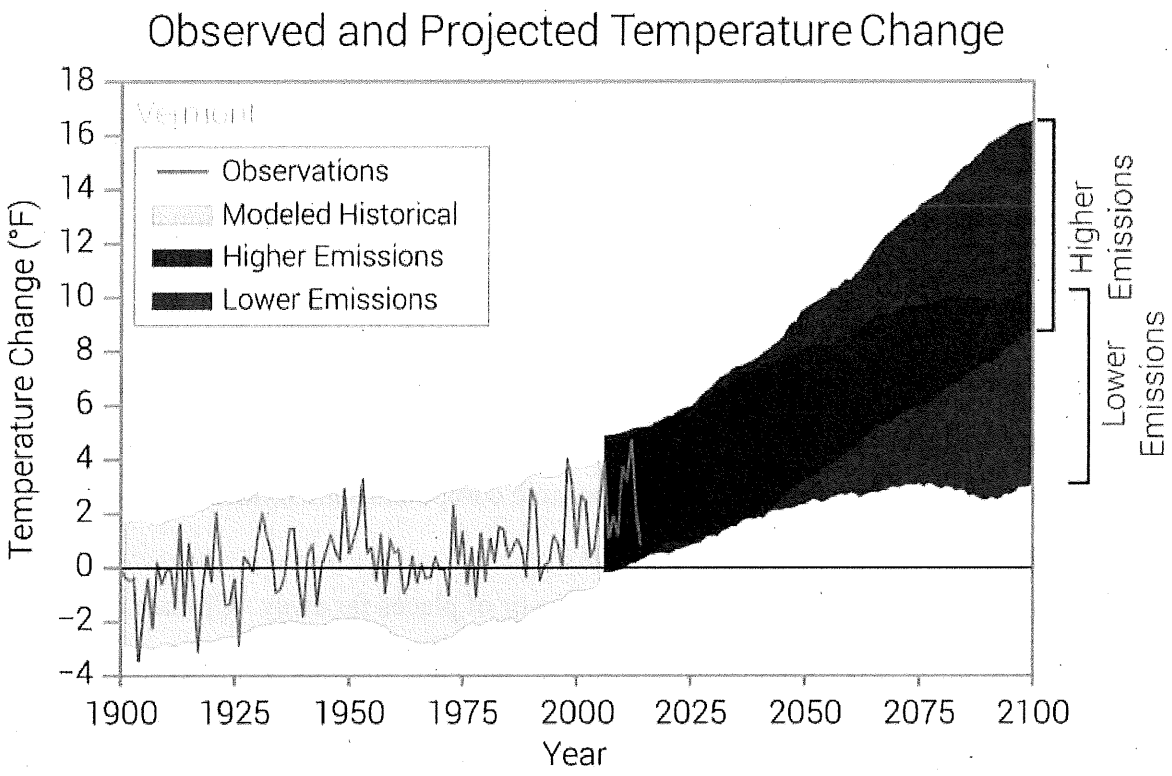


Figure 1. Observed and projected changes (compared to the 1901–1960 average) in near-surface air temperature for Vermont. Observed data are for 1900–2014. Projected changes for 2006–2100 are from global climate models for two possible futures: one in which greenhouse gas emissions continue to increase (higher emissions) and another in which greenhouse gas emissions increase at a slower rate (lower emissions). Temperatures in Vermont (orange line) have risen by more than 2°F since the beginning of the 20th century. Shading indicates the range of annual temperatures from the set of models. Observed temperatures are generally within the envelope of model simulations of the historical period (grey shading). Historically unprecedented warming is projected to continue through the 21st century. Less warming is expected under a lower emissions future (the coldest years being about 2°F warmer than the historical average; green shading) and more warming under a higher emissions future (the hottest years being about 12°F warmer than the hottest year in the historical record; red shading). Source: CICS-NC and NOAA NCEI.[8]

[8] NOAA National Centers for Environmental Information, State Climate Summaries, available at https://statesummaries.ncics.org/vt.

11. Despite the variability in our weather from day to day or year to year, it is clear that natural processes in Vermont are responding to the warming trend. Data show that, *on average*, the following changes have occurred over the last 40 years:[9]

    - The growing season for frost-sensitive plants has increased by two weeks.
    - The ice-out of Vermont's small lakes has come roughly three days earlier per decade, and the first freeze-up has occurred about four days later per decade. As a result, lakes and ponds, such as Stiles Pond in northeastern Vermont, are frozen each winter for about four weeks less than they were 40 years ago.
    - The first leaf of Vermont lilacs, an indicator of early spring, is also occurring earlier, by an average of approximately three days per decade.

12. Other changes in Vermont's climate provide harbingers of what we can expect in the future. Average annual precipitation has increased by 15 to 20 percent in the past 50 years, and has increased nearly 6 inches in Vermont since the beginning of the 20th century.[10] Across the Northeast, heavy downpours have increased in frequency and intensity too; these storms now release 67 percent more rain than they did 50 years ago.[11] From 1995-2014, Vermont experienced nearly twice as many precipitation events greater than 2" as compared to the previous 45 years. [12]

13. These factors have already contributed to increased flooding in Vermont, with almost twice as many FEMA-declared disasters in Vermont from 2007-2016 as compared to the previous 10 years. Most notably, Tropical Storm Irene in 2011 resulted in six deaths, extensive damage to buildings, farms, and infrastructure, and widespread water contamination. In January of 2018, a cold and snowy period was followed by rapid warming into the 60's and heavy rains, causing ice jams and extensive flooding in several Vermont communities.

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[9] *Vermont Climate Change Indicators* , available at http://alanbetts.com/understanding-climate-change/topic/vermont-climate-change-indicators/

[10] NOAA National Centers for Environmental Information, State Climate Summaries, available at https://statesummaries.ncics.org/vt.

[11] Vermont Agency of Natural Resources, *Resilience: A Report on the Health of Vermont's Environment* (2011), available at http://www.anr.state.vt.us/anr/envrptsb/ANREnvReport2011.pdf

[12] https://statesummaries.ncics.org/vt

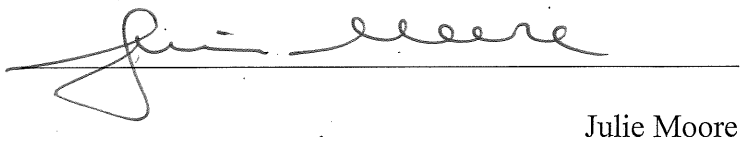
14. Changes in local climate will also impact Vermont's environment and economy by affecting activities dependent on seasonal climate patterns, such as maple sugaring, farming, fall foliage tourism, timber harvesting, and winter sports. Researchers predict that by 2050, and maybe even earlier, ski areas in Southern New England will not be economically viable.[13] Also, more intense rain events increase nutrient runoff to surface waters and warmer water temperatures create more favorable conditions for cyanobacteria blooms at beach and waterfront locations with high tourist traffic.
15. Changing climate may reduce the output of Vermont's $700-million dairy industry, which provides 70 percent of the state's farm revenue. Higher temperatures cause cows to eat less and produce less milk. Climate change may also pose challenges for field crops: Some farms may be harmed if more hot days and droughts reduce crop yields, or if more flooding and wetter springs delay their planting dates.
16. Warmer temperatures are likely to shift the suitable habitat for sugar maples farther north into Canada. Scientists are not certain whether warming will reduce maple syrup production in Vermont over the next few decades, although Vermont stands much to lose as the nation's leading maple syrup producer.
17. In addition to environmental and economic impacts, climate change has already affected the health and well-being of Vermonters. Climate change is altering the frequency, timing, intensity, and duration of extreme weather events (meteorological events that have a significant impact on local communities). Injuries and deaths have been the most direct health impacts associated with floods and other natural disasters in Vermont, though impacts to housing, businesses, drinking water, and mental health have also lingered long after some disasters. Heavy rains wash contaminants (even when flooding has not occurred) into drinking, recreational surface, and irrigation waters, increasing the risks for waterborne illnesses. The projected increase in the frequency and intensity of hot weather in Vermont is also expected to increase risk for heat illnesses and deaths, particularly among older adults.
18. Warming conditions are one of several factors that have contributed to increased distribution and abundance of black-legged ticks that transmit the pathogens causing Lyme disease,

[13] Steiger, Robert, et al., *A critical review of climate change risk for ski tourism*, Current Issues in Tourism. 13 (2017).

anaplasmosis, babesiosis and other diseases. Climate change is expected to further expand the range of the black-legged tick and lengthen the tick activity season, increasing the risk of tickborne diseases in Vermont in the future. Warmer and wetter conditions in the state will also make conditions more favorable for the survival and reproduction of mosquitoes that can transmit West Nile Virus, Eastern Equine Encephalitis or other harmful pathogens.

19. A lengthening growing season, combined with increased plant growth due to higher levels of carbon dioxide in the air, will likely increase allergenic pollen in the air we breathe, while increased humidity and occasional flooding will likely also lead to increased problems with mold growth in buildings. Both pollen and damp or moldy conditions in buildings can trigger allergic reactions, asthma attacks, or other health problems. Because Vermont already has one of the highest asthma rates in the country, increases in asthma triggers could have widespread impacts for Vermonters.
20. Ultimately, some impacts from climate change will be impossible to avoid because the greenhouse gases already in the atmosphere will persist for a very long time. However, what the future holds will depend in large measure on our ability to reduce future GHG emissions to minimize climate change impacts and to adapt to those unavoidable impacts of climate change. EPA's withdrawal of the determination that the greenhouse gas emission standards for MY 2022-2025 vehicles and its revised determination that those standards are not appropriate and should be revised demonstrates EPA's intention to weaken the federal greenhouse gas emission standards, which will contribute to worsening of the adverse impacts from climate change in Vermont as described above.
21. I declare under penalty of perjury that the foregoing is true and correct.

Executed this 27th day of August 2018.



Julie Moore

Exhibit L

Declaration of Stuart Clark
Manager, Air Quality Program
Washington State Department of Ecology

DECLARATION OF STUART CLARK

I, Stuart Clark, do hereby declare as follows:

1. I am now, and at all times mentioned have been, a citizen of the United States and am a resident of the state of Washington, over the age of 18 years, competent to make this declaration, and make this declaration from my own personal knowledge.

2. I am currently employed by the Washington State Department of Ecology (Ecology) as the Manager of the Air Quality Program. As Manager of the Air Quality Program, I oversee the work of Ecology's entire Air Quality Program throughout the state of Washington. I have worked in this position for approximately 12 1/2 years. I have worked with Ecology on air quality issues for more than 35 years.

3. In 2005, recognizing that motor vehicles are the largest source of air pollution in the state of Washington, the Washington State Legislature adopted the California motor vehicle emission standards, and required Ecology to adopt rules to implement the standards. Revised Code of Washington (RCW) 70.120A.010(1). Ecology has adopted the required rules, which incorporate California's motor vehicle standards by reference. Washington Administrative Code (WAC) 173-123-070.

4. On April 13, 2018, EPA published its determination that the nationally negotiated greenhouse gas emission requirements for model year (MY) 2022–2025 vehicles are no longer appropriate. This change of direction from a nationally negotiated consistent set of emissions standards is forcing the California Air Resources Board (CARB) to revise its rules to ensure that California will be able to enforce its own greenhouse gas standards for MY 2022–2025 vehicles. Ecology is following suit. We are on track to revise our rules to ensure that the California standards for MY 2022–2025 will be applicable in Washington State.

5. In revising our rules to accommodate the changes in CARB's rules, we must follow the rulemaking requirements of the state Administrative Procedure Act (APA) as well

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as requirements internal to Ecology. In accordance with APA requirements, we will need to draft rule language, issue a notice of proposed rulemaking, provide notice and the rule language to the public, allow at least 30 days for public comment, hold a public hearing, respond to comments, revise the rule as necessary to respond to public comments and then formally adopt the rule. For each rule, Ecology must also conduct a review under the state environmental policy act (SEPA). For each step of the rulemaking process, we must fully document the scope of the rule, the rationale for it, the results of the SEPA assessment and complete other paperwork required by Ecology's internal rulemaking procedures, and provide briefings to Ecology management. The substantial time and resources needed to revise Ecology's rule will just keep the current vehicle emission standards in place and diminish resources that otherwise would have been used for other critical work to keep Washington's air clean and meet federal ambient air quality standards.

6. Scientists from the Climate Impacts Group at the University of Washington have determined that climate change will significantly adversely affect Washington State, with an associated significant impact on Washington's economy. For example, under a business-as-usual greenhouse gas scenario, sea level is predicted to rise in Seattle relative to 2000 levels by 2 feet by 2050 and 5 feet by 2100. With 2 feet of sea level rise, a 1-in-100 year flood event will become an annual event.[1]

7. Washington has the largest shellfish industry on the west coast.[2] Increased ocean acidity caused by climate change is already affecting some shellfish species.[3] Under a business-as-usual greenhouse gas scenario, ocean waters are expected to become at least

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[1] State of Knowledge: Climate Change in Puget Sound (November 2015), Climate Impacts Group, University of Washington, at https://cig.uw.edu/resources/special-reports/ps-sok/ (Puget Sound) at 4–7.

[2] Washington: A Shellfish State, Washington Shellfish Initiative, at http://www.governor.wa.gov/sites/default/files/WSI%20factsheet.pdf.

[3] State of Knowledge Report, Climate Change Impacts and Adaptation in Washington State: Technical Summaries for Decision Makers, (December 2013), Climate Impacts Group, University of Washington, at https://cig.uw.edu/resources/special-reports/wa-sok/ (State of Knowledge) at 2–3.

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100% more acidic by 2100 relative to 1986–2005.[4] The predicted level of ocean acidification is expected to cause a 34% decline in shellfish survival by 2100.[5]

8. Washington depends on yearly winter mountain snow pack for drinking water, as well as water for irrigation, hydropower, and salmon. Washington's winter mountain snow pack is decreasing because climate change is causing more precipitation to fall as rain rather than snow. By the 2040s, snow pack is predicted to decrease 38–46% relative to 1916–2006,[6] and by the 2080s, snow pack is expected to decline 56–70%.[7] This loss of snow pack will cause a 50% increase in the number of years in which water is not available for irrigation,[8] as well as a 20% decrease in summer hydropower production.[9]

9. Of Washington's total area (42.5 million acres), a little more than half (22 million acres) is forested.[10] Douglas fir accounts for almost half the timber harvested in Washington.[11] Under a moderate greenhouse gas scenario, Douglas fir habitat is expected to decline 32% by the 2060s relative to 1961–1990.[12] Wildland fires pose another threat to Washington's forests. Under a business as usual greenhouse gas scenario, decreases in summer precipitation, increases in summer temperatures and earlier snow melt are predicted to result in up to a 300% increase in the area in eastern Washington burned annually by forest fires[13] and up to a 1000% increase in area burned annually on the west side of the state (typically, the wet side).[14]

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[4] State of Knowledge at ES-2.
[5] State of Knowledge at 8-4.
[6] State of Knowledge at ES-2
[7] State of Knowledge at 6-10.
[8] State of Knowledge at 6-5.
[9] State of Knowledge at 6-5.
[10] Sustainable Forestry, Washington Forest Protection Association, at http://www.wfpa.org/sustainable-forestry/
[11] Department of Natural Resources 2015 Washington Timber Harvest Report, September, 2016, at https://www.dnr.wa.gov/publications/em_obe_wa_timber_harvest_2015_final2.pdf
[12] State of Knowledge at 7-1.
[13] State of Knowledge at 7-3.
[14] State of Knowledge at 7-4.

10. Because of these and other impacts of climate change in Washington, Washington law requires emissions of greenhouse gases in the state to be reduced to 1990 levels by 2020, to 25% below 1990 levels by 2035, and to 50% below 1990 levels by 2050. RCW 70.235.020(1). The majority of greenhouse gases emitted in Washington state come from motor vehicles.[15] Therefore, Washington state has compelling environmental, public health and economic interests in maintaining the nationally negotiated greenhouse gas emission standards for MY 2022–2025 motor vehicles.

I declare under penalty of perjury under the laws of the state of Washington and federal law that the foregoing is true and correct.

DATED this 24th day of August 2018 in Lacey, Washington.

STUART CLARK

[15] Washington State Greenhouse Gas Emissions Inventory 2010-2011, Department of Ecology, State of Washington, December 2014, Publication No. 14-02-024, at 7, http://www.wfpa.org/sustainable-forestry/.

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Exhibit M

Partial List of State Laws and Policies Establishing Limits on Greenhouse Gas Emissions

State	Law or Policy	Stated Goal or Mandate
California	Global Warming Solutions Act of 2006, Cal. Health & Saf. Code § 38566	Requires California to reduce statewide GHG emissions to 40% below 1990 levels by 2030
District of Columbia	2013 Sustainable DC Plan	Sets goal of reducing District's GHG emissions by between 26-28% below 2005 levels by 2025, 50% below 2006 levels by 2032, and 80% below 2006 levels by 2050
Massachusetts	Global Warming Solutions Act of 2008, Mass. Gen. Laws ch. 21N, §§ 3(b)&4(a)	Requires Massachusetts to reduce statewide GHG emissions to 80% below 1990 levels by 2050, with interim emission-reduction requirements in 2020, 2030, and 2040
Maryland	Greenhouse Gas Emissions Reduction Act of 2016, Annotated Code of Maryland, Environ. Art. §§ 2-1201 through 2-1211	Requires Maryland to reduce statewide GHG emissions by 25% below 2006 levels by 2020, and 40% below 2006 levels by 2030
New Jersey	The New Jersey Global Warming Response Act of 2007, N.J. Stat. Ann. § 26:2C-37 to -44	Requires New Jersey to reduce statewide GHG emissions to 1990 levels by 2020, and to 80% below 2006 levels by 2050
New York	2015 State Energy Plan; N.Y. Exec. Order 166 (2016)	Sets goal of reducing New York's GHG emissions to 40% below 1990 levels by 2030, and 80% below 1990 levels by 2050
Oregon	Or. Rev. Stat. § 468A.205	Sets goal of reducing Oregon's statewide GHG emissions to 10% below 1990 levels by 2020, and 75% below 1990 levels by 2050

Vermont	10 V.S.A. § 578(a)	Sets goal of reducing Vermont's statewide GHG emissions to 50% below 1990 levels by 2018, and 75% below 1990 levels by 2050
Washington	RCW 70.235.020	Requires Washington to reduce statewide GHG emissions to 1990 levels by 2020, to 25% below 1990 levels by 2035, and to 50% below 1990 levels by 2050 (or 70% below the state's expected emissions that year)

CERTIFICATE OF SERVICE

I hereby certify that I caused a copy of the foregoing State Petitioners' Appendix in Support of their Opposition to Respondents' and Movant-Intervenors' Motions to Dismiss to be filed on August 29, 2017 using the Court's CM/ECF system, and that, therefore, service was accomplished upon counsel of record by the Court's system.

/s/ David Zaft
DAVID ZAFT