

BEFORE THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

In the Matter of California's Request for Authorization Pursuant to Clean Air Act Section 209(e) for the 2022 Amendments to the Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate

CLEAN AIR ACT § 209(e)(2) AUTHORIZATION SUPPORT DOCUMENT SUBMITTED BY THE CALIFORNIA AIR RESOURCES BOARD

December 29, 2022

I. INTRODUCTION AND OVERVIEW

The California Air Resources Board (CARB or Board) requests that the Administrator of the United States Environmental Protection Agency (EPA) grant California an authorization pursuant to section 209(e)(2) of the Clean Air Act (CAA) regarding the 2022 amendments to the "Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate" (TRU ATCM; title 13, California Code of Regulations, section 2477), hereinafter referred to as the 2022 Amendments or amendments.

Mobile sources, such as cars, trucks, locomotives, and off-road (also referred to as nonroad throughout this document) equipment, and the fossil fuels that power them, remain the largest source of air pollutant emissions in California, including fine particulate matter (PM_{2.5}), oxides of nitrogen (NO_x), and greenhouse gases (GHG). Such sources are responsible for approximately 90 percent of diesel particulate matter (diesel PM) emissions, 80 percent of smog-forming NO_x emissions, and nearly 50 percent of GHG emissions. Off-road engines and equipment represent the largest source of NO_x emissions in California and are projected to constitute an increasingly larger source of emissions in California as emissions from cars and trucks continue to decrease. The 2022 Amendments are needed to achieve reductions in emissions from diesel-powered TRUs to further protect communities from near-source pollution impacts, help California attain national and state ambient air quality standards, and to address climate-change induced harms and to support the State's climate goals.

Section II of this document provides a brief description of the Board's rulemaking action. Section III presents a summary of the elements of the 2022 Amendments that require authorization. Section IV identifies the criteria and principles applicable to authorizations, and Section V demonstrates that EPA has no basis to deny granting the requested authorization. The remainder of this section provides a brief overview of the TRU ATCM and the purpose of the 2022 Amendments.

A. California's Preexisting TRU ATCM

CARB initially adopted the TRU ATCM in 2004 to reduce diesel PM emitted from TRUs and TRU generator sets, which California identified as a toxic air contaminant (TAC) based on its potential to cause cancer; as well as the associated near-source health risk at facilities where TRUs operate. EPA authorized California to enforce the initial TRU ATCM in 2009.¹ CARB subsequently adopted amendments to the TRU ATCM in 2010 and 2011. EPA determined that the 2010 amendments fell within the scope of the initial authorization in 2013.² EPA determined that certain 2011 amendments fell within the scope of the existing authorization and granted a full authorization for the remaining 2011 amendments in 2017.³

The preexisting TRU ATCM requires TRU engines operating in California to meet the ultra-low emission TRU (ULETRU) performance standard (equal to 85 percent PM control compared to an uncontrolled Tier 0 engine) seven years after the engine model year, which can be met by one of the following compliance options:

- Use a TRU equipped with an engine that meets the EPA Tier 4 final nonroad emission standards for 25-50 horsepower engines (meets ULETRU).
- Retrofit an existing TRU with a Level 3 Verified Diesel Emission Control Strategy with 85 percent PM control (meets ULETRU).
- Use an alternative technology that eliminates TRU diesel engine operation (and emissions) while at a facility. Alternative technologies include electrification, cryogenic refrigeration systems, alternative fuel systems, exclusive use of alternative diesel fuel, fuel cell-powered refrigeration systems, and other technologies that eliminate emissions while at a facility (meets ULETRU).
- Replace the existing unit (engine and refrigeration system) with a new TRU equipped with an engine that meets the EPA Tier 4 final nonroad emission standards for less than 25 horsepower engines, which would be in compliance until the seventh year after the replacement TRU's engine model year (does not meet ULETRU).

The 2010 amendments included additional recordkeeping and reporting requirements for TRU original equipment manufacturers (OEM) that directly or indirectly sell, or offer for sale, TRUs to the California market, as well as more stringent definitions for compliance. The 2011 amendments extended certain TRU performance standard compliance deadlines from those originally contained in the initial 2004 regulation and included provisions to improve enforceability.

¹ 74 Fed. Reg. 3030 (Jan. 16, 2009).

² 78 Fed. Reg. 38970 (June 28, 2013).

³ 82 Fed. Reg. 6525 (Jan. 19, 2017).

B. Purpose of 2022 Amendments

Despite the progress made under the preexisting TRU ATCM, additional emission and health risk reductions are needed from diesel-powered TRUs to further protect communities from near-source pollution impacts, help California attain state and federal health-based ambient air quality standards, and address climate-change induced harms and support the State's climate goals. The 2022 Amendments are expected to achieve the following cumulative total emission reductions from 2022 to 2034:

- 1,258 tons of PM_{2.5}
- 3,515 tons of NO_x
- 1.42 million metric tons of carbon dioxide equivalent (CO₂e)

The 2022 Amendments are needed to further reduce TRU emissions to provide public health benefits and reduce the cancer risk burden to communities surrounding facilities where they operate, particularly in disadvantaged communities experiencing disproportionate burdens.

While CARB's existing programs have achieved progress in reducing NO_x and PM_{2.5} from mobile sources statewide, challenges remain in meeting the federal ambient air quality standards for ozone and PM_{2.5} in several areas of the State, including the South Coast Air Basin and San Joaquin Valley. Legally-obligated deadlines require these areas to attain the federal national ambient air quality standards (NAAQS). These deadlines are established by the federal Clean Air Act and implemented by EPA each time a new NAAQS is promulgated based on updated information showing health impacts at increasingly lower levels. The near-term targets for these areas are a 2023 deadline for attainment of the 80 parts per billion (ppb) 8-hour ozone standard, 2024 for the 35 microgram per cubic meter (µg/m³) 24-hour PM_{2.5} standard, and 2025 for the 12 µg/m³ annual PM_{2.5} standard. There are also mid-term attainment years of 2031 and 2037 for the more recent 8-hour ozone standards of 75 ppb and 70 ppb, respectively. The 2022 Amendments are one of the control measures included in California's 2022 State SIP Strategy to achieve the emission reductions needed for attainment by 2023 and 2031.

TRUs emit GHG emissions (including short-lived climate pollutants like black carbon and hydrofluorocarbons). The 2022 Amendments will reduce GHG emissions, which is needed to help achieve California's multiple GHG reduction targets and climate goals, including those required by Senate Bill 32 (Pavley, Chapter 249, Statutes of 2016) and Senate Bill 1383 (Lara, Chapter 395, Statutes of 2016). In recognition of the severity of the climate crisis and the need for immediate action, California's Governor Newsom signed Executive Order N-79-20 on September 23, 2020, establishing a first-in-the-nation goal for 100 percent zero-emission off-road vehicles and equipment where feasible by 2035. Transitioning diesel-powered truck TRUs to zero-emission, as required by the 2022 Amendments, supports the State's zero-emissions goals for off-road equipment.

In addition to air quality and health benefits, the 2022 Amendments are needed to address the emergence and growth in the number of trailer TRUs, domestic shipping container TRUs, railcar TRUs, and TRU generator sets equipped with engines less than 25 horsepower, which are currently subject to less stringent emission standards. The 2022 Amendments also strengthen the regulation by including requirements for owners and operators of facilities where TRUs operate and vehicle owners, as well as expanded TRU reporting and labeling to monitor compliance.

II. OVERVIEW OF CARB'S RULEMAKING ACTION

CARB posted the initial Notice of Public Hearing for the 2022 Amendments on July 27, 2021.⁴ CARB issued a Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information" (15-Day Notice) outlining changes to the proposed amendments on December 22, 2021.⁵ At its February 24, 2022 public hearing, the Board approved the amendments by Resolution 22-5.⁶ CARB submitted the amendments to the California Office of Administrative Law (OAL) for review on June 3, 2022. OAL subsequently approved the amendments and filed the rulemaking with the California Secretary of State on July 18, 2022. The 2022 Amendments became effective under state law on October 1, 2022.

III. SUMMARY OF THE 2022 AMENDMENTS

This section provides an overview of the emissions-related and accompanying enforcement provisions of the 2022 Amendments for which CARB is requesting an authorization. More detailed descriptions of these provisions are provided in the Staff Report: Initial Statement of Reasons (ISOR or Staff Report),⁷ 15-Day Notice,⁵ and the Final Statement of Reasons (FSOR).⁸

A. Lower Global Warming Potential Refrigerant Requirement

Beginning December 31, 2022, truck TRUs, trailer TRUs, and domestic shipping container TRUs manufactured after December 31, 2022, are required to use refrigerant with a global warming potential (GWP) less than or equal to 2,200⁹ (or use no refrigerant at all) and have a manufacturer supplied refrigerant label.¹⁰

⁴ Enclosure 1.

⁵ Enclosure 2.

⁶ Enclosure 3.

⁷ Enclosure 4.

⁸ Enclosure 5.

⁹ The global warming potential of a gas refers to the total contribution to global warming resulting from the emission of one unit of that gas relative to one unit of the reference gas, CO₂, which is assigned a value of 1 (as published by the Intergovernmental Panel on Climate Change).

¹⁰ Lower global warming potential refrigerant requirements are specified in section 2477.5(a).

B. PM Standard for Newly-Manufactured Non-Truck TRU Engines

Beginning December 31, 2022, certain requirements go into effect. Specifically, 2023 and subsequent model year trailer TRU, domestic shipping container TRU, railcar TRU, and TRU generator set (non-truck TRU) engines are required to meet a PM emission standard of 0.02 grams per brake horsepower-hour (g/hp-hr) regardless of horsepower.¹¹ 2022 and older model year non-truck TRU engines will continue to operate under the seven-year compliance deadline provided in the pre-existing TRU ATCM, in which they are required to meet ULETRU by December 31 of the seventh year after the engine model year.¹² For example, a trailer TRU equipped with a model year 2020 engine will be required to meet ULETRU by December 31, 2027. Truck TRUs are not subject to the PM emission standard because they are subject to a zero-emission requirement, as described below.

C. Zero-Emission Truck TRU Fleet Requirement

Beginning December 31, 2023, TRU owners are required to transition 15 percent of their truck TRU fleet to zero-emission technology each year.¹³ Table 1 shows the phase-in compliance schedule for the zero-emission truck TRU fleet requirement. The annual 15 percent zero-emission truck TRU requirement aligns with the seven-year compliance schedule established by the pre-existing TRU ATCM, in which TRU owners have been required to meet more stringent in-use performance standards at seven-year intervals until the TRU meets ULETRU. All truck TRUs operating in California are required to be zero-emission by December 31, 2029.

Table 1: Phase-in Compliance Schedule for Zero-Emission Truck TRU Fleets

Compliance Date as of December 31	Required Zero-Emission Truck TRU Fleet Percentage
2023	15%
2024	30%
2025	45%
2026	60%
2027	75%
2028	90%
2029 and thereafter	100%

¹¹ The PM Emission Standard for Model Year 2023 and Newer TRU and TRU Generator Set Engines is specified in section 2477.5(d).

¹² The In-Use Performance Standards for Model Year 2022 and Older TRU and TRU Generator Set Engines are specified in section 2477.5(c).

¹³ The zero-emission truck TRU requirements are specified in section 2477.5(b).

D. Applicable Facility Requirements

Beginning December 31, 2023, owners of refrigerated warehouses or distribution centers with a building size of 20,000 square feet or greater, grocery stores with a building size of 15,000 square feet or greater, seaport facilities, and intermodal railyards with TRU activity (applicable facilities) are subject to registration and reporting requirements.¹⁴ The square foot thresholds are based on the amount of TRU activity and associated health risk relative to facility size; there are no proposed size thresholds for seaport facilities or intermodal railyards because activity is not based on facility size and TRUs operate for longer periods of time at these facility types compared to refrigerated warehouses or distribution centers and grocery stores.

Facility registration requires information about the facility, including address, owner contact information, and building size. Applicable facility owners will also be required to ensure that only compliant TRUs operate on their properties. As an alternative, applicable facility owners may report information on all TRUs operating at their facility to CARB on a quarterly basis.

E. Expanded TRU Reporting and Compliance Label Requirements

Beginning December 31, 2023, TRU owners are required to report all TRUs operating in California to CARB, regardless of where they are based. Under the pre-existing TRU ATCM, only California-based units are required to be reported to CARB. Reporting of all TRUs that operate in California will enable CARB enforcement staff, as well as applicable facility owners and operators, vehicle owners, drivers, and freight contractors, to look-up the compliance status of a given TRU. Requiring all units that operate in California to be reported to CARB will also help to level the playing field between TRUs based in-state and out-of-state.

The 2022 Amendments also include new compliance label requirements for TRUs operating in California. Beginning December 31, 2023, for each TRU operated in California, TRU owners are required to affix a CARB-issued compliance label to both sides of the TRU housing. Compliance labels will enable CARB enforcement staff and responsible parties to quickly verify compliance of a TRU while it is operating. Currently, TRU owners are required to label the unit with the CARB identification number, which requires CARB enforcement staff to look-up the compliance status of each TRU in CARB's database. The compliance labels will be valid for three years and non-compliant TRUs will not be issued new compliance labels if they remain out of compliance or have outstanding violations.

¹⁴ Applicable facility registration and reporting requirements are specified in section 2477.17.

F. TRU Original Equipment Manufacturer Requirements

The 2022 Amendments include requirements for TRU original equipment manufacturers (OEM) that directly or indirectly sell, or offer for sale, TRUs to the California market.¹⁵ Beginning December 31, 2022, TRU OEMs are prohibited from manufacturing for sale or use in California, a truck TRU, trailer TRU, or domestic shipping container TRU, unless the TRU uses refrigerant with a GWP less than or equal to 2,200, or no refrigerant at all, and has a proper refrigerant label.

Beginning May 31, 2023, TRU OEMs are prohibited from manufacturing, for sale or use in California, a non-truck TRU, unless it is equipped with an engine that meets the PM emission standard. The May 31, 2023, date provides TRU OEMs sufficient time to use leftover stock of model year 2022 TRU engines that are not required to meet the PM emission standard.

Beginning December 31, 2023, TRU OEMs are prohibited from manufacturing for sale or use in California, a truck TRU, unless it is zero-emission. TRU OEMs are also required to provide a warranty for each zero-emission truck TRU for a period of three years from the date of purchase or 5,000 hours of compressor run time, whichever occurs first; and have an authorized service-and-repair facility located in California to perform warranty repairs. The warranty shall be comprehensive and cover all parts of the zero-emission truck TRU.

G. TRU Original Equipment Manufacturer Reporting

The 2022 Amendments remove the requirements for TRU OEM current and prior production reports. Previously, the TRU ATCM required TRU OEMs to report unit and engine data for the current production year and prior production years, as well as provide monthly production reports. Under the 2022 Amendments, TRU OEMs are required to provide to CARB, a single monthly production report for the previous calendar month for each TRU, TRU generator set, or zero-emission truck TRU produced for sale in California, North America, Canada, and Mexico.¹⁶

H. Lessor and Lessee Requirements

The 2022 Amendments allow a TRU owner (lessor) to delegate compliance responsibilities under the TRU ATCM to the TRU operator (lessee) if the rental or lease agreement is for a period of one year or longer, provided those responsibilities are delegated in the lease contract.¹⁷ To delegate compliance responsibilities under the TRU ATCM to an operator (lessee), the owner shall submit a Third-Party Agreement

¹⁵ Requirements for TRU, TRU Generator Set, and Zero-Emission Truck TRU Original Equipment Manufacturers are specified in section 2477.13.

¹⁶ Requirements for TRU OEM monthly production reports are specified in section 2477.20(l).

¹⁷ Requirements for lessors and lessees are specified in section 2477.12.

Confirmation Form for leased units. The lessor must attach a copy of the page(s) of the lease contract that identifies the parties to the contract and the page(s) of the lease contract with the contractual language highlighted or delineated that specifies delegation of the requirements.

I. Vehicle Owner and Driver Requirements

Vehicle owners of trucks or tractor-trailers equipped with a TRU will be required to ensure the TRU is compliant (i.e., those with a valid CARB compliance label or showing as compliant on CARB's website).¹⁸ Drivers will be required to allow CARB enforcement staff to conduct a visual inspection of TRUs to determine whether emission control components have been tampered with, inadequately maintained, or are defective.¹⁹

J. Compliance Extensions

1. Compliance Extension Based on Delays Due to Private Financing, Equipment Manufacture Delays, or Installer Delays

The TRU ATCM provides a one-time extension if the owner can demonstrate that TRU noncompliance is the result of delays due to financing, delivery by the manufacturer, or installation. The 2022 Amendments extend the extension period from a maximum of four months to six months in response to current supply chain issues.²⁰

2. Compliance Extension Based on Delays Due to Installation of Zero-Emission Fueling Infrastructure

The 2022 Amendments include a compliance extension for the zero-emission truck TRU requirements specified in section 2477.5(b), in which truck TRU owners may apply for a year-long extension, up to a maximum of two years, due to unforeseen, temporary, or extenuating circumstances outside of the truck TRU owner's control that prevents the installation of zero-emission infrastructure needed to operate the required zero-emission truck TRU(s).²¹ This may include delays in the manufacture and shipment of infrastructure equipment, obtaining construction permit(s), obtaining power from a utility, private financing, installation of infrastructure, or due to a natural disaster or discovery of archeological, historical, or tribal cultural resources under the California Environmental Quality Act. An additional compliance extension beyond the first two year-long extensions may be granted due to a delay in obtaining power from

¹⁸ Requirements for vehicle owners are specified in section 2477.6.

¹⁹ Requirements for drivers are specified in section 2477.7.

²⁰ The provisions related to the Compliance Extension Based on Delays Due to Private Financing, Equipment Manufacture Delays, or Installer Delays are specified in section 2477.5(n).

²¹ The provisions related to the Compliance Extension Based on Delays Due to Installation of Zero-Emission Fueling Infrastructure are specified in section 2477.5(o).

a utility. The compliance extension is necessary to provide flexibility to TRU owners for compliance deadlines because, for reasons that are beyond their control, the owner is unable to install necessary zero-emission fueling infrastructure to support required zero-emission truck TRUs by the compliance date.

IV. AUTHORIZATION CRITERIA AND PRINCIPLES

A. Criteria for Granting Authorizations Under CAA Section 209(e)

Section 209(e)(2) of the CAA sets forth the protocol for the Administrator to grant California an authorization to adopt and enforce standards and other requirements relating to the control of emissions from new and in-use nonroad engines that are not otherwise preempted from state regulations under section 209(e)(1).²²

Closely tracking the new motor vehicle waiver process, section 209(e)(2) directs the Administrator to grant an authorization to California for emissions standards and other emissions-related requirements for all other nonroad engines if California determines that the State's standards will be, in the aggregate, at least as protective of public health and welfare as applicable federal standards, unless he or she finds that: (1) the protectiveness finding of the state is arbitrary and capricious; (2) California does not need separate state standards to meet compelling and extraordinary conditions; or (3) the state standards and accompanying enforcement procedures are not consistent with section 209 of the CAA.²³ The criteria for reviewing a California request for authorization under section 209(e)(2) are nearly identical to the criteria that the Administrator must consider under section 209(b). In light of these almost identical protocols, EPA has confirmed that it would similarly interpret sections 209(b) and (e) where the language is similar.²⁴

One deviation in language is that CAA section 209(e)(2) requires the Administrator to consider consistency with other subsections of section 209 (whereas for new motor vehicles the requirement is consistency with section 202(a)). In its 209(e) Final Rule, EPA interpreted this provision to require that California's standards and accompanying enforcement provisions must also be consistent with sections 209(a), 209(e)(1), and 209(b)(1)(C).²⁵ As the Administrator has stated:

²² Section 209(e)(1)(A) excludes, from state emission standards, "[n]ew engines which are used in construction equipment or vehicles or used in farm equipment or vehicles and which are smaller than 175 horsepower." Section 209(e)(1)(B) excludes, from state emission standards, "[n]ew locomotives or new engines used in locomotives."

²³ 82 Fed. Reg. 6525, 6256 (Jan. 19, 2017).

²⁴ Air Pollution Control; Preemption of State Regulation for Nonroad Engine and Vehicle Standards (Final 209(e) Rule), 59 Fed. Reg. 36969 (July 20, 1994), Decision Document accompanying 60 Fed. Reg. 37440 (July 20, 1995) at p. 11; 65 Fed. Reg. 69763, 69764 (Nov. 20, 2000).

²⁵ 59 Fed. Reg. 36969, 36983 (July 20, 1994).

"In [o]rder to be consistent with section 209(a), California's [nonroad] standards and enforcement procedures must not apply to new motor vehicles or new motor vehicle engines. Secondly, California's nonroad standards and enforcement procedures must be consistent with section 209(e)(1), which identifies the categories permanently preempted from state regulation. California's nonroad standards and enforcement procedures would be considered inconsistent with section 209 if they applied to the categories of engines or vehicles identified and preempted from State regulation in section 209(e)(1). Finally, and most importantly in terms of application to nonroad [authorization requests], California's nonroad standards and enforcement procedures must be consistent with section 209(b)(1)(C). EPA will review nonroad authorization requests under the same "consistency" criteria that are applied to motor vehicle waiver requests. Under section 209(b)(1)(C), the Administrator shall not grant California's motor vehicle waiver if she finds that California 'standards and accompanying enforcement procedures are not consistent with section 202(a)' of the [CAA] ..."²⁶

Consistency with section 202(a) "relates in relevant part to technological feasibility and to federal certification requirements."²⁷ "The 'technological feasibility' component of section 202(a) obligates California to allow sufficient lead time to permit manufacturers to develop and apply the necessary technology."²⁸ "The federal certification component ensures that the Federal and California test procedures do not 'impose inconsistent certification requirements.'"²⁹ "Neither the court nor the agency has ever interpreted compliance with section 202(a) to require more."³⁰

B. Principles Followed in Granting CAA Section 209(e) Authorizations

1. The Burden Is on the Opponents Challenging the Request

In considering a waiver request, California is presumed to have satisfied the criteria for granting a waiver, and the burden to show otherwise is on those persons challenging

²⁶ 65 Fed. Reg. 69763, 69764 fn. 5 (Nov. 20, 2000).

²⁷ *Motor & Equip. Mfrs. Ass'n v. Nichols*, 142 F.3d 449, 463 (D.C. Cir. 1998) (quoting *Ford Motor Co. v. EPA*, 606 F.2d 1293, 1296 n. 17 (D.C. Cir. 1979)).

²⁸ *Id.*

²⁹ *Id.* (quoting 46 Fed. Reg. 26,371, 26,372 (1981)).

³⁰ *Id.* See also Decision Document accompanying 61 Fed. Reg. 53371 (Oct. 11, 1996) at p.2; Even where there is incompatibility between the California and federal test procedures, EPA has granted a waiver under circumstances where EPA accepts a demonstration of federal compliance based on California test results, thus obviating the need for two separate tests. 43 Fed. Reg. 1829, 1830 (Jan. 12, 1978); 40 Fed. Reg. 30311, 30314 (July 18, 1975).

the request.³¹ This has long been EPA's approach,³² and that approach has been upheld by the D.C. Circuit and ratified by Congress.³³ Given the identical structure and near identical language of sections 209(b) and 209(e)(2), the opponents of an authorization request bear a similar burden of proof when arguing that authorization should be denied.³⁴

2. The Scope of the Waiver/Authorization Proceeding Is Limited

The scope of the Administrator's inquiry in considering a waiver or authorization request is limited by the express terms of CAA sections 209(b)(1) and (e)(2)(A). Once California determines that its standards are, in the aggregate, at least as protective of public health and welfare as applicable federal standards, the Administrator must grant the waiver or authorization unless one of the three specified findings discussed in Section IV.A can be made.

This reading of the statute is consistent with the decision in *MEMA I* and prior EPA waiver decisions interpreting CAA section 209(b), which hold that the review of California's decision to adopt separate standards is a narrow one.³⁵ In granting the waiver for the CARB On-Board Diagnostic II Regulation in 1996, Administrator Carol Browner concluded that she must grant a waiver if she could not find sufficient evidence in the record to support any of the criteria that would allow a denial.³⁶ In 2009, Administrator William D. Ruckelshaus stated:

The law makes it clear that the waiver request cannot be denied unless the specific findings designated in the statute can properly be made. The issue of whether a proposed California requirement is likely to result in only marginal improvement in air quality not commensurate with its cost or is otherwise an arguably unwise exercise of regulatory power is not legally pertinent to my decision under section 209 ...³⁷

³¹ *MEMA I*, 627 F.2d 1095, 1121.

³² See e.g., 36 Fed. Reg. 17,458-17,459 (Aug. 31, 1971); 40 Fed. Reg. 23,102, 23,103 (May 28, 1975); Decision Document accompanying 61 Fed. Reg. 53371 at p. 15-16.

³³ *MEMA I*, 627 F.2d 1095, 1121. When Congress amended Section 209(b)(1) in 1977 to expand California's discretion, it expressly approved EPA's application of the waiver provision. H.R. Rep. No. 95- 294, at 301 (1977). Then, in 1990, Congress further ratified EPA's approach to Section 209(b)(1) by reenacting virtually identical text in Section 209(e)(2).

³⁴ See, e.g., Decision Document accompanying 60 Fed. Reg. 37440 (July 20, 1995) at p. 14; Decision Document accompanying 61 Fed. Reg. 69093 (Dec. 31, 1996) at pp. 16-17; 76 Fed. Reg. 77521, 775223 (Dec. 13, 2011); 82 Fed. Reg. 6525, 6528 (Jan. 19, 2017).

³⁵ See 40 Fed. Reg. 23102, 23103 (May 28, 1975).

³⁶ 61 Fed. Reg. 53371 (Oct. 11, 1996); *Motor & Equip. Mfrs Ass'n v. Nichols*, ("MEMA II") 142 F.3d 449 (D.C. Cir. 1998).

³⁷ 36 Fed. Reg. 17158 (Aug. 31, 1971). See also 40 Fed. Reg. 23102, 23104; Decision Document accompanying 58 Fed. Reg. 4166 (Jan. 7, 1993) at pp. 20-21; 74 Fed. Reg. 32744, 32748 (July 8, 2009).

3. Deference Must Be Accorded to California's Policy Judgments

In granting waivers to California's motor vehicle program, EPA has repeatedly and routinely deferred to the policy judgments of California's decision-makers. EPA has recognized that the intent of Congress in creating a limited review of California's waiver requests was to ensure that the federal government did not second-guess the wisdom of state policy.³⁸ Administrators have recognized that the deference is wide-ranging:

The structure and history of the California waiver provision clearly indicate both a Congressional intent and an EPA practice of leaving the decision on ambiguous and controversial matters of public policy to California's judgment.

* * * * *

It is worth noting ... I would feel constrained to approve a California approach to the problem which I might also feel unable to adopt at the federal level in my own capacity as a regulator. The whole approach of the Clean Air Act is to force the development of new types of emission control technology where that is needed by compelling the industry to "catch up" to some degree with newly promulgated standards. Such an approach ... may be attended with costs ... and by risks that a wider number of vehicle classes may not be able to complete their development work in time. Since a balancing of these risks and costs against the potential benefits from reduced emissions is a central policy decision for any regulatory agency under the statutory scheme outlined above, I believe I am required to give very substantial deference to California's judgments on this score.³⁹

By authorizing California to adopt its own emission standards for nonroad vehicles and engines, and by establishing almost identical requirements for EPA review of authorizing requests under section 209(e)(2) as it requires for waiver decisions under section 209(b), Congress unmistakably intended that the EPA accord similar deference to California's decisions under 209(e)(2).⁴⁰

V. AUTHORIZATION ANALYSIS

CARB submits that for the reasons set forth below, and in the documents associated with the 2022 Amendments' rulemaking action, the Administrator must grant

³⁸ See also, e.g., 74 Fed. Reg. 32744, 32748 (July 8, 2009).

³⁹ 40 Fed. Reg. 23102, 23104 (emphasis added). See also Decision Document accompanying 58 Fed. Reg. 4166 (Jan. 17, 1993) at p. 64.

⁴⁰ See discussion in *Engine Manufacturers Association v. U.S. EPA (EMA)*, 88 F.3d 1075, 1090 (D.C. Cir. 1996), wherein the court recognized California's leadership in emission control regulation in both new motor vehicles and new and in-use nonroad engines.

California an authorization for the 2022 Amendments, as the Administrator has no basis under the criteria of CAA section 209(e)(2) to deny California's request.

A. Protectiveness

Section 209(e)(2)(A)(i) mirrors section 209(b)(1)(A), which allows EPA to deny California an authorization for nonroad vehicle or engine emission standards if the State's "determin[ation] that California standards will be, in the aggregate, at least as protective of public health and welfare as applicable Federal standards" is arbitrary and capricious. As with standards for new on-road motor vehicles and engines, California evaluates the protectiveness of its nonroad emission standards "in the aggregate," assessing whether the State's standards, as a whole regulatory program, are at least as protective as EPA's standards.⁴¹ This assessment also occurs against the backdrop of prior authorization grants for which California determined, and EPA affirmed, that California's existing nonroad emissions program is at least as protective as EPA's. Consequently, California's protectiveness determination focuses on whether the new or amended standards for which it seeks an authorization would alter the protectiveness of the State's program in the aggregate – that is, whether the new or amended standards would cause the State's nonroad emissions control program to be less protective than EPA's nonroad emissions control program.⁴²

As explained in the cover letter accompanying this document, CARB's Executive Officer, pursuant to California Health and Safety Code 39516 and Board Resolution 78-10, has determined that the requirements related to the control of emissions associated with the 2022 Amendments will not cause California's nonroad engine and equipment emission standards, in the aggregate, to be less protective of public health and welfare than applicable federal standards. No basis exists for the Administrator to find that CARB's determination is arbitrary or capricious.

The Administrator has previously determined that CARB's emissions standards and accompanying enforcement provisions for TRUs are at least as protective of public health and welfare as the federal nonroad emissions standards and test procedures.⁴³ The 2022 Amendments do not affect that previous determination because they establish emissions standards and other emission-related requirements that are more stringent than any applicable federal requirements. For new non-truck TRU engines greater than 25 horsepower, the 0.02 g/hp-hr PM emission standard is at least as protective as the corresponding federal standard for new engines.⁴⁴ For new non-truck TRU engines less than 25 horsepower, the 0.02 g/hp-hr PM emission standard is more

⁴¹ CAA § 209(e)(2)(A)(i); 42 U.S.C. § 7543(e)(2)(A)(i).

⁴² 68 Fed. Reg. 65,702, 65,704 (Nov. 21, 2003) ("[T]he various amendments will not cause the California nonroad standards, in the aggregate, to be less protective of public health and welfare than the applicable Federal standards."); 75 Fed. Reg. 8056, 8059 (Feb. 23, 2010) (same).

⁴³ 82 Fed. Reg. 6525 (Jan. 19, 2017).

⁴⁴ For TRU engines rated between 25 and 50 horsepower, the EPA Tier 4 final nonroad diesel engine standards specify a PM emissions standard of 0.022 g/bhp-hr.

protective than the corresponding federal standard for new engines.⁴⁵

Furthermore, the in-use performance standards established by the 2022 Amendments are clearly more stringent than federal standards because EPA lacks authority to regulate in-use TRUs or TRU engines.⁴⁶ Similarly, the lower-GWP refrigerant and zero-emission truck TRU requirements are clearly more stringent than any applicable federal requirements, because there are no comparable federal requirements.⁴⁷

It is consequently clear that there is no way that the 2022 Amendments will cause California's nonroad engine and equipment emissions standards, in the aggregate, to be less protective of the public health and welfare than applicable federal standards. Accordingly, the Board's determination of protectiveness is clearly well founded.

B. Compelling and Extraordinary Circumstances

The Administrator has consistently recognized that California satisfies the second criterion for waivers and authorizations—that the State has “compelling and extraordinary conditions” and therefore continues to need its own motor vehicle and motor vehicle engine, and nonroad engine and equipment emissions control programs, respectively.

1. Traditional Interpretation of Compelling and Extraordinary Criterion

EPA has traditionally interpreted CAA section 209(e)(2)(A)(ii) consistently with its interpretation of section 209(b)(1)(B), i.e., as requiring an inquiry regarding California's need for a separate nonroad engine and equipment emissions control program, respectively, to meet compelling and extraordinary conditions, and not whether any given standard is necessary to meet such conditions. EPA has expressed this as an inquiry into “the existence of ‘compelling and extraordinary’ conditions” of the kind for which a separate state program of controls remains warranted.⁴⁸

⁴⁵ For TRU engines rated between 11 and 25 horsepower, the EPA Tier 4 final nonroad diesel engine standards specify a PM emissions standard of 0.30 g/bhp-hr.

⁴⁶ CAA section 213; *EMA v. EPA*, (D.C. Cir. 1996) 88 F.3d 1075; *Authorization of In-Use Emission Standards for Transport Refrigeration Unit Engines*, Decision Document (Decision Document), at pp. 13-14 and 18.

⁴⁷ “Indeed, California standards may be most clearly ‘at least as protective’ when they are compared to the absence of Federal emission standards.” 74 Fed. Reg. 32744, 32755 (July 8, 2009).

⁴⁸ 40 Fed. Reg. 23,103 (May 28, 1975); see also *id.* at 23,104 (concluding “[c]ompelling and extraordinary conditions continue to exist in the State of California”). See also 41 Fed. Reg. 44,209 44,210 (Oct. 7, 1976) (“[T]he question of whether these particular standards are actually required by California all fall within the broad area of public policy [left to] California's judgment ... consistent with the Congressional intent behind the California waiver provision.”).

In other words, “review ... under section 209(b)(1)(B) is not based on whether California has demonstrated a need for the particular regulations, but upon whether California needs standards to meet compelling and extraordinary conditions.”^{49,50}

California, particularly in the South Coast and San Joaquin Valley Air Basins, continues to experience some of the worst air quality in the nation. Several areas within California exceed the NAAQS for both ozone and PM_{2.5}. Currently, 19 areas within California, including the South Coast, San Francisco Bay Area, and Sacramento County air basins, are nonattainment areas for NAAQS for ozone.⁵¹ Four areas in California are in nonattainment with the NAAQS for PM_{2.5}.⁵² California’s South Coast and San Joaquin Valley Air Basins, in particular, continue to be in extreme non-attainment with NAAQS for ozone and in serious non-attainment with NAAQS for particulate matter.⁵³

In the California Clean Air Act of 1988, the California Legislature found that:

[D]espite the significant reductions in vehicle emissions which have been achieved in recent years, continued growth in population and vehicle miles traveled throughout California have the potential not only to prevent attainment of the state standards, but in some cases, to result in worsening of air quality.⁵⁴

In response to the undisputed severe air quality problems in California, the California Legislature authorized CARB to consider adopting, *inter alia*, standards and regulations for nonroad engines.⁵⁵ Given the serious air pollution problems California faces and the resultant need to achieve the maximum reductions in emissions, the California Legislature and CARB believe it is necessary to develop emission controls for nonroad sources as well as for motor vehicles.⁵⁶ By adding federal and state authority to regulate nonroad engines, Congress and California’s Legislature, respectively, acknowledged the increasing importance of reducing emissions from all mobile sources, including off-road engines. The Administrator has repeatedly agreed with CARB that California’s continuing extraordinary conditions justify separate California off-road emission control programs.⁵⁷ Nothing in these conditions has changed to warrant a change in this determination. Accordingly, for all the aforementioned reasons, there can be no doubt of the continuing existence of

⁴⁹ 44 Fed. Reg. at 38,660, 38,661 (July 2, 1979).

⁵⁰ The Administrator has recognized that even if such a standard-by-standard test were applied to California, it “would not be applicable to its fullest stringency due to the degree of discretion given to California in dealing with its mobile source pollution problems.” 41 Fed. Reg. 44209, 44213, (October 7, 1976); 49 Fed. Reg. 18887, 18892 (May 3, 1984) (finding Congressional intent precludes EPA from viewing adopted California vehicular particulate matter standard in isolation).

⁵¹ 2021 ISOR p. 1.

⁵² 2021 ISOR p. 1

⁵³ 78 Fed. Reg. 2112, 2130 (Jan. 9, 2013); 82 Fed. Reg. 4867, 4871 (Jan. 17, 2017).

⁵⁴ Cal. Health and Saf. Code, § 43000.5.

⁵⁵ Cal. Health and Saf. Code, §§ 43013, 43018.

⁵⁶ Cal. Health and Saf. Code, §§ 41750, 41754, 43000.5, 43013 and 43018.

⁵⁷ 60 Fed. Reg. 37440 (July 20, 1995); 61 Fed. Reg. 69093 (Dec. 31, 1996); 71 Fed. Reg. 29623 (May 23, 2006); 76 Fed. Reg. 77521 (Dec. 13, 2011).

compelling and extraordinary conditions justifying California's need for its own off-road engine and equipment emissions control program.

2. Alternative Interpretation of the Compelling and Extraordinary Criterion

Even if EPA applies a narrower standards-specific inquiry, the record demonstrates that California "needs" the emissions-related requirements of the 2022 Amendments to address compelling and extraordinary conditions in California.

On September 27, 2019, EPA, in conjunction with the National Highway Traffic Safety Administration, published "The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program" (SAFE 1), 84 Fed. Reg. 51310 (Sept. 27, 2019). In that action, EPA withdrew a portion of the waiver it had previously granted for California's Advanced Clean Cars (ACC) program—specifically, for California's zero-emission vehicle mandate and the GHG emission standards within California's ACC program. EPA justified its action, in part, on a determination that California did not need its own GHG emission standards to meet compelling and extraordinary conditions, within the meaning of section 209(b)(1)(B) of the CAA.⁵⁸ That determination was in turn based on EPA adopting a new, GHG pollutant-specific interpretation of section 209(b)(1)(B). As explained below, this temporary new interpretation was rescinded.

The first aspect of EPA's temporary new interpretation related to the overall scope of the analysis specified in section 209(b)(1)(B). EPA has consistently interpreted section 209(b)(1)(B) as requiring an inquiry about whether California needs its own separate motor vehicle emissions program rather than the specific motor vehicle emissions standards at issue, to meet compelling and extraordinary conditions.⁵⁹ However, in the SAFE 1 Action, EPA adopted an interpretation that section 209(b)(1)(B) requires an inquiry into whether California needs individual GHG emissions standards to meet compelling and extraordinary conditions.⁶⁰

The second aspect of EPA's temporary new interpretation related to its determination that section 209(b)(1)(B) requires a state-specific "nexus" between "the emissions from California vehicles, their contribution to local pollution, and the extraordinary impacts that that pollution has on California due to California's specific characteristics,"⁶¹ which categorically bans California's regulation of vehicular GHG emissions.⁶² EPA additionally newly-interpreted the term "compelling and extraordinary" in section 209(b)(1)(B) to require state-specific causes and effects,⁶³ and

⁵⁸ 84 Fed. Reg. at 51,328 (Sept. 27, 2019).

⁵⁹ 84 Fed. Reg. at 51,330; 86 Fed. Reg. 22426-427 (April 18, 2021).

⁶⁰ 84 Fed. Reg. at 51,340.

⁶¹ 84 Fed. Reg. 51,346.

⁶² 84 Fed. Reg. at 51,347.

⁶³ 84 Fed. Reg. 51344.

newly-interpreted the term “need” in 209(b)(1)(B) to require that GHG standards meaningfully “redress” or “address” climate change.⁶⁴

In April 2022, EPA reconsidered its SAFE 1 Action and rescinded its 2019 withdrawal of California’s waiver.⁶⁵ EPA additionally determined that its interpretation of section 209(b)(1)(B) under SAFE 1⁶⁶ was inconsistent with congressional intent and was contrary to the purpose of section 209(b). EPA accordingly rescinded its SAFE 1 Action’s interpretation of section 209(b)(1)(B), and returned to its traditional interpretation of section 209(b)(1)(B), stating that it “was appropriate and continues to be, at least, a better interpretation regardless of the rescission of the SAFE 1 interpretation of this criterion.”⁶⁷

As demonstrated in Section V.B.1, it is clear that under EPA’s traditional interpretation of 209(b)(1)(B) and 209(e)(2)(A)(ii), California has “compelling and extraordinary conditions” that justify its need for its own off-road engine and equipment emissions control program.

However, even under the SAFE 1 Action’s interpretation that section 209(b)(1)(B) requires an inquiry regarding California’s need for individual emissions standards to meet compelling and extraordinary conditions, EPA has no basis to find that the 2022 Amendments do not meet the compelling and extraordinary criterion.

As discussed in Section I, TRUs emit harmful air pollutants, including NO_x and PM. California needs to achieve reductions of both NO_x and PM to attain the NAAQS for ozone and particulate matter, and the 2022 Amendments are included in California’s 2016 State Implementation Plan (SIP) that is designed to achieve the emissions reductions needed for California to attain those NAAQS.⁶⁸ In addition, NO_x emissions pose serious risks to the health and welfare of Californians. NO_x emissions not only irritate the respiratory system and aggravate respiratory diseases, but they also react in the atmosphere to form ozone and PM. PM, in particular, poses serious risks to the health and environment of Californians, including increased risk of lung and heart diseases, as well as premature death. The 2022 Amendments are projected to reduce emissions of NO_x by 3,515 tons and emissions of PM_{2.5} by 1,258 tons from 2022 to 2034.

The 2022 Amendments are also expected to reduce the total number of incidents for premature mortality, hospital admissions for cardiovascular and respiratory illnesses, and emergency room visits for asthma, in an amount equivalent to monetized health

⁶⁴ 84 Fed. Reg. 51345, 51357.

⁶⁵ 87 Fed. Reg. 14332 (Mar. 14, 2022).

⁶⁶ 87 Fed. Reg. 14352, 14361.

⁶⁷ 87 Fed. Reg. 14367.

⁶⁸ California Air Resources Board, Revised Proposed 2016 State Strategy for the State Implementation Plan, March 7, 2017. (web link: <https://www.arb.ca.gov/planning/sip/2016sip/rev2016statesip.pdf>)

benefits of approximately \$1.75 billion from 2022 to 2034. EPA has never disputed California's need to reduce emissions of criteria pollutants.⁶⁹

These emissions reductions will assist California in the challenges it faces in attaining the national and state ambient air quality standards for ozone and PM, to reduce serious risks to the health and welfare of Californians, and to address climate change-induced harms. EPA has consistently found that California "needs" emissions standards to address the compelling and extraordinary conditions resulting from criteria pollutants,⁷⁰ including emissions standards that expressly specify limitations of emissions of GHGs,⁷¹ and therefore has no basis to find that the 2022 Amendments do not satisfy the "compelling and extraordinary" criterion.

The determination that the 2022 Amendments satisfy the "compelling and extraordinary" criterion is additionally supported by considerations of the climate-change induced impacts affecting California and the contributions of TRU engines and refrigerant leakage to the GHG emissions resulting in such impacts, even under EPA's improper SAFE 1 interpretation that "compelling and extraordinary" requires state-specific causes and effects of pollution impacts.

California's Legislature recognizes the severe threats the State faces from climate change. In enacting the California Global Warming Solutions Act of 2006 ((AB 32), Nuñez, Chapter 488, Statutes of 2006), California's legislature found and declared that:

"Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other health-related problems."⁷²

⁶⁹ 79 Fed. Reg. 46256, 46261-262 (Aug. 7, 2014).

⁷⁰ 53 Fed. Reg. 7022 (Mar. 4, 1988); 55 Fed. Reg. 43029, 43031 (Oct. 25, 1990); 69 Fed. Reg. 60995 (Oct. 14, 2004); 79 Fed. Reg. 46256, 46261-262 (Aug. 7, 2014); 84 Fed. Reg. 51344, 51346 (Sept. 27, 2019).

⁷¹ 79 Fed. Reg. 46256, 46261 (Aug. 7, 2014), 81 Fed. Reg. 95982, 95986 (Dec. 29, 2016); In its Notice of Opportunity for Public Hearing and Comment Regarding Reconsideration of its SAFE 1 Action, EPA noted that it has determined in two waiver requests for CARB rulemakings that established GHG standards for heavy-duty vehicles, it could not find that California no longer needed its motor vehicle emissions program to meet compelling and extraordinary conditions under its traditional interpretation of section 209(b)(1)(B). 86 Fed. Reg. 22421, 22427 (April 28, 2021).

⁷² Cal. Health & Saf. Code § 38501(a).

Those climate-change induced harms are also discussed in the Staff Report,⁷³ CARB's comments on the Proposed SAFE 1 Action,⁷⁴ CARB's and California's briefs in the *Union of Concerned Scientists v Natl. Highway Safety Administration* case,⁷⁵ and CARB's comments in response to EPA's Notice of Reconsideration of its SAFE 1 Action.⁷⁶ CARB's comments on the Proposed SAFE 1 Action and to the Notice of Reconsideration of that Action discuss some of the findings of California's Fourth Climate Change Assessment,⁷⁷ which discusses some of the existing and expected impacts of climate change specifically occurring in California, including increases in ground-level ozone,⁷⁸ sea-level rise and coastal erosion,⁷⁹ variability in precipitation and reductions in water supply from reduced snowpack,⁸⁰ increased frequency of droughts and land subsidence,⁸¹ lower agricultural crop yields, increased susceptibility of forests to wildfires, increased mortality risks to people due to extreme heat events, and flooding of California's coastal transportation infrastructure.⁸²

CARB's comments on the Notice of Reconsideration of the SAFE 1 Action discuss other studies that also establish California is especially impacted by climate change induced harms, including a 2019 study that demonstrated local emissions of a GHG

⁷³ "[C]limate change is one of the most serious environmental threats facing the world today. Climate scientists agree that global warming and other shifts in the climate system observed over the past century are caused by human activities and that these recorded changes are occurring at an unprecedented rate. California is already feeling the impacts 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. Projections show that these effects will continue and worsen." Staff Report, pp. 35 to 36 (Enclosure 4).

⁷⁴ Analysis in Support of Comments of the California Air Resources Board on the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks (October 26, 2018), EPA-HQ-OAR-2018-0283-5054. (web link: <https://www.regulations.gov/comment/EPA-HQ-OAR-2018-0283-5054>)

⁷⁵ Proof Brief Of State And Local Government Petitioners and Public Interest Petitioners, *Union of Concerned Scientists v. Natl Highway Safety Administration*, 19-1230, (D.C. Cir. June 29, 2020); Final Reply Brief Of State And Local Government Petitioners and Public Interest Petitioners, *Union of Concerned Scientists v. Natl Highway Safety Administration*, 19-1230 (D.C. Cir. Oct. 27, 2020).

⁷⁶ Docket No. EPA-HQ-OAR-2021-0257-0132.

⁷⁷ California's Fourth Climate Change Assessment, California's Changing Climate 2018: A Summary of Key Findings (Aug. 2018) (last accessed Nov. 2, 2021), and California's Fourth Climate Change Assessment Statewide Summary Report (last accessed Nov. 2, 2021).

⁷⁸ California's Fourth Climate Change Assessment, California's Changing Climate 2018: Statewide Summary Report at 40.

⁷⁹ California's Fourth Climate Change Assessment, California's Changing Climate 2018: A Summary of Key Findings 6,18 (Aug. 2018).

⁸⁰ Cal. Gov. Office of Planning and Research et. al, California's Fourth Climate Change Assessment: Statewide Summary Report, Aug. 2018, p. 24. (web link: https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf)

⁸¹ Cal. Gov. Office of Planning and Research et. al, California's Fourth Climate Change Assessment: A Summary of Key Findings, Aug. 2018, pp. 5,14.

⁸² Cal. Gov. Office of Planning and Research et. al, California's Fourth Climate Change Assessment: Statewide Summary Report, August 2018, pp. 54-55. (web link: https://www.energy.ca.gov/sites/default/files/2019-11/Statewide_Reports-SUM-CCCA4-2018-013_Statewide_Summary_Report_ADA.pdf)

(CO₂) can result in localized environmental effects such as ocean acidification of the Monterey Bay.⁸³

It is also apparent, even under EPA's improper SAFE 1 interpretation that section 209(b)(1)(B) requires an inquiry regarding California's need for individual GHG emissions standards to meet compelling and extraordinary conditions, that the 2022 Amendments are needed to meet the above-mentioned compelling and extraordinary conditions because TRUs emit approximately 1 million metric tons of GHGs in California per year. In addition, mobile sources, including TRUs, are the largest source of GHG emissions in California and account for approximately 50 percent of the State's total GHG emissions.

Thus, the above-mentioned impacts of climate change in California constitute "compelling and extraordinary" conditions under any reasonable interpretation of section 209(b) and section 209(e)(2)(A)(ii). In addition, such climate change-induced impacts are sufficiently "different" from the impacts in other parts of the nation, even under the impermissibly constrained interpretation of "compelling and extraordinary" in the SAFE 1 Action.

CARB's comments on the proposed SAFE 1 Action further set forth California's compelling and extraordinary climate change conditions:

While other States will experience their own substantial climate harms, California's extensive coastline, reliance on snowpack for water storage, susceptibility to drought, potential for land subsidence, and other geographic and climatic factors render it particularly vulnerable and impacted. Further, the impacts to California's agricultural sector have the potential to dramatically affect the Nation as a whole because California currently produces more than a third of the country's vegetables and two-thirds of the country's fruits and nuts.⁸⁴ Thus, even if EPA's unlawful requirement that California's conditions be "sufficiently different" from the rest of the nation could apply here, climate change impacts would still constitute such conditions.⁸⁵

California, therefore, meets the compelling and extraordinary criterion under either EPA's traditional interpretation of this criterion or its impermissibly constrained (and now rescinded) SAFE 1 interpretation that section 209(b)(1)(B) requires an inquiry regarding California's need for individual GHG emissions standards to meet

⁸³ Docket No. EPA-HQ-OAR-2021-0257-0132, at p. 46, citing Northcott, et al., Impacts of urban carbon dioxide emissions on sea-air flux and ocean acidification in nearshore waters, PLoS ONE (2019).

⁸⁴ Cal. Dept. of Food and Ag., California Agricultural Production Statistics. (web link: <https://www.cdfa.ca.gov/statistics>)

⁸⁵ Analysis in Support of Comments of the California Air Resources Board on the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks (October 26, 2018), EPA-HQ-OAR-2018-0283-5054, p. 369. (web link: <https://www.regulations.gov/comment/EPA-HQ-OAR-2018-0283-5054>)

compelling and extraordinary conditions, and that the term “compelling and extraordinary” requires state-specific causes and effects of pollution impacts.

C. Consistency with CAA Section 209

As noted in Section IV.A, CAA section 209(e)(2) requires consistency with several subsections of section 209; that is the Administrator must consider not only consistency with section 202(a) – as required under section 209(b)(1)(C) – but also other subsections of section 209. In its 209(e) Final Rule, EPA interpreted this provision to require that California’s standards and accompanying enforcement provisions must also be consistent with sections 209(a) and 209(e)(1).⁸⁶

1. Consistent with CAA Section 209(a)

CAA section 209(a) preempts states and political subdivisions from adopting or attempting to enforce any standard relating to the control of emissions from new motor vehicles or new motor vehicle engines. In granting California an authorization for the initial TRU ATCM rulemaking action (and 2010 and 2011 amendments), EPA found that the TRU ATCM was consistent with CAA section 209(a) because it did not apply to new motor vehicles and engines. The 2022 Amendments likewise are not preempted under section 209(a) because they apply to neither new motor vehicles⁸⁷ nor new motor vehicle engines, and the regulated equipment clearly falls within the definition of nonroad engine established by Congress.⁸⁸

2. Consistent with CAA Section 209(e)(1)

CAA section 209(e)(1) prohibits states and local subdivisions from adopting or enforcing any standard or other requirement relating to the control of emissions of new engines used in farm and construction equipment that are smaller than 175 horsepower or engines used in new locomotives. In granting California an authorization for the initial TRU ATCM rulemaking action (and 2010 and 2011 amendments), EPA found that the TRU ATCM was consistent with CAA section 209(e)(1) because it did not apply to new engines under 175 horsepower used in farm and construction vehicles and equipment or to new locomotives or locomotive engines. The 2022 Amendments likewise are not preempted under section 209(e)(1) because they apply only to TRUs and TRU engines that operate in California. The

⁸⁶ Air Pollution Control; Preemption of State Regulation for Nonroad Engine and Vehicle Standards (“Section 209(e) Rule”), 59 Fed. Reg. 36969, 36983 (July 20, 1994).

⁸⁷ The regulated engines are not “self-propelled vehicles designed for transporting persons or property on a street or highway.” CAA section 216(2).

⁸⁸ A “nonroad engine” is defined as “an internal combustion engine (including the fuel system) that is not used in a motor vehicle or a vehicle used solely for competition, or that is not subject to standards promulgated under section 111 or section 202.” CAA section 216(10).

2022 Amendments do not apply to locomotives or to farm or construction equipment of any power size.

3. Consistent with CAA Section 209(b)(1)(C)

CAA section 209(b)(1)(C) provides that no waiver shall be granted if the Administrator finds that the state standards and accompanying enforcement procedures are not consistent with section 202(a) of the CAA. As discussed above in Section IV, “[t]he ‘technological feasibility’ component of section 202(a) obligates California to allow sufficient lead time to permit manufacturers to develop and apply the necessary technology.”⁸⁹

a. Technical Feasibility and Lead Time

The 2022 Amendments present no compliance issues regarding technical feasibility or lead time based on the existing technologies in place, the work already underway to develop compliant equipment, and the compliance flexibilities that are built into the regulation. This section outlines the technologies that TRU owners will likely utilize to comply with the 2022 Amendments. More detailed descriptions of these technologies are provided in the Staff Report.

Lower Global Warming Potential Refrigerant

As discussed in Section III.A, the 2022 Amendments require newly-manufactured truck TRUs, trailer TRUs, and domestic shipping container TRUs that operate in California to use a refrigerant with a GWP value less than or equal to 2,200, or use no refrigerant at all beginning December 31, 2022. In the United States, the predominant refrigerant used in TRUs is R-404A. Despite being non-ozone-depleting, R-404A has a high-GWP value of 3,922. R-452A is a hydrofluoroolefin-based replacement for R-404A. Like R-404A, R-452A is non-ozone depleting, but has a lower GWP of 2,140 and meets the 2,200 GWP threshold set by the amendments. R-452A can be used in new transport refrigeration equipment and for the retrofit of existing systems. R-452A is a “design-compatible” replacement for R-404A because it offers similar levels of refrigeration performance, fuel efficiency, reliability, and refrigerant charge. EPA approved R-452A for use in transport refrigeration applications in 2017.⁹⁰ TRUs in Europe have been using R-452A since 2015, as a result of the European Union F Gas Regulation requiring the phase down in the use of hydrofluorocarbons. In the United States, the two major TRU manufacturers have commercially available units with R-452A. Carrier currently offers R-452A as an option on their units,⁹¹ while

⁸⁹ Motor & Equip. Mfrs. Ass'n v. Nichols, 142 F.3d 449, 463 (D.C. Cir. 1998) (quoting Ford Motor Co. v. EPA, 606 F.2d 1293, 1296 n. 17 (D.C.Cir.1979)).

⁹⁰ United States Environmental Protection Agency, Federal Register, Vol. 82, No. 139, Page 33823, July 21, 2017. (web link: <https://www.govinfo.gov/content/pkg/FR-2017-07-21/pdf/2017-15379.pdf>)

⁹¹ Fleet Owner, “Carrier Adds R-452A Option,” December 29, 2020. (web link: <https://www.fleetowner.com/refrigerated-transporter/refrigerated-vehicles-equipment/article/21233034/carrier-transicold-adds-r452a-option>)

Thermo King units come standard with R-452A.⁹² The estimated incremental capital cost associated with the lower-GWP refrigerant requirement is \$38 more for a truck TRU and \$100 more for a trailer TRU or domestic shipping container TRU. The estimated annual incremental maintenance cost is \$9 more per truck TRU per year and \$21 more per trailer TRU and domestic shipping container TRU per year.

PM Emission Standard

As discussed in Section III.B, the 2022 Amendments require newly-manufactured (2023 and subsequent model year) non-truck TRU engines to meet a PM emission standard of 0.02 g/hp-hr or lower beginning December 31, 2022. 2013 and subsequent model year TRU engines in the 25 to less than 50 horsepower category certified to the EPA Tier 4 final nonroad engine standards meet the 0.02 g/hp-hr standard. Both Carrier and Thermo King have commercially-available TRUs with greater than 25 horsepower engines certified to meet the PM emission standard. While the Staff Report stated that over 44,000 trailer TRUs, domestic shipping container TRUs, railcar TRUs, and TRU generator sets are registered in CARB's Equipment Registration Program that are equipped with a certified engine that meets the PM emission standard, updated information as of November 2022 indicates there are now over 54,000.⁹³ In addition, Carrier introduced four new units in July 2022 that meet the PM emission standard. The new units will be available for order in late 2022 for delivery in 2023.⁹⁴ The estimated incremental capital cost associated with the PM standard for a trailer TRU, domestic shipping container TRU, or railcar TRU is \$2,900, representing 11 percent of the purchase price; and \$2,600 for a TRU generator set, which represents 15 percent of the purchase price.

For model year 2023 and newer non-truck TRUs with greater than 25 horsepower engines, CARB is aligning its PM emission standard with EPA. Thus, no issue of technical feasibility or costs arises from these requirements because EPA itself determined the federal standards were feasible when it adopted the federal nonroad standards.⁹⁵

Zero-Emission Truck TRU

As discussed in Section III.C, the 2022 Amendments require TRU owners to turnover at

⁹² Fleet Owner, "Thermo King standardizes R-452A to decarbonize reefer fleets by almost 50%," January 10, 2022. (web link: <https://www.fleetowner.com/refrigerated-transporter/refrigerated-vehicles-equipment/article/21233508/thermo-king-standardizes-r452a-to-decarbonize-refrigerated-fleets-by-almost-50>)

⁹³ California Air Resources Board, Air Resources Board Equipment Registration System. (web link: <https://arber.arb.ca.gov/>, last accessed November 2022)

⁹⁴ Carrier Press Release, "Carrier Transicold's New Premium Performance Trailer Refrigeration Units to Offer Greater Fuel Efficiency, Lifetime CARB Compliance," July 27, 2022. (web link: <https://www.carrier.com/commercial/en/my/news/news-article/carrier-transicold-s-new-premium-performance-trailer-refrigeration-units-to-offer-greater-fuel-efficiency--lifetime-carb-compliance.html>)

⁹⁵ 69 Fed. Reg. 38958 (June 29, 2004).

least 15 percent of their diesel-fueled truck TRU fleet to zero-emission technology by December 31, 2023, and each year thereafter. All truck TRUs operating in California are required to be zero-emission by December 31, 2029.

Currently available zero-emission truck TRU technologies include battery-electric, cold plate, and cryogenic systems. Based on stakeholder feedback, staff expect the majority of owners to comply with the zero-emission truck TRU fleet requirement by purchasing battery-electric units.

Currently-available battery-electric truck TRUs achieve the key performance parameters required for transport refrigeration with the ability to perform their duty cycles by maintaining optimum set point temperature, providing fast pre-cool of the cargo area, and achieving the necessary operating range of 8 to 10 hours per day with batteries ranging in size from 10 to 60 kilowatt hours (kWh). A 40-kWh battery can handle a medium to frozen temperature load for an 8-to-12-hour route, depending on factors specific to each operation. With solar assist, operating range is increased by 1 to 2 hours per day. These systems have minimal impact on the payload capacity because the addition of batteries and in some cases, range extending solar panels, is offset by the removal of the diesel engine and diesel fuel tank.

It is expected that truck TRU owners will install infrastructure at their home terminals or distribution centers, enabling battery-electric truck TRUs to recharge their batteries at night or before dispatch. In addition, battery-electric truck TRUs may utilize Level 2 electric vehicle supply equipment already installed and operational throughout California to support light-duty and medium-duty vehicles. While the Staff Report stated that approximately 27,000 Level 2 charging outlets were located at over 13,000 stations statewide in May 2021, updated information as of November 2022 indicates there are now over 28,700 Level 2 charging outlets located at more than 13,600 stations statewide.⁹⁶

Battery-electric truck TRUs are currently available from small scale manufacturers. In addition, both Carrier and Thermo King have indicated to CARB staff that they are currently developing and intend to have battery-electric truck TRUs available in time to meet the zero-emission truck TRU implementation dates. Both manufacturers developed prototype units in 2021. Limited sales are anticipated to begin in 2023. The estimated capital cost of a zero-emission truck TRU ranges from \$35,600 to \$50,600⁹⁷ depending on the battery size, compared to the average cost of a diesel-powered truck TRU, which ranges from \$17,700 to \$21,000.

Additional Flexibility Provided Through Exemptions and Compliance Provisions

⁹⁶ U.S. Department of Energy, Energy Efficiency and Renewable Energy Alternative Fuels Data Center, Alternative Fueling Station Counts by State, November 2022. (web link: <https://afdc.energy.gov/stations/states>)

⁹⁷ Cost of a battery-electric truck TRU with a 40 kilowatt hour battery (based on projected battery costs in 2023).

While CARB expects the majority of TRU owners to be able to meet the compliance deadlines in the 2022 Amendments, the compliance extensions described in Section III.J provide increased flexibility to comply with the requirements. The 2022 Amendments include a one-time maximum six-month extension if the owner can demonstrate that TRU noncompliance is the result of delays due to financing, delivery by the manufacturer, or installation. The amendments also provide a year-long extension, up to a maximum of two years, for the zero-emission truck TRU requirements due to unforeseen, temporary, or extenuating circumstances outside of the truck TRU owner's control that prevents the installation of zero-emission infrastructure at the truck TRU home base facility. An additional compliance extension beyond the first two year-long extensions may be granted due to a delay in obtaining power from a utility. In addition, there is an existing provision in the TRU ATCM that provides TRU owners up to a one-year extension from a compliance deadline if they demonstrate that no compliance technology is available for a specific TRU within six months of a compliance date.

b. Compliance Costs

CARB considered the cost of compliance of the 2022 Amendments by estimating the costs and cost savings associated with each requirement. The total net cost of the amendments from 2022 to 2034 is estimated to be \$850.2 million. The costs to directly regulated parties will vary depending on the compliance pathway(s) selected and include one-time equipment capital and installation costs and recurring costs for maintenance, diesel and electricity usage, CARB fees, and administrative costs for registration and reporting.

CARB staff determined the estimated annual net cost to regulated entities as part of the Standardized Regulatory Impact Assessment, which can be found in ISOR Appendix B: Standardized Regulatory Impact Assessment (SRIA) for the Proposed Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate.⁹⁸ Staff updated the economic analysis with the release of the 15-Day Notice, which is detailed in the 15-Day Notice Appendix C: Summary of Proposed 15-Day Changes and Updated Economic Analysis.⁹⁹

CARB staff determined that direct costs to comply with the 2022 Amendments will largely be borne by TRU and applicable facility owners, but acknowledge that affected businesses may pass compliance costs through to consumers of temperature-controlled products. Assuming the total net costs of the amendments are fully passed through to consumers, the total impact of the amendments from 2022 to 2034 is \$64.06 per California household with a yearly average of \$4.93.

It bears repeating that the Administrator has long deferred to California's policy

⁹⁸ Enclosure 4.

⁹⁹ Enclosure 2.

judgments, including judgments on costs, stating: “The issue of whether a proposed California requirement is likely to result in only marginal improvement in air quality not commensurate with its cost or is otherwise an arguably unwise exercise of regulatory power is not legally pertinent to [a] decision under section 209” of the CAA.¹⁰⁰ Based on the above reasons, the 2022 Amendments are feasible within the time provided for compliance, giving appropriate consideration of costs.

D. Consistency with Federal Test Procedures

The 2022 Amendments present no issue of incompatibility between California and federal test procedures as they do not alter the test procedures specified for certifying federal or California off-road compression ignition engines.¹⁰¹

VI. CONCLUSION

Based on the foregoing, CARB respectfully requests that the Administrator grant California's request for an authorization for the 2022 Amendments to the TRU ATCM pursuant to CAA section 209(e). To assist you in reviewing the request, CARB is enclosing the following referenced documents to be included in the record of this authorization proceeding:

1. Notice of Public Hearing to Consider Proposed Amendments to the Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate, issued July 27, 2021 (Enclosure 1)
2. Notice of Public Availability of Modified Text, and Availability of Additional Documents, including all Appendices, issued December 22, 2021 (Enclosure 2)
3. Resolution 22-5, dated February 24, 2022 (Enclosure 3)
4. Staff Report: Initial Statement of Reasons, including all Appendices, issued July 27, 2021 (Enclosure 4)
5. Final Statement of Reasons for Rulemaking Including Summary of Comments and Agency Responses (Enclosure 5)
6. Addendum to the Final Statement of Reasons (Enclosure 6)
7. Updated Informational Digest (Enclosure 7)
8. Final Regulation Order (Enclosure 8)
9. Fully endorsed STD 400 (Enclosure 9)
10. Office of Administrative Law Approval Notice, dated July 18, 2022 (Enclosure 10)

¹⁰⁰ 36 Fed. Reg. 17458 (August 31, 1971). See also 40 Fed. Reg. 23102, 23104; 58 Fed. Reg. 4166 (January 7, 1993), Decision Document, at p. 20 [“Since a balancing of these ... costs against the potential benefits from reduced emissions is a central policy decision [of CARB in adopting the regulation] I believe I am required to give very substantial deference to California’s judgments on this score.”].

¹⁰¹ 75 Fed. Reg. 8056, 8060 (Feb. 23, 2010).

11. Transcript of September 23, 2021, Public Hearing, agenda item number 21-9-5
(Enclosure 11)
12. Transcript of February 24, 2022, Public Hearing, agenda item number 22-3-3
(Enclosure 12)

A. CARB Contacts

Technical questions or requests for additional technical information on this item should be directed to Ms. Cari Anderson, Chief, Freight Transport Branch, Transportation and Toxics Division, at (279) 208-7298, or Ms. Lea Yamashita, Staff Air Pollution Specialist, Transportation and Toxics Division, at (279) 208-7828. Legal questions should be directed to Mr. Rhead Enion, Senior Attorney, Office of Legal Affairs, at (279) 208-7770.