ENVIRONMENTAL PROTECTION

AIR QUALITY, ENERGY, AND SUSTAINABILITY

DIVISION OF AIR QUALITY

Model Year 2027 or Later Heavy-Duty New Engine and Vehicle Standards and Requirements;

Diesel Vehicle Inspection Tests and Procedures

Proposed Amendments: N.J.A.C. 7:27-14.1, 14.5, 15.1, 15.3, and 15.7 and 7:27A-3.10

Proposed New Rules: N.J.A.C. 7:27-28A

Proposed Repeals: N.J.A.C. 7:27-14 Appendix and 7:27-28

Authorized By: Shawn M. LaTourette, Commissioner, Department of Environmental Protection.

Authority: N.J.S.A. 13:1B-3(e), 13:1D-9, 26:2C-1 et seq., particularly 26:2C-8.1, 26:2C-8.15 et seq., and 39:8-2 and 61.

Calendar Reference: See Summary below for explanation of exception to calendar requirement.

DEP Docket Number: 07-22-10.

Proposal Number: PRN 2022-150.

A **public hearing** concerning this notice of rule proposal and the proposed State Implementation Plan (SIP) revision will be held on Thursday, December 8, 2022, at 9:30 A.M. The hearing will be conducted virtually through the Department of Environmental Protection's (Department) video conferencing software, Microsoft Teams. A link to the virtual public

hearing and telephone call-in option will be provided on the Department's rules proposal website at https://www.nj.gov/dep/rules/notices.html.

Submit comments by close of business on January 6, 2023, electronically at www.nj.gov/dep/rules/comments. Each comment should be identified by the applicable N.J.A.C. citation, with the commenter's name and affiliation following the comment.

The Department encourages electronic submittal of comments. In the alternative, comments may be submitted on paper to:

Alice A. Previte, Esq.

Attention: DEP Docket No. 07-22-10

Office of Legal Affairs

New Jersey Department of Environmental Protection

401 East State Street, 7th Floor

Mail Code 401-04L

PO Box 402

Trenton, NJ 08625-0402

If you are interested in providing oral testimony or submitting written comments at the virtual public hearing, please email the Department at monica.miranda@dep.nj.gov no later than 5:00 P.M. on Tuesday, December 6, 2022, with your contact information (name, organization, telephone number, and email address). You must provide a valid email address so the Department can send you an email confirming receipt of your interest to testify orally at the hearing and provide you with a separate option for a telephone call-in line if you do not have access to a computer or mobile device that can connect to Microsoft Teams. Further, this

hearing will be recorded. It is requested (but not required) that anyone providing oral testimony at the public hearing provide a copy of any prepared remarks to the Department via email.

The proposed repeals, new rules, and amendments will become operative 60 days after they are adopted by the Commissioner of the Department (see N.J.S.A. 26:2C-8). This notice of proposal may be viewed or downloaded from the Department's website at www.nj.gov/dep/rules.

The agency proposal follows:

Summary

As the Department has provided a 60-day comment period on this notice of proposal, this notice is excepted from the rulemaking calendar requirement, pursuant to N.J.A.C. 1:30-3.3(a)5.

On January 27, 2020, Governor Murphy issued Executive Order No. 100 (2020) (EO No. 100), which directs the Commissioner of the Department to, among other things, reform and modernize its air and land use regulations to mitigate the effects of climate change and to gather information to inform future climate-related rulemaking. In response to EO No. 100, Commissioner Catherine McCabe issued Administrative Order 2020-01 (AO No. 1), https://www.nj.gov/dep/njpact/, which directs the Department to propose rules that reduce emissions of carbon dioxide (CO_2) and short-lived climate pollutants, as well as identify the rules and programs that should be updated to better respond to the challenges presented by climate change. The Department held stakeholder meetings on February 25, 2020, as well as September 3, 10, and 16, 2020, to discuss multiple potential rulemakings that would be

responsive to EO No. 100 and AO No. 1. The public information meeting materials are available on the Department's website at https://www.nj.gov/dep/njpact/. Among the potential rulemakings discussed with stakeholders were California's Advanced Clean Trucks (ACT) regulation and complementary rules, known as the "Proposed Amendments to the Exhaust Emissions Standards and Test Procedures for 2024 and Subsequent Model Year Heavy-Duty Engines and Vehicles, Heavy-Duty On-Board Diagnostic System Requirements, Heavy-Duty In-Use Testing Program, Emissions Warranty Period and Useful Life Requirements, Emissions Warranty Information and Reporting Requirements, and Corrective Action Procedures, In-Use Emissions Data Reporting Requirements, and Phase 2 Heavy-Duty Greenhouse Gas Regulations, and Powertrain Test Procedures" (Low NO_x Omnibus rules), which California recently adopted in an effort to update the heavy-duty engine and vehicle emission standards to require more stringent and technically feasible emission control technology.

The Department separately proposed and adopted California's ACT regulation by incorporating those rules by reference (See 53 N.J.R. 588(a); 2148(a)), to reduce emissions of greenhouse gases and other criteria pollutants through the acceleration of sales of zero emission vehicle (ZEV) with a gross vehicle weight rating (GVWR) greater than 8,500 pounds, which is part of the State's overall strategy to electrify the transportation sector, consistent with the goals of EO No. 100 and AO No. 1. In conjunction with the transition of gasoline and diesel vehicles with a GVWR greater than 8,500 pounds to zero-emission vehicles, the Department proposes this rulemaking to: (1) incorporate by reference California's emission standards and supporting requirements for new model year (MY) 2027 and later gasoline and diesel engines and vehicles with a GVWR greater than 8,500 pounds; (2) repeal N.J.A.C. 7:27-28,

Heavy-Duty Diesel New Engine Standards and Requirements Program; (3) ensure that all heavy-duty vehicles are subject to the same emission inspection procedures and standards; (4) amend the definition of "gross vehicle weight rating" or "GVWR" at N.J.A.C. 7:27-14, Control and Prohibition of Air Pollution from Diesel-Powered Motor Vehicles, and 15, Control and Prohibition of Air Pollution from Gasoline-Powered Motor Vehicles, for consistency; (5) clarify that certain violations of N.J.A.C. 7:27-14 and 15 may be penalized pursuant to proposed new provisions at N.J.A.C. 7:27A-3; and (6) amend N.J.A.C. 7:27-15, so that the text more closely conforms to the text at N.J.A.C. 7:27-14. These proposed rules will ensure that any new gasoline- and diesel-powered vehicles rated in excess of 8,500 pounds GVWR sold in New Jersey will be subject to the most stringent emission standards that are technically feasible as the State steadily transitions to increased use of electric vehicles.

This Summary is organized by topic; consequently, some provisions of the new rules, such as the definitions, may be discussed in several places in the Summary.

Climate Change Strategies and Air Quality

In 2007, New Jersey's Legislature passed the Global Warming Response Act (GWRA), which recognized that climate change, primarily caused by emissions of heat-trapping greenhouse gases, poses a threat to the earth's ecosystems and environment. See N.J.S.A. 26:2C-38. Additionally, the Legislature acknowledged that reducing emissions of greenhouse gases was not only possible, but necessary to prevent further detrimental impacts on human, animal, and plant life. *Id*. The GWRA's two long-term goals are to reduce greenhouse gas emissions to the 1990 level of Statewide greenhouse gas emissions by 2020 (2020 goal), and to

reduce greenhouse gas emissions to 80 percent less than the 2006 level of Statewide greenhouse gas emissions by 2050 (the 80x50 goal).

Recognizing the need for a comprehensive strategy, Governor Murphy has directed multiple State agencies to develop or update reports and implement policies to mitigate climate change and strengthen resilience. Pursuant to Executive Order No. 28 (2019), the New Jersey Energy Master Plan was updated for 2019 and includes extensive modeling that resulted in the identification of seven overarching strategies the State should pursue in order to meet the 80x50 goal of the GWRA, as well as the goal of 100 percent clean energy by 2050 set forth in the 2019 EMP. See also 2019 Energy Master Plan: Pathway to 2050, https://nj.gov/emp/docs/pdf/2020_NJBPU_EMP.pdf (2019 EMP). In October 2020, the Department released the 2050 Report, which builds on the 2019 EMP by analyzing New Jersey's emissions reductions to date, evaluating plans presently in place for further reducing emissions, and presenting a set of strategies across seven emission sectors for policymakers to consider in formulating legislation, regulations, policies, and programs to ensure that New Jersey achieves the 80x50 goal. New Jersey Department of Environmental Protection, New Jersey's Global Warming Response Act 80x50 Report, October 15, 2020, Executive Summary, https://www.nj.gov/dep/climatechange/docs/nj-gwra-80x50-report-2020.pdf (2050 Report).

Both the 2019 EMP and the 2050 Report highlight the fact that reaching the 80x50 goal and the goal of achieving 100 percent clean energy by 2050 will require transformation in all economic sectors through the collaboration and planning of multiple State agencies, as well as the private sector, over the next three decades. See 2050 Report, Introduction, and Executive Summary; and 2019 EMP, Executive Summary and Conclusion, p. 231. For example, as New

Jersey moves toward the electrification of its transportation sector, multiple factors must be considered. These include, but are not limited to, the added demand for electric supply, the sources of electricity generated in New Jersey and for use in New Jersey through the regional transmission organization (known as PJM), emerging technologies, and the costs associated with technologies and infrastructure. New Jersey cannot immediately electrify all classes of vehicles within the transportation sector. Not only would electricity demand surpass the electric supply available from electric generating sources within the State, but also both development of the market for electric vehicles and the build-out of charging infrastructure requires more time.

Based upon these factors, electrification of the transportation sector must follow a deliberate, phased approach. To accelerate the sales of ZEVs rated in excess of 8,500 pounds GVWR, the Department has incorporated by reference the ACT regulation, as set forth in separate proposal and adoption documents (See 53 N.J.R. 588(a); 2148(a)). Assuming the EPA grants California's waiver request, beginning with model year 2025, New Jersey's Advanced Clean Truck (ACT) Program will require that certain manufacturers that sell vehicles in excess of 8,500 pounds GVWR in New Jersey generate enough credits to comply with the sales percentage requirement within the rule. A manufacturer may earn credits through direct sales of its own ZEVs in New Jersey. Alternatively, the manufacturer may purchase (or otherwise obtain) from another manufacturer enough ZEV credits to meet its percentage sales requirement. Pursuant to the ACT regulation, the sales percentage requirement will increase every year through 2035. Accordingly, the Department's implementation of California's ACT

regulation will serve as one of the initial steps New Jersey will take toward increased electrification of the transportation sector.

Though the Department's implementation of California's ACT regulation will be a significant positive step toward increasing electrification of the transportation sector, the ACT Program does not require total electrification of heavy-duty engines and vehicles and will not be fully implemented in New Jersey until 2035. Thus, during the transition to electrification of the transportation sector, the Department must continue to reduce pollutants from new gasoline- and diesel-powered vehicles in excess of 8,500 pounds GVWR that will continue to be placed in use throughout New Jersey.

As set forth in New Jersey's 2017 emission inventory, the on-road sources within the transportation sector are responsible for 44 percent of New Jersey's annual Statewide nitrogen oxide (NO_x) emissions, which are a precursor to ozone and secondary particulate matter (PM). Additionally, on-road sources are responsible for 10 percent of New Jersey's annual Statewide fine particulate matter (PM2.5) emissions. New Jersey is in non-attainment for the Federal ozone national ambient air quality standard (NAAQS) and must continue to reduce NO_x emissions Statewide to attain and maintain the ozone NAAQS. In 2006, New Jersey began to address these pollutants from on-road sources by adopting California's emission standards for MY 2009 or later light-duty and medium-duty passenger vehicles pursuant to N.J.A.C. 7:27-29, Low Emission Vehicle (LEV) Program. The Department proposes to mitigate the impact of these pollutants by incorporating by reference the California rules pertaining to emission standards and supporting requirements for gasoline- and diesel-fueled engines and vehicles with a GVWR greater than 8,500 pounds. California's emission standards were recently amended to include

more stringent NO_x and PM emission standards, which, if adopted in this State, will improve New Jersey's overall air quality and particularly benefit local communities that are disproportionately impacted by heavy truck traffic, including some overburdened communities (as defined at N.J.S.A. 13:1D-158).

The proposed incorporation by reference would establish a new regulatory program in New Jersey at proposed N.J.A.C. 7:27-28A, Model Year 2027 and Subsequent Model Year Heavy-Duty Engine and Vehicle Standards and Requirements (Heavy-Duty Emission Standards), that will be identical to California's emission standards for vehicles of the same model year and weight class beginning January 1, 2027. Specifically, the Department's proposed new rules will ensure that the gasoline- and diesel-powered vehicles rated in excess of 8,500 pounds GVWR that remain in operation during the transition to electrification of the transportation sector will be held to the most stringent NO_x and PM emission standards and that those vehicles will remain in compliance with the emission standards over a longer period of time. As a result of the proposed incorporation by reference at N.J.A.C. 7:27-28A, the Department proposes to repeal N.J.A.C. 7:27-28, which applies to only a subset of heavy-duty vehicles. The proposed rules, if adopted, would ensure that the emission standards at proposed N.J.A.C. 7:27-28A apply to all new motor vehicles and engines with a GVWR greater than 8,500 pounds (diesel and gasoline) beginning with MY 2027.

The Department's proposed amendments at N.J.A.C. 7:27-14, Control and Prohibition of Air Pollution from Diesel-Powered Motor Vehicles, harmonize the inspection test procedures and standards for diesel vehicles with a GVWR greater than 8,500 and less than 18,000 pounds with the existing inspection test procedures and standards for diesel buses and those for diesel

trucks with a GVWR of 18,000 pounds or more. The proposed amendments include an onboard diagnostic (OBD) inspection or smoke opacity test, which will help to ensure that the benefits of the more stringent emission standards are fully realized by alerting owners and operators to the need for necessary emission system repairs. Further, requiring inspections to be completed by trained and licensed inspectors at licensed inspection facilities will help to deter and identify vehicle tampering. The Department's other proposed amendments at N.J.A.C. 7:27-14 and 15, and 7:27A-3, are for consistency among the air rules and clarification of the penalties for violations.

History of Emission Standards for Heavy-Duty On-Road Vehicles

General

The 1970 Federal Clean Air Act (CAA) established motor vehicle emission control standards to limit emissions of criteria pollutants, such as carbon monoxide (CO), volatile organic compounds (VOC), NO_x, and PM. Since the 1970s, the U.S. Environmental Protection Agency's (EPA) emission standards for these pollutants have been revised to be progressively more stringent. See https://www.epa.gov/emission-standards-reference-guide/basic-information-about-emission-standards-reference-guide-road. Additionally, pursuant to its authority pursuant to the CAA, the EPA began establishing emission standards to reduce greenhouse gases from MY 2012 and subsequent MY vehicles. See https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-ghg-emissions; 75 FR 25324; 76 FR 57106.

Notably, the CAA granted the State of California, which has some of the worst air pollution in the nation and has been setting emission standards for new motor vehicles since 1959, the authority to enact stricter emission standards than the national standards set by the EPA. See 42 U.S.C. § 7543. In order to implement and enforce its own emission standards, California is required to request and obtain a waiver from the EPA. The CAA also authorizes qualifying states to adopt and enforce emission standards for which California has received a waiver, if the states give two years' lead time. See 42 U.S.C. § 7507. Thus, in the United States there are two Federally authorized motor vehicle emission control programs - the Federal program and the California program.

Emissions standards, whether imposed pursuant to the EPA's or California's rules, are generally implemented along two separate tracks: one set of standards and procedures for light-duty vehicles and another set of standards and procedures for heavy-duty vehicles. While the Department recognizes that the classification of vehicles for purposes of determining the appropriate engine standards pursuant to either the regulations of the EPA or California is complex and requires a careful reading of the relevant rules, for purposes of the Department's overview readers should understand the distinction. Generally speaking, in both the EPA and California regulations, the term "light-duty vehicle" refers to a passenger vehicle, the vast majority of which have a GVWR of 8,500 pounds or less. "Heavy-duty vehicle" refers to a vehicle that has a GVWR greater than 8,500 pounds. See https://www.epa.gov/emission-standards-reference-guide/basic-information-about-emission-standards-reference-guide-road. Examples of light-duty vehicles include minivans, passenger vans, pickup trucks, and sport-utility vehicles. Examples of heavy-duty vehicles include large pick-ups, delivery trucks,

recreational vehicles (RVs), buses, and semi trucks. See *id*. Both California and the EPA identify categories of heavy-duty vehicles by weight class. The three categories include light heavy-duty, medium heavy-duty, and heavy heavy-duty. See California Air Resources Board (CARB), Staff Report: Initial Statement of Reasons, June 23, 2020 (CARB Low NO_x Omnibus ISOR), p. I-46, Table I-9, https://ww2.arb.ca.gov/rulemaking/2020/hdomnibuslownox. California's classification scheme, however, is slightly more complicated than the EPA's classification scheme because California includes a subcategory of engines and vehicles, known as medium-duty engines and vehicles, within the light heavy-duty vehicle category. Medium-duty engines and vehicles are defined in California's certification test procedure regulations to include vehicles and engines with a GVWR greater than 8,500 and less than 14,001. See *id*.

Both California and the EPA also categorize heavy-duty vehicles based on their fuel usage as either diesel or Otto-cycle. The Department does not use or define "Otto-cycle engine" in any existing rules, but the CARB documents and California's rules, which the Department proposes to incorporate by reference, refer to heavy-duty engines as either "diesel" or "Otto-cycle." The term "Otto-cycle engine" is comparable to what the Department refers to in other rules as a "gasoline-fueled" engine. As defined at existing N.J.A.C. 7:27-15.1, "gasoline-fueled" means an engine that is "powered in whole or in part by a hydrocarbon fuel other than diesel fuel, including, but not limited to, gasoline, natural gas, liquefied petroleum gas or propane or powered by alcohol fuels, hydrocarbon-alcohol fuel blends or hydrogen."

Below the Department has reproduced a Table from CARB's Low NO_x Omnibus ISOR that depicts the California and Federal weight classifications for heavy-duty vehicles and engines by fuel type.

<table>
<tr><th>Weight Class (lbs. GVWR)</th><th colspan="3">CARB</th><th colspan="3">U.S. EPA/U.S. Department of Transportation (DOT)</th></tr>
<tr><td colspan="7">Diesel engines</td></tr>
<tr><td>8,501-10,000</td><td rowspan="7">Heavy Duty Engine/ Vehicle</td><td rowspan="2">Medium-duty engine[a] / vehicle</td><td rowspan="3">Light heavy-duty engine</td><td rowspan="7">Heavy duty engine/ vehicle</td><td rowspan="3">Light heavy-duty engine</td><td>Class 2b</td></tr>
<tr><td>10,001-14,000</td><td>Class 3</td></tr>
<tr><td>14,001-16,000</td><td rowspan="5"></td><td>Class 4</td></tr>
<tr><td>16,001-19,500</td><td>Class 5</td></tr>
<tr><td>19,501-26,000</td><td rowspan="2">Medium heavy-duty Engine</td><td rowspan="2">Medium heavy-duty engine</td><td>Class 6</td></tr>
<tr><td>26,001-33,000</td><td>Class 7</td></tr>
<tr><td>>33,000</td><td>Heavy heavy-duty Engine</td><td>Heavy heavy-duty engine</td><td>Class 8</td></tr>
<tr><td colspan="7">Otto-Cycle Engines</td></tr>
<tr><td>8,501-14,000</td><td rowspan="2">Heavy-duty engine/ vehicle</td><td>Medium-duty engine[a]/ vehicle</td><td rowspan="2"></td><td rowspan="2">Heavy-duty engine/ vehicle</td><td rowspan="2"></td><td>Classes 2b-3</td></tr>
<tr><td>>14,000</td><td></td><td>Classes 4-8</td></tr>
<tr><td>Reference</td><td>13 CCR 1900</td><td>13 CCR 1900; certification test procedures</td><td>13 CCR 1956.8; certification test procedures</td><td></td><td>40 CFR 86.085-2 (primary intended service class)</td><td>U.S. DOT 40 CFR 1037.801</td></tr>
</table>

[a] The term, medium-duty engine, is not defined in 13 CCR 1900 but is defined in the certification test procedures incorporated by reference in 13 CCR 1956.8.

CARB Low NO_x Omnibus ISOR, p. I-46, Table I-9.

Heavy-duty vehicles: Federal Program

The EPA set the first Federal emission standards for heavy-duty engines beginning in the mid-1970s, and has subsequently revised those standards to be progressively more stringent. See https://www.epa.gov/emission-standards-reference-guide/basic-information-about-

emission-standards-reference-guide-road. In early 2001, the EPA finalized a Heavy-Duty Engine and Vehicle rule, which applied to both diesel- and gasoline-fueled heavy-duty highway engines beginning with MY 2007. See https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-smog-soot-and-other-air-pollution-commercial. This rule established a comprehensive national program (harmonizing standards with California) that regulated a heavy-duty engine and its fuel as a single system, with emission standards taking effect beginning with MY 2007 and fully phasing in by MY 2010. See *id*. In 2009, as advanced emissions control systems were being phased in to meet the 2007 standards, the EPA promulgated a final rule to require that these advanced emissions control systems be monitored for malfunctions through an onboard diagnostic (OBD) system. See *id*.

The EPA finalized Phase 1 of the Federal greenhouse gas emissions and fuel efficiency program for heavy-duty vehicles and engines in 2011. See https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-commercial-trucks; 76 FR 51706. The Federal Phase 1 program implementation spanned from MY 2014 to MY 2018. See *id*. In 2016, the EPA and the National Highway Traffic Safety Administration (NHTSA) finalized the heavy-duty Phase 2 greenhouse gas and fuel efficiency program (Phase 2). Phase 2 includes performance-based standards that will phase in over the long-term, with initial standards for most vehicles and engines commencing in MY 2021. See https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-commercial-trucks; 81 FR 73478.

Heavy-duty vehicles: California Program

Like the EPA, California has been adopting emission standards for criteria pollutants from heavy-duty vehicles for model years dating back to the early 1970s. See 13 CCR §§ 1952 and 1957. Although the California and Federal emission standards have moved along similar tracks over the last five decades, California's rules have variations based on the state's air quality challenges. 13 CCR §§ 1950 et seq.; https://ww2.arb.ca.gov/resources/documents/road-heavy-duty-current-standards-test-procedures-and-regulatory-documents.

In 2013, California established emission standards for greenhouse gases from heavy-duty trucks and engines, which were generally harmonized with the EPA's 2011 Phase 1 greenhouse gas rule for new trucks and engines. See https://ww2.arb.ca.gov/our-work/programs/greenhouse-gas-standards-medium-and-heavy-duty-engines-and-vehicles/phase1. Thereafter, CARB staff worked jointly with the EPA and NHTSA on Phase 2 of Federal greenhouse gas emission standards for medium- and heavy-duty engines and vehicles. See https://ww2.arb.ca.gov/our-work/programs/greenhouse-gas-standards-medium-and-heavy-duty-engines-and-vehicles/phase2. California's Phase 2 greenhouse gas standards, which were adopted in 2019, align with the EPA's Phase 2 greenhouse gas standards with minor variations. See *id*.

Thus, historically, the California and Federal criteria pollutant and greenhouse gas emission standards for heavy-duty engines have paralleled one another. The one notable exception is that California's emission standards implemented more stringent NO_x and PM standards in earlier model years than the Federal emission standards for heavy-duty engines.

In 2020 CARB adopted new emission standards and requirements for MY 2024 and subsequent MY heavy-duty gasoline and diesel engines and vehicles. See Heavy-Duty Engine and Vehicle Omnibus Regulation and Associated Amendments, Resolution 20-23, August 27, 2020; subsequently amended by Executive Order R-21-007, September 9, 2021. On March 28, 2022, the EPA published a proposed rule: Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standard. 87 FR 17414. The EPA's proposal would change the Federal heavy-duty emission control program, including, but not limited to, tightening the Federal emission standards. *Ibid*. Not only would the proposal, if adopted, reduce emissions of nitrogen oxides and other pollutants, it would also update the existing Heavy-Duty Greenhouse Gas Emissions Phase 2 program. *Ibid*. The EPA's rule proposal included "two regulatory options (proposed Options 1 and 2) [which] would result in different numeric levels of the standards and lengths of useful life and warranty periods." 87 FR at 17417. As of the date of the submission of the Department's proposal to the Office of Administrative Law, the EPA has not published a final rule indicating which option, of the two proposed changes to the Heavy-Duty Engine and Vehicle Standard, the EPA will adopt. While the proposal indicated that the EPA intended the rules to be effective for MY 2027 vehicles, it is not clear whether a final rule will be adopted in time.

Heavy-duty vehicles: New Jersey

Existing N.J.A.C. 7:27-28, Heavy-Duty Diesel New Engine Standards and Requirements Program, incorporates California's vehicle and engine standards for new, MY 2005 or subsequent, heavy-duty diesel vehicles and engines. N.J.A.C. 7:27-28 defines a heavy-duty

diesel vehicle as a motor vehicle with a GVWR greater than 14,000 pounds that is equipped with a heavy-duty diesel engine. The Federal and California standards for heavy-duty diesel engines and vehicles were harmonized through MY 2023 subsequent to the Department's adoption of existing N.J.A.C. 7:27-28. Thus, prior to California's adoption of the Low NO_x Omnibus rules, a manufacturer of heavy-duty diesel engines and vehicles had to meet only one emissions standard to sell engines and vehicles in New Jersey, even though the engine or vehicle was required to receive a certification from both the EPA and CARB.

If the Department were to maintain N.J.A.C. 7:27-28, as originally adopted, heavy-duty diesel engines and vehicles with a GVWR greater than 14,000 pounds would be required to meet the revised emissions standards in California's Low NO_x Omnibus rules, beginning as early as MY 2024. Existing N.J.A.C. 7:27-28 incorporated California's engine standards, as amended and supplemented, for these diesel engines and vehicles, but the Low NO_x Omnibus rules revised engine standards are applicable to a number of vehicle and engine categories not covered at existing N.J.A.C. 7:27-28. Specifically, the rules proposed to be incorporated by reference apply to Otto-cycle engines and vehicles, and all heavy-duty engines and vehicles with a GVWR greater than 8,500 pounds. If N.J.A.C. 7:27-28 is not repealed, the emission standards of the Low NO_x Omnibus rules would apply to the category of heavy-duty diesel vehicles covered at N.J.A.C. 7:27-28 in an earlier MY than the other categories of heavy-duty vehicles covered by the Low NO_x Omnibus rules.

To avoid potential confusion among vehicle manufacturers and dealers in determining which engines and vehicles may be sold in New Jersey in a given MY, and for consistency in implementation and enforcement of the Low NO_x Omnibus rules, the Department proposes to

repeal existing N.J.A.C. 7:27-28 upon adoption. The repeal will result in the Low NO_x Omnibus standards becoming operative and enforceable for all vehicles beginning with the same MY.

Proposed Rules for Model Year 2027 or Later Heavy-Duty New Engine and Vehicle Standards and Requirements, N.J.A.C. 7:27-28A

General

Proposed N.J.A.C. 7:27-28A, Model Year 2027 or Later Heavy-Duty New Engine and Vehicle Standards and Requirements (Heavy-Duty Emission Standards), incorporates by reference the portions of the California Code of Regulations (CCR) listed at N.J.A.C. 7:27-28A.11 that make up all of California's heavy-duty engine and vehicle standards and requirements, including the greenhouse gas provisions and the more stringent NO_x and PM standards, which will be applicable to both gasoline and diesel heavy-duty engines and vehicles beginning with MY 2027. Generally speaking, California's regulations can be grouped into two categories: (1) the emission standards, which are frequently represented as a numerical limit on the amount of criteria pollutants and greenhouse gases that may be permissibly emitted from an engine or vehicle; and (2) the requirements that support the implementation of those emission standards. The second category ensures that manufacturers of the covered vehicles and engines are accountable for compliance with the more stringent emission standards over a longer period of time through administrative changes in the program, such as test procedures, recordkeeping, warranty periods, and in-use emission data reporting.

As CARB explained in its ISOR for the proposed amendments, the goal of the Low NO_x Omnibus rules "is to achieve the maximum technologically feasible and cost-effective reductions in real-world NO_x emissions from heavy-duty engines and vehicles." CARB Low NO_x Omnibus ISOR at p. II-1. Like California, New Jersey needs to reduce Statewide emissions of NO_x to come into compliance with the NAAQS for ozone. As described in the Environmental, Social, and Economic Impact statements below, not only does NO_x negatively impact air quality as a direct air pollutant, but NO_x is a precursor in the atmospheric formation of ozone and secondary PM2.5. Multiple studies have shown that NO_x, ozone, and PM2.5 air pollution causes adverse environmental, social, economic, and health impacts. The Department's efforts to reduce NO_x emissions are particularly important given the warming climate, which is just one of the ongoing meteorological conditions that are conducive to the formation of ozone. Notably, approximately 75 percent of the annual NO_x air emissions in New Jersey (pollution emitted directly from pollution sources in New Jersey, as compared to ozone which is formed in the atmosphere and can also contain air pollution transported from other states) are from the mobile source sector, as estimated by the Department based on its 2017 air pollution emissions inventory. Thus, by reducing NO_x emissions, the State will experience related reductions in ozone and secondary PM2.5, which will generate corresponding health benefits. These health benefits will be especially important to local communities disproportionately impacted by heavy truck traffic that is the source of the NO_x emissions.

Purpose and Scope, Applicability, Requirements for Engine and Vehicle Transactions, and Exemptions, *N.J.A.C. 7:27-28A.2,* 28A.3, 28A.4, and 28A.5

Subject to the exemptions at N.J.A.C. 7:27-28A.5, Exemptions, proposed N.J.A.C. 7:27-28A.2, Purpose and scope, and 7:27-28A.3, Applicability, provide that the new subchapter is applicable to all MY 2027 or later, new motor vehicles rated in excess of 8,500 pounds GVWR and new motor vehicle engines intended for use in a motor vehicle rated in excess of 8,500 pounds GVWR (hereinafter referred to as "covered vehicles"). The proposed emission standards and requirements incorporate by reference the same emission standards and requirements in the provisions of the California Code of Regulations identified at proposed N.J.A.C. 7:27-28A.11. If, and when, California changes its rules, the Department's rules will also change, by virtue of the incorporation by reference.

Though California's recently revised rules identifying heavy-duty emission standards and requirements are applicable to MY 2024 vehicles and engines, the Department proposes a delayed MY applicability date to ensure compliance with the two-year lead time requirement in Section 177 of the Clean Air Act, 42 U.S.C. § 7505. In the event that the adoption of these rules is not finalized in order to be operative by January 1, 2027, the Department will modify the rules on adoption to commence with model year 2028. Proposed N.J.A.C. 7:27-28A.3 makes clear that the rules will not be enforceable in New Jersey unless or until such time as California receives a waiver from the United States Environmental Protection Agency, pursuant to 42 U.S.C. § 7543, as published in the Federal Register, for the applicable engine standard, vehicle standard, or other emission requirement.

Pursuant to proposed N.J.A.C. 7:27-28A.4, Requirements for engine and vehicle transactions, on or after January 1, 2027, the covered vehicles may not be sold, leased, rented, imported, delivered, purchased, acquired, registered, received, or otherwise transferred in this

State by any person who is a resident of New Jersey or who operates an established place of business within New Jersey, unless CARB has issued an executive order certifying the covered vehicle and the covered vehicle meets all of the applicable requirements of the California Code of Regulations identified at proposed N.J.A.C. 7:27-28A.11. A vehicle is "California-certified," and, therefore, eligible for sale, lease, purchase, registration, or transfer in New Jersey, if the manufacturer demonstrates that the vehicle complies with all applicable emission standards and requirements of Title 13 and 17 of the California Code of Regulations.

Generally speaking, California certification requires the vehicle's manufacturer to demonstrate that the vehicle's exhaust and (as applicable, depending on the specific vehicle category) evaporative emission control systems are durable and comply with the emission standards for the vehicle's useful life. This is done through durability and certification testing of a prototype vehicle. The manufacturer must also demonstrate compliance with the requirements for on-board diagnostics, and anti-tampering, as applicable, and must submit an application for certification to CARB. Production vehicles must be identical in all material aspects to the prototype vehicle for which the certification was granted. If the manufacturer makes emissions-related production running changes or field fixes, those must be CARB-approved. Production vehicles must be properly labeled, and their emission control systems warranted for the specified duration. New and customer-owned production vehicles are subject to compliance testing (by either the manufacturers or CARB) and warranty repairs reporting by the manufacturers, either of which can result in remedial actions. Certification is granted only to the vehicle manufacturer that controls the vehicle specifications, to ensure

compliance by all production vehicles. See the CARB On-Road New Vehicle and Engine Certification Program website, http://www.arb.ca.gov/msprog/onroad/cert/cert.php.

Proposed N.J.A.C. 7:27-28A.4, also sets forth a presumption that a vehicle with 7,500 miles or fewer is a "new" vehicle and is, therefore, subject to the requirements of the proposed subchapter. The presumption is necessary to prevent a New Jersey resident from arranging for a third party to purchase and register a non-complying vehicle in another state, so that the New Jersey resident could then re-register the vehicle in New Jersey as a used vehicle in order to avoid the more stringent emissions requirements.

Proposed N.J.A.C. 7:27-28A.5, Exemptions, lists several exceptions to the requirements at N.J.A.C. 7:27-28A.4, 28A.7, 28A.8, and 28A.11. To begin, medium-duty passenger vehicles are exempt from the requirements at proposed N.J.A.C. 7:27-28A, because those vehicles are covered at N.J.A.C. 7:27-29, Low Emission Vehicle Program. Zero-emission vehicles are also exempt from the proposed subchapter because they are not fueled by diesel or gasoline and, therefore, are not subject to the same emission standards.

The Department proposes a number of additional miscellaneous exemptions to the emission standards and requirements, which are modeled on exemptions in the LEV Program rules. For example, covered vehicles held for rental or daily lease to the general public, or that are being utilized for interstate commerce (such as interstate commercial delivery vehicles), that are registered and principally operated outside of New Jersey are exempt from the emission standards and requirements. This provision allows covered vehicles that are registered outside of New Jersey to continue to be rented in New Jersey, as long as the vehicles are principally operated outside of this State. An example of this would be moving vans that

are operated nationally. Likewise, covered vehicles sold or otherwise transferred directly from one dealer to another dealer would be exempt from the heavy-duty emission standards and requirements because the rules are not intended to restrict dealers from exchanging vehicles.

Covered vehicles that are transferred to a New Jersey resident through either inheritance or court decree are also exempt. In such cases, the resident has no discretion in acquiring a complying vehicle, making an exemption appropriate. Residents of other states establishing residence in New Jersey and wishing to transfer a non-complying vehicle that was certified to Federal emission standards and registered in the resident's former state may do so when establishing residence in New Jersey. Covered vehicles that are sold in order to be wrecked or dismantled, are exclusively for off-highway use, or that are sold for registration in another state are also exempt from the proposed heavy-duty emission standards and requirements.

Prohibition Against Stockpiling, N.J.A.C. 7:27-28A.6

There is a possibility that purchasers could attempt to circumvent the emission reduction requirements by stockpiling higher-emitting engines or vehicles before the proposed emission standards and requirements become applicable on January 1, 2027. Stockpiling would allow the purchaser to meet their projected need for such engines or vehicles early, and avoid having to buy the lower-emitting, cleaner engines and vehicles a year or so later. Accordingly, the Department is proposing a stockpiling prohibition at N.J.A.C. 7:27-28A.6 that makes it a violation to purchase covered vehicles in excess of normal business needs to evade the emission standards and requirements.

Manufacturer Compliance with California Warranty, N.J.A.C. 7:27-28A.7

The Department, at N.J.A.C. 7:27-28A.11, proposes to incorporate into its rules California's emissions warranty requirements for: (1) a MY 2027 or later, new motor vehicle rated in excess of 8,500 pounds GVWR; or (2) a MY 2027 or later, new motor vehicle engine intended for use in a motor vehicle rated in excess of 8,500 pounds GVWR. The warranty requirements will apply to all gasoline and diesel engines and vehicles delivered for sale in New Jersey on or after January 1, 2027.

As will be discussed in greater detail below, California's recent revisions to heavy-duty emission standards and requirements, extended warranty provisions for the emission control system for the covered vehicles beyond what is required under the existing Federal standards. Therefore, proposed N.J.A.C. 7:27-28A.7 provides that when a covered vehicle is sold to a purchaser in New Jersey, the manufacturer must comply with the extended coverage provisions under the California warranty requirements being incorporated by reference.

Manufacturer Compliance with California Orders and Voluntary Recalls, N.J.A.C. 7:27-28A.8

The Department, at N.J.A.C. 7:27-28A.11, proposes to incorporate into its rules California's requirements concerning compliance orders, enforcement actions, and recalls for a MY 2027 or later, new motor vehicle rated in excess of 8,500 pounds GVWR or a MY 2027 or later, new motor vehicle engine intended for use in a motor vehicle rated in excess of 8,500 pounds GVWR. These requirements will apply to all gasoline and diesel engines and vehicles delivered for sale in New Jersey on or after January 1, 2027.

California's recent revisions to its heavy-duty emission standards and requirements incorporate NO_x and PM emission standards that will be more stringent than the Federal standards, once implemented. If CARB issues an order, enforcement action, or there is a recall by CARB or a voluntary recall by the manufacturer as a result of a failure to meet the more stringent emission standards, proposed N.J.A.C. 7:27-28A.8 would require compliance for covered vehicles sold to a purchaser in New Jersey. The Department proposes an exception if, within 30 days of CARB's action, the manufacturer demonstrates to the Department's satisfaction, that the order, enforcement action, or recall is not applicable to the engines or vehicles in question.

Recordkeeping, N.J.A.C. 7:27-28A.9

The Department proposes new recordkeeping requirements that will serve as an enforcement and audit tool to ensure compliance with the Department's CARB certification requirements. Specifically, proposed N.J.A.C. 7:27-28A.9 requires any person operating a business in New Jersey that sells, leases, or rents the covered vehicles to maintain records of all sales, leases, rentals, imports, purchases, acquisitions, receipt of, or other transfers of MY 2027 or later MY vehicles for a period of at least five years after the date of the transaction. A person operating such a business must make those records available for inspection or provide copies to the Department upon request.

Right to Enter, N.J.A.C. 7:27-28A.10

Proposed N.J.A.C. 7:27-28A.10, Right to enter, is modeled on existing N.J.A.C. 7:27-1.31, Right to enter, and sets forth the scope of the Department's authority to enter and inspect. Proposed N.J.A.C. 7:27-28A.10 is slightly different from existing N.J.A.C. 7:27-1.31 in that it specifies the Department's right to enter, inspect, test, and sample vehicles. Failure to comply will subject the violator to an enforcement action.

Incorporation by Reference, and Definitions, N.J.A.C. 7:27-28A.11 and 28A.1

Proposed N.J.A.C. 7:27-28A.11, Incorporation by reference, identifies the specific provisions of the CCR that are to be incorporated by reference into this new subchapter, as well as the minor language changes necessary to effectively implement the program in New Jersey. To maintain consistency with the relevant provision of the CCR, proposed N.J.A.C. 7:27-28A.11 dictates prospective incorporation by reference of the California regulations. This means that upon the operative date of the Department's rules or the operative date of California's Low NO_x Omnibus rules, whichever is later, all amendments, supplements, repeals, or other changes California makes to the incorporated rule, shall also be effective in New Jersey on the effective date cited by California. Additionally, incorporation by reference of an applicable provision of the CCR includes all documents and notes associated with that provision, unless specifically excluded by the Department's rules. Equally important, proposed N.J.A.C. 7:27-28A.11 provides that if there is an inconsistency between the New Jersey rules in the subchapter and the California rules incorporated by reference, the California rules control. However, the incorporation by reference of the California regulation does not affect the Department's authority to enforce any other State requirements.

Proposed N.J.A.C. 7:27-28A.11 incorporates by reference 13 CCR 1900, 13 CCR 1956.8, 13 CCR 1961.2, 13 CCR 1965, 13 CCR 1968.2, 13 CCR 1971.1, 13 CCR 1971.5, 13 CCR 2035 through 2037, 13 CCR 2065, 13 CCR 2111 through 2119, 13 CCR 2121, 13 CCR 2125 through 2131, 13 CCR 2133, 13 CCR 2137, 13 CCR 2139, 13 CCR 2139.5, 13 CCR 2140 through 2149, 13 CCR 2166, 13 CCR 2166.1, 13 CCR 2167 through 2169, 13 CCR 2169.1 through 2169.8, 13 CCR 2170, 13 CCR 2423(n), 13 CCR 2485(c)(2) through (c)(3), 13 CCR 2485(h), and 17 CCR 95661 through 95663.

The California rule provisions identified at proposed N.J.A.C. 7:27-28A.11 include terms and definitions throughout, and those definitions are proposed to be incorporated by reference. Nonetheless, the Department proposes to define a number of terms at N.J.A.C. 7:27-28A.1, Definitions, for clarity. For instance, the Department proposes to define "California Air Resources Board" or "CARB," "CCR," and "Department," since those terms do not appear in the California regulation, but are necessary to harmonize the California and New Jersey provisions as part of the incorporation by reference. The proposed definition of "gross vehicle weight rating" and its acronym, "GVWR," at N.J.A.C. 7:27-28A.1 is consistent with CARB's definition.

To further clarify applicability, the Department proposes to define the terms "new motor vehicle" and "new motor vehicle engine" consistent with the definitions of those terms at 42 U.S.C. § 7550. The definitions of both of these terms include a reference to an "ultimate purchaser," which the Department proposes to define as the first person who, in good faith, purchases a new motor vehicle or new motor vehicle engine for purposes other than resale.

The Department uses the terms "sale," "sell," and "lease" at proposed N.J.A.C. 7:27-28A.4, Requirements for engine and vehicle transactions. The Department proposes definitions identical to the existing definitions of those terms at N.J.A.C. 7:27-28.1 (Heavy-Duty Diesel New Engine Standards and Requirements Program).

Though the Department proposes to incorporate by reference all of the CCR provisions identified at N.J.A.C. 7:27-28A.11, proposed N.J.A.C. 7:27-28A.11(g) through (l) identifies the CCR citations in which it is necessary to replace California-specific terms or provisions with New Jersey-specific language in order to integrate the California rules into the New Jersey regulatory program. For example, where the CCR indicates that a vehicle is "registered in California," the proposed rule replaces the provision with "registered in New Jersey." Additionally, there are a number of places where specific text in the CCR provisions incorporated by reference refers to California-specific activities and locations. Accordingly, "California statutorily authorized motor vehicle emissions inspection and maintenance program," "operate in California," "location in California," and "operation of the APS in California" are replaced with "New Jersey statutorily authorized motor vehicle emissions inspection and maintenance program," "operate in New Jersey," "location in New Jersey," and "operation of the APS in New Jersey," respectively (APS is an acronym for auxiliary power system).

In contrast to the simple replacement of terms the Department proposed at N.J.A.C. 7:27-28A.11(g) through (l), N.J.A.C. 7:27-28A.11(m) includes revisions to a specific provision of the CCR. These revisions were necessary as a result of the Notice of Public Availability of Modified Text and Availability of Additional Documents posted on May 5, 2021, in which CARB indicated that it intended to revise the originally proposed text of the Low NO_x Omnibus rule to

allow transit agencies to request an exemption to the emission standard applicable to diesel-fueled urban buses at 13 CCR 1956.8. See CARB Low NO_x Omnibus Proposed Amendments to the Heavy-Duty Engine and Vehicle Omnibus Regulation and Associated Amendments, May 5, 2021 (5/5/21 Notice of Amendments), pp. 6-8; https://ww3.arb.ca.gov/regact/2020/hdomnibuslownox/30daynotice.pdf. According to the 5/5/21 Notice of Amendments, the primary manufacturer of diesel-fueled urban bus engines indicated that it would not produce diesel-fueled urban bus engines compliant with California-specific emission standards beginning in MY 2024. *Ibid*. CARB determined this decision by the manufacturer would create a compliance obstacle for transit agencies. *Ibid*. Hence, an exemption was added to the original Low NO_x Omnibus rule text for transit agencies. *Ibid*.

The language that was added pursuant to the 5/5/21 Notice of Amendments provides an exemption that will be conditioned upon a transit agency's demonstration that it meets certain other requirements pursuant to a separate California regulation, known as the Innovative Clean Transit (ICT) regulation. See *ibid*. The ICT regulation is focused on the transition of California's public transit agencies' bus fleets to 100 percent zero-emission by 2040. See https://ww2.arb.ca.gov/resources/fact-sheets/innovative-clean-transit-ict-regulation-fact-sheet. Pursuant to the ICT regulation, each California transit agency is required to submit a plan (to be approved by CARB) demonstrating how it will achieve zero-emission by 2040. *Ibid*.

The New Jersey Legislature has set goals for the use of plug-in electric vehicles. Specifically, "[b]y December 31, 2024, at least 10 percent of the new bus purchases made by the New Jersey Transit Corporation shall be zero emission buses, and (b) the percentage of zero

emission bus purchases shall increase to 50 percent by December 31, 2026, and 100 percent by December 31, 2032 and thereafter." N.J.S.A. 48:25-3.a(9)(a). However, this goal is not equivalent to the ICT program in California, which covers all transit agencies and sets reporting requirements. Accordingly, the Department proposes to keep the exemption for diesel-fueled urban buses but revise the conditions, so that they are New Jersey-specific.

The Department's revised language maintains the requirement for a transit agency to apply for the exemption before the purchase and mirrors the timing for application submittal. Exemptions in New Jersey will be conditioned upon the transit agency's demonstration that there are no diesel-fueled medium heavy-duty or heavy heavy-duty engines used in urban buses certified by California to meet the Exhaust Emission Standards for the model year in which the transit agency intends to make the purchase.

As noted above, the Federal and California criteria pollutant and greenhouse gas emission standards for new heavy-duty engines and vehicles have generally paralleled one another since the 1970s, with California's standards tending to introduce the more stringent standards a few model years earlier than the Federal rules. As the covered vehicles in New Jersey (and throughout the United States) are already required to meet the Federal certification requirements, the Department's description below of the California rules to be incorporated by reference is limited to a summary of the differences between the California and Federal standards. To the extent that California's standards are more stringent, it is generally a result of the recent revisions to California's emission standards, known as the Low NO_x Omnibus rules. The Department will not attempt to reproduce in this notice, a detailed a description of CARB's Low NO_x Omnibus rules, as was prepared by CARB staff in its ISOR and its subsequently

proposed amendments. See CARB Low NO_x Omnibus ISOR, June 23, 2020; 5/5/21 Notice of Amendments**;** CARB Low NO_x Omnibus Second Proposed Amendments to the Heavy-Duty Engine and Vehicle Omnibus Regulation and Associated Amendments, June 18, 2021 (6/18/21 Notice of Amendments). Those reports, which totaled more than 500 pages, combined, of both explanatory text and accompanying reference materials, are available online for review. See https://ww2.arb.ca.gov/our-work/programs/heavy-duty-low-nox/heavy-duty-low-nox-updates.

California Rule Provisions Identified at N.J.A.C. 7:27-28A.11, as Incorporated by Reference

General

As discussed above, the EPA and California have set emission standards for new motor vehicles and engines since the 1970s. Regardless of whether an emission standard is imposed by the EPA's or California's regulations, an emission standard is not meant to be momentary; nor is an emission standard meant to apply under only one set of conditions. Rather, an emission standard is based on an engine's ability to maintain criteria pollutant and/or greenhouse gas emission levels at or below the standard over a specified period of time based upon a defined set of conditions. See https://www.epa.gov/emission-standards-reference-guide/basic-information-about-emission-standards-reference-guide-road; CARB Low NO_x Omnibus ISOR, p. ES-3. Pursuant to California's regulations, the specified period of time is frequently referred to as the engine's regulatory useful life, which often depends upon the class of the engine (that is, light-, medium-, or heavy-duty). See *id*. The conditions include variable operating situations, such as differing loads, speeds, and idling. As such, an emission standard is not a solitary number; an emission standard will vary based on factors, such as the class of

engine, the length of time determined to be the engine's regulatory useful life, and the operational conditions. See EPA Emission Standards Reference Guide, https://www.epa.gov/emission-standards-reference-guide/basic-information-about-emission-standards-reference-guide-road; CARB Low NO_x Omnibus ISOR, p. ES-3 to 4. In order to certify that an engine or a vehicle meets the applicable emission standard, CARB and the EPA have incorporated into their regulatory schemes testing provisions intended to assess the engine's ability to meet the emission standard under varying operational and mileage circumstances. Accordingly, the Department will group its discussion of the provisions of California's heavy-duty emissions standards and requirements into three general categories: (1) emission standards; (2) requirements to support the implementation of those emission standards; and (3) miscellaneous provisions.

Part I: Emission Standards

Overview and Scope

Pursuant to the Low NO_x Omnibus rules, California revised its criteria pollutant emission standards at 13 CCR 1900, 1956.8, 1961.2, and 1965, beginning with MY 2024 heavy-duty diesel and heavy-duty Otto-cycle engines. The Department proposes to incorporate by reference these new, more stringent NO_x and PM emission standards, which will be applicable to heavy-duty diesel and heavy-duty Otto-cycle engines sold, transferred, or leased in New Jersey beginning with MY 2027.

California's revised MY 2024 PM emission standard of 0.005 g/bhp-hr applies for the applicable, full useful life of an engine or vehicle. See CARB Low NO_x Omnibus ISOR, pp. ES-9

and III-8. The revised PM standard is more stringent than the 0.01 g/bhp-hr, which applies to prior model year engines and vehicles in California, as well as EPA-certified engines and vehicles. See *id*. at ES-3.

Unlike the PM standard, which has a single implementation date, California's new NO_x emission standards, which are described in greater detail below, occur in two steps. The first step is applicable to MYs 2024, 2025, and 2026, and the second step is applicable to MY 2027 and later MYs.

The new, more stringent emission NO_x and PM standards and requirements introduced in the Low NO_x Omnibus rules are applicable beginning with MY 2024 or MY 2027 engines and vehicles. As described above, however, the Department proposes to incorporate by reference California's emission standards beginning with MY 2027 new motor vehicles rated in excess of 8,500 pounds GVWR and new motor vehicle engines intended for use in a motor vehicle rated in excess of 8,500 pounds GVWR. Thus, California's two-tiered emission standards for NO_x, including those imposed by California prior to MY 2027, that go into effect in MY 2024 and end in MY 2026 will not be applicable in New Jersey. Only California standards that affect MY 2027 or later would be applicable in New Jersey.

Additionally, the Department notes that the revisions made to California's heavy-duty emissions standards and requirements pursuant to the Low NO_x Omnibus rules apply only to new motor vehicles rated in excess of 10,000 pounds GVWR and new motor vehicle engines intended for use in a motor vehicle rated in excess of 10,000 pounds GVWR. See CARB Low NO_x Omnibus ISOR, p. I-2. Thus, the Department highlights two aspects of this rulemaking. First, new motor vehicles rated in excess of 8,500, but less than 10,001 pounds GVWR and new

motor vehicle engines intended for use in a motor vehicle rated in excess of 8,500, but less than 10,001 pounds GVWR, are subject to the emission standards in California's LEV III rules, also proposed to be incorporated by reference. Second, only a portion of the engines and vehicles with a GVWR in excess of 10,000 pounds are subject to the more stringent criteria pollutant emission standards in the Low NO_x Omnibus rules. Specifically, "engines used in vehicles with GVWR greater than 14,000 pounds are *required* to certify to the [applicable] engine certification standards and test procedures specified in [13 CCR 1956.8; whereas,] vehicles from 8,501 to 14,000 pounds GVWR are subject to the Low Emission Vehicle III (LEV III) chassis certification emission standards found in 13 CCR 1961.2, *but manufacturers have the option to certify* a subset of engines used in incomplete Otto-cycle and incomplete and complete diesel-cycle medium-duty vehicles, those from 10,001 to 14,000 pounds GVWR, to the engine dynamometer emission standards specified in 13 CCR 1956.8." CARB Low NO_x Omnibus ISOR, p. I-2 (emphasis added).

The Department also proposes to incorporate by reference the greenhouse gas emission standards, which are included in the California provisions identified at proposed N.J.A.C. 7:27-28A.11. But as discussed, the California greenhouse gas standards are harmonized with the existing Federal standards for greenhouse gas emissions and, as such, impose no more stringent emission standards or requirements than what is in effect in New Jersey at the time of this notice of proposal.

In short, all of the engines and vehicles subject to proposed N.J.A.C. 7:27-28A are required to meet California's emission standards and requirements. But only a portion of these

vehicles and engines are subject to the more stringent NO_x and PM standards and requirements included in California's Low NO_x Omnibus rules.

The other vehicles will certify to the applicable chassis emission standards pursuant to the LEV III rules that are already applicable in New Jersey. However, a manufacturer will now need to supply a California certification for a covered vehicle sold in New Jersey.

Revisions to the NO_x Emission Standards: 13 CCR 1956.8, 1961.2, and 1965

For ease of reference, the Department is providing a short glossary of frequently used terms and acronyms that are used in this section of the Summary. A more comprehensive list of acronyms and abbreviations can be found in the Low NO_x Omnibus ISOR. See CARB Low NO_x Omnibus ISOR, pp. xvii – xix; https://ww3.arb.ca.gov/regact/2020/hdomnibuslownox/isor.pdf.

Acronym/Abbreviation	Definition
FTP	Federal Test Procedure
g/bhp-hr	Grams per brake horsepower hour
g/hr	Grams per hour
HD	Heavy-Duty
HDO	Heavy-Duty Otto-Cycle
HHDD	Heavy Heavy-Duty Diesel
LHDD	Light Heavy-Duty Diesel
LLC	Low Load Cycle
MDDE	Medium-Duty Diesel Engine
MDOE	Medium-Duty Otto-Cycle Engine
OBD	On-Board Diagnostics
RMC-SET	Ramped Modal Cycle Supplemental Emissions Test

Step 1: More stringent NO_x emission standards for MY 2024, 2025, and 2026 Engines

Below is Table ES-1 from CARB's ISOR for the Low NO_x Omnibus rules, which shows California's NO_x emission standards (referred to in the table as "current") prior to the adoption

of the Low NO_x Omnibus rules, and the revised, more stringent emission standards for MY 2024 to MY 2026 heavy-duty Otto-cycle and heavy-duty diesel engines intended for use in vehicle service classes with GVWR greater than 10,000 pounds. See CARB Low NO_x Omnibus ISOR, p. ES-8. The Department proposes to incorporate by reference California's revised, more stringent standards, which include the MY 2024 to MY 2026 emission standards. However, if adopted, the MY 2024 to MY 2026 standards would not be applicable to covered vehicles in New Jersey because the rules will not be effective until MY 2027. The Department notes that California's NO_x emission standard, prior to the adoption of the Low NO_x Omnibus rules, identified in the Table below as "current," generally corresponds with the EPA's NO_x emission standard, which is currently applicable in New Jersey. See *id*. at XI-1. Accordingly, the Table provides a useful way to compare and contrast the engine certification standards that vehicles sold in New Jersey must meet through MY 2026 (the existing national standard imposed by the EPA) and the engine certification standards that vehicles sold in California will be required to meet as of MY 2024 (the Step 1 Low NOx Omnibus rules standard).

Table ES-1. Proposed Heavy-Duty Diesel- and Otto-Cycle Engine NO_x Standards (MY 2024 to 2026)

MY	**MDDE/LHDD/MHDD/HHDD[a]**				**MDOE/HDO[a]**
	FTP (g/bhp-hr)	RMC-SET (g/bhp-hr)	LLC (g/bhp-hr)	Idling (g/hr)	FTP (g/bhp-hr)
Current	0.20	0.20	---	30	0.20
2024-2026	0.050 (0.10)[b]	0.050 (0.10)[b]	0.200 (0.30)[b]	10 (10)[b]	0.050 (0.10)[b]

[a]MDDE: Medium-duty diesel engines 10,001-14,000 lbs. GVWR,
LHDD: Light heavy-duty diesel engines 14,001-19,500 lbs. GVWR,
MHDD: Medium heavy-duty diesel engines 19,501-33,000 lbs. GVWR,

HHDD: Heavy heavy-duty diesel engines >33,000 lbs. GVWR,
MDOE: Medium-duty Otto-cycle engines 10,001-14,000 lbs. GVWR, and
HDO: Heavy-duty Otto-cycle engines >10,000 lbs. GVWR.
[b] NO_x standards in parentheses are optional 50-state-directed engine standards. Manufacturers may meet these less stringent standards in California if they do so for all engine families they produce nationwide.

California's Low NO_x Omnibus rules, which the Department proposes to incorporate by reference, revise the emission standards based on the emission reductions achievable for the class of the engine (as defined by its GVWR) and under differing operational conditions (low load cycle or LLC versus idling). See CARB Low NO_x Omnibus ISOR, p. ES-11 to -12. As Table ES-1 shows, California's revisions include more stringent NO_x emission standards for MY 2024 through MY 2026 than the standards applicable to prior model years. For instance, beginning with MY 2024 in California (but MY 2027 in New Jersey), heavy heavy-duty diesel engines (engines with a GVWR greater than 33,000 pounds) must meet a 0.050 grams per brake horsepower hour (g/bhp-hr) in the ramped modal cycle supplemental emissions test (RMC-SET), which is more stringent than the 0.20 grams per brake horsepower hour standard listed as "current."

Step 2: More stringent NO_x emission standards for MY 2027 and Subsequent MY Engines

Below are Table ES-2 and a portion of Table III-3 from CARB's Low NO_x Omnibus ISOR, which show the revised NO_x emission standards for MY 2027 and later for diesel and Otto-cycle engines with a GVWR greater than 10,000 pounds. See CARB Low NO_x Omnibus ISOR, pp. ES-9 and III-8. "As shown in Table ES-2, [there are] tiered standards for [diesel engines with a GVWR

greater than 33,000 pounds] based on an intermediate useful life of 435,000 miles and full useful life of 600,000 miles and 800,000 miles, for 2027 through 2030 and 2031 and subsequent MYs, respectively." *Id*. at ES-8.

Table ES-2. Proposed Heavy-Duty Diesel- and Otto-Cycle Engine NO_x Standards (MY 2027 and Subsequent)

Test Procedure	**MDDE/LHDD/MHDD**	**MDOE/HDO**	**HHDD**	
	MYs 2027 and Subsequent		**MY 2027 – 2030**	**MY 2031 and Subsequent**
	(@Useful Life)	**(@Useful Life)**	**(@435,000 miles)[a]**	**(@435,000 miles)[a]**
FTP cycle (g/bhp-hr)	0.020	0.020	0.020	0.020
RMC-SET cycle (g/bhp-hr)	0.020	---	0.020	0.020
Low-load cycle (g/bhp-hr)	0.050	---	0.050	0.050
Idling (g/hr)	5	---	5	5

[a] For HHDD, the FTP, RMC-SET, and Low-load cycle standards at full useful life are higher to account for deterioration, as shown within the main document in Table III-3

Table III-3. Proposed Heavy-Duty Diesel- and Otto-Cycle Engine NO_x Standards for 2027 and Subsequent

Test Procedure	**Heavy Heavy-Duty Diesel Engines**			
	MYs 2027 – 2030		**MYs 2031 and Subsequent**	
	(@435,000 miles)	**(@Useful Life)**	**(@435,000 miles)**	**(@Useful Life)**
FTP cycle (g/bhp-hr)	0.020	0.035	0.020	0.040
RMC-SET cycle (g/bhp-hr)	0.020	0.035	0.020	0.040
Low-load cycle (g/bhp-hr)	0.050	0.090	0.050	0.100
Idling (g/hr)	5	5	5	5

By comparing the table containing the MY 2024 to MY 2026 NO_x standards (Table ES-1) with the two tables showing the MY 2027 and later NO_x standards (Tables ES-2 and III-3), the CARB Low NO_x Omnibus ISOR demonstrates that the emission standards for the later model year engines are more stringent. For example, beginning with model year 2027, a medium-duty diesel engine, light heavy-duty diesel engine, medium heavy-duty diesel engine, medium-duty Otto-Cycle engine, and a heavy-duty Otto-Cycle engine (MDDE/LHDD/MHDD, MDOE/HDO) must meet the 0.020 g/bhp-hr emission standard in the FTP cycle, which is more stringent than the 0.050 g/bhp-hr emission standard that the same engines must meet in MYs 2024, 2025, and 2026 in California (Compare Tables ES-1 and ES-2). See CARB Low NO_x Omnibus ISOR at pp. ES-7 and ES-8.

The revised NO_x standard for a heavy heavy-duty diesel engine is a bit more complex because the stringency of the standard is tiered based upon other revisions found in California's Low NO_x Omnibus rules, which include an adjustment to the useful life of the vehicle. For example, a MY 2024 through MY 2026 heavy heavy-duty engine in the FTP cycle must meet a 0.050 g/bhp-hr emission standard. See Table ES-1. Beginning with MY 2027 and through MY 2030, a heavy heavy-duty engine in the FTP cycle must meet a two-tiered engine standard. For the first 435,000 miles (or first tier), the MY 2027 through MY 2030 heavy heavy-duty engine must meet a 0.020 g/bhp-hr emission standard, which is more stringent than the standard the same type of engine would have to meet in MY 2024 through MY 2026. Compare Tables ES-1 and III-3. However, after 435,000 miles and through its full useful life (or second tier), the MY 2027 through MY 2030 heavy heavy-duty engine must meet a 0.035 g/bhp-hr emission standard, which is less stringent than the emission standard imposed for the first 435,000 miles,

but still more stringent than the emission standard imposed on MY 2024 through MY 2026 heavy heavy-duty engines for the full useful life. Compare Tables ES-1 and III-3. A similar tiered approach, based on the increased useful life of the engine, is applied to MY 2031 and later heavy heavy-duty engines.

A key aspect of California's Low NO_x Omnibus regulation is its approach to useful life. It incorporates an increased useful life, which means that MY 2027 and later engines have to meet a more stringent NO_x emission standard for a longer period of time. See CARB Low NO_x Omnibus ISOR, p. III-4. And for heavy heavy-duty engines, the lengthier useful life period is tiered, such that the most stringent emission standard applies to the mileage accumulated earlier in the useful life of the engine.

Revisions to the Greenhouse Gas Emission Standards: 17 CCR 95661, 95662, and 95663

For the most part, the California greenhouse gas emissions standards at 17 CCR 95661, 95662, and 95663, which the Department proposes to incorporate by reference, harmonize with the Federal phase 2 greenhouse gas standards since 2018, which are currently applicable in New Jersey. See CARB Low NO_x Omnibus ISOR, p. I-44. As CARB describes in the Low NO_x Omnibus ISOR, some "differences were necessary to facilitate enforcement, align with existing California programs, and provide additional incentives for manufacturers to bring advanced technologies to market," but the timing and stringency of the standards are aligned. See *id*. The Low NO_x Omnibus rules include some administrative changes that CARB describes in the ISOR as necessary for clarification and correction of a few items. See *id*. at III-92 to III-94. The revisions concerning the greenhouse gas standards in California's Low NO_x Omnibus rules are

not substantive in nature. The emission standards of the California phase 2 greenhouse gas rules are generally aligned with the existing Federal phase 2 greenhouse gas standards. In other words, if California's phase 2 greenhouse gas rules are incorporated by reference, the only real change for manufacturers selling covered vehicles in New Jersey will be the requirement to certify the covered vehicles to California's standards, which may involve a discrete set of procedural requirements.

Part II: Requirements to Support the Implementation of the Heavy-Duty Emission Standards and Requirements

OBD Requirements: 13 CCR 1968.2, 1971.1, and 1971.5

"On-board diagnostic (OBD) systems are self-diagnostic systems incorporated into a vehicle's on-board computer. They are comprised mainly of software designed to detect emission-control system malfunctions as they occur. This is done by monitoring virtually every component and system that can cause increases in emissions, thus maintaining low emissions throughout the vehicle's life." CARB Low NO_x Omnibus ISOR, p. I-8. OBD systems can alert a vehicle owner to faulty components in the vehicle's emission system. See *id*. But "OBD systems also influence and interact with other CARB emission requirements. For example, the detection of faults during the emission warranty period provides a clear notification to the vehicle operator that a warranty repair is needed. In turn, this provides further motivation to engine manufacturers to design durable emission controls to minimize warranty costs and avoid perceptions by the vehicle operator of the need for frequent repairs. OBD systems have also become the basis for emission inspection programs in California and throughout the

nation." *Id*. Thus, an OBD system in a vehicle is an important element in the implementation and enforcement of any emission standard.

"The OBD system is required to monitor the components and indicate a fault code when emissions exceed the emission standards by a certain amount." CARB Low NO_x Omnibus ISOR p. I-9. Prior to the revisions made by the Low NO_x Omnibus rules, California's rules required that OBD systems set "[e]mission 'thresholds' for these faults [which] are typically either a multiple of the exhaust emission standard (e.g., 2.0 times the applicable standard, etc.), or an additive value above the standards (e.g., 0.2 g/bhp-hr above the applicable standards, etc.)." *Id*. But because engine manufacturers expressed concerns about the ability of their OBD systems to detect faults with certainty at the more stringent emission standard levels, California's Low NO_x Omnibus rules include revisions to the OBD requirements at 13 CCR 1968.2, 1971.1, and 1971.5, which the Department proposes to incorporate by reference. Beginning with MY 2024 in California (but in MY 2027 in New Jersey if the proposed rules are adopted), the OBD requirements maintain existing fault thresholds, rather than revising them to match the new, more stringent emission standards. *Id*. at II-10. This revision provides interim relief to manufacturers; however, CARB anticipates that the fault thresholds will be adjusted to account for the more stringent emission standards at a future date. See *id*.

Criteria Pollutant Emission Control System Useful Life and Warranty Period Requirements: 13 CCR 2035, 2036, 2037, and 2112

The Department proposes to incorporate by reference 13 CCR 2035, 2036, 2037, and 2112. These sections broadly cover criteria pollutant emission control system useful life and

warranty period requirements. "The regulatory useful life period is the period of time or engine operation during which manufacturers are liable for emissions compliance. Specifically, manufacturers must ensure that their engines meet emission standards not only at the time of certification …, but also … for their regulatory useful life." *Id*. at p. I-23. An "emissions warranty is used to cover any repairs needed to correct defects in materials or workmanship that would cause an engine or vehicle to not meet its applicable emission standards. From the vehicle owner's viewpoint, the inclusion of an emissions warranty provides a level of assurance that … [i]f such defects do occur during the warranty period, the manufacturers are liable for fixing them." CARB Low NO_x Omnibus ISOR, p. I-14. California's Low NO_x Omnibus rules lengthen the warranty and useful life periods by phasing in the extensions of these periods over time.

Generally speaking, the useful life and warranty periods are closely linked to an emission standard because they set the period of time for which the engine must be able to attain an emissions standard. As discussed above, the regulatory useful life is the measure of an engine's ability to maintain emission levels at or below the emission standard set by the regulatory agency. And though the warranty period is usually not an exact match to the length of the useful life period, the warranty period is often correlated with the agency's determination of an appropriate useful life period because it is the time the manufacturer is responsible for ensuring the vehicle meets the required emission standard.

Both California and EPA measure useful life periods in "miles, years, and in some cases hours." CARB Low NO_x Omnibus ISOR, p. I-23. Prior to California's adoption of the Low NO_x Omnibus rules, CARB's and the EPA's regulations assigned the same useful life periods for

criteria pollutant emission standards for each class of heavy-duty vehicle. See CARB Low NO_x Omnibus ISOR, p. I-26. When California began the regulatory process to amend the emission standards applicable to heavy-duty vehicles, the analysis that eventually led to the adoption of the Low NO_x Omnibus rules, included consideration of changes to both the useful life and warranty periods. After considerable research, CARB determined that the useful life periods for criteria pollutant emission standards for heavy-duty vehicles should be updated based, in part, on the longer modern service lives of heavy-duty engines. See CARB Low NO_x Omnibus ISOR, p. II-17 to 18. Ultimately, "the useful life mileage periods were chosen to roughly correspond to the mileage when engines get either rebuilt or get replaced." Low NO_x Omnibus ISOR, p. III-57. Moreover, CARB determined that California's revised useful life periods were technically feasible based on a manufacturer's ability to "design parts and systems that are durable and function for the full useful life periods, or specify appropriate maintenance intervals such that owners inspect, repair and replace parts as needed." Low NO_x Omnibus ISOR, p. III-58.

Accordingly, California's low NO_x Omnibus rules increase the useful life periods for heavy-duty vehicles. Below is Table III-14 from CARB's Low NO_x Omnibus ISOR, which compares the revised useful life periods beginning in MY 2027 with the useful life periods applicable to prior model years (referred to in the Table as "current"). The Department proposes to incorporate by reference California's revised, longer useful life periods, which are identified as "proposed" in the Table. The useful life periods identified in the Table below as "current" generally correspond with the EPA's existing useful life periods as of the date of this notice of proposal, except that the EPA has a separate useful life category for complete heavy-duty gasoline vehicles. Accordingly, the Table provides a practical way to compare and contrast the

useful life periods that vehicles sold in New Jersey must meet through MY 2026 (the national standard imposed by EPA) and the useful life periods that vehicles sold in New Jersey will be required to meet as of MY 2027.

Table III-14. Current and Proposed Heavy-Duty Useful Life Periods

Engine / Vehicle Category (GVWR)	Current Useful Life Periods (Miles)	Proposed Phase-in for Useful Life Effective MY 2027 (Miles)	Proposed Phase-in for Useful Life Effective MY 2031 (Miles)
HHDD / Class 8 >33,000 lbs.	435,000 10 years 22,000 hours	600,000 11 years 30,000 hours	800,000 12 years 40,000 hours
MHDD / Class 6-7 19,501 - 33,000 lbs.	185,000 10 years	270,000 11 years	350,000 12 years
LHDD / Class 4-5 14,001 - 19,500 lbs.	110,000 10 years	190,000 12 years	270,000 15 years
HDO >14,000 lbs.	110,000 10 years	155,000 12 years	200,000 15 years

CARB Low NO_x Omnibus ISOR, p. III-57. As can be seen in Table III-14, the revised, longer useful life periods begin to phase in starting with MY 2027.

Along with the increased useful life periods, the Low NO_x Omnibus rules include an increased warranty period for criteria pollutant emission standards for heavy-duty vehicles. Increased warranty periods encourage the engine manufacturers to provide more durable emission controls to minimize warranty claims. Longer warranty periods also shift the costs of repairing emission control malfunctions from the vehicle owner to the manufacturer for a longer period. The end result of this should be reduced pollutants from the engine for a longer

time or more miles. According to the ISOR, CARB's research demonstrates that increased warranty periods are technically feasible, a finding that is based in part on the fact that manufacturers currently offer longer warranty periods for heavy-duty vehicles and engines. See CARB Low NO_x Omnibus ISOR, p. III-45 to 46.

Table III-10 below is from CARB's Low NO_x Omnibus ISOR, which compares the revised warranty periods beginning in MY 2022, MY 2027, and MY 2031 (pursuant to the Low NO_x Omnibus rules, which were adopted by CARB in August 2020 (and as amended in September 2021)) with California's heavy-duty vehicle warranty periods for model years earlier than MY 2022, which are identified in the Table as "current" (and which generally harmonize with the EPA's existing warranty periods). Accordingly, Table III-10 provides a practical way to compare and contrast the warranty periods that vehicles sold in New Jersey must meet through MY 2024 (pursuant to the national standard imposed by EPA) and the warranty periods that vehicles sold in New Jersey will be required to meet (pursuant to the Low NO_x Omnibus rules) as of MY 2027. Note that the third column in the Table indicates the warranty periods effective with MY 2022. As noted above, the Department incorporates the California rules by reference, but limits applicability to new MY 2027 and later vehicles and engines with a GVWR in excess of 8,500 pounds.

Table III-10. Current and Proposed Heavy-Duty Diesel Warranty Periods

Table III-10. Current and Proposed Heavy-Duty Diesel Warranty Periods Engine / Vehicle Category (GVWR)	**Current Warranty (Miles)**	**June 2018 Step 1 Warranty Amendments Effective MY 2022 (Miles)**	**Proposed Phase-in for Step 2 Warranty Effective MY 2027 (Miles)**	**Proposed Phase-in for Step 2 Warranty Effective MY 2031 (Miles)**
HHDD / Class 8 >33,000 lbs.	100,000 5 years	350,000 5 years	450,000 7 years	600,000 10 years

	3,000 hours		22,000 hours	30,000 hours
MHDD / Class 6-7 19,501 - 33,000 lbs.	100,000 5 years 3,000 hours	150,000 5 years	220,000 7 years 11,000 hours	280,000 10 years 14,000 hours
LHDD / Class 4-5 14,001 - 19,500 lbs.	100,000 5 years 3,000 hours	110,000 5 years	150,000 7 years 7,000 hours	210,000 10 years 10,000 hours
HDO >14,000 lbs.	50,000 5 years	50,000[a] 5 years	110,000 7 years 6,000 hours	160,000 10 years 8,000 hours

[a] Not included under Step 1 Warranty, but current periods shown here for completeness.

CARB Low NO_x Omnibus ISOR, p. III-44. As CARB explained in its ISOR, California set the "Step 1 warranty amendments … to reflect approximately 80 percent of the current useful life of the vehicles. Following this approach, the Step 2 warranty mileage periods were also selected to represent approximately 75-80 percent of the corresponding useful life mileage period." CARB Low NO_x Omnibus ISOR, p. III-45.

Tables III-10 and III-14 serve as useful visual aids in explaining the principal differences between California's heavy-duty useful life and warranty periods prior to adoption of the Low NO_x Omnibus rules (which generally harmonized with the existing Federal standards applicable through MY 2024) and the useful life and warranty periods that will be applicable in New Jersey beginning with MY 2027 heavy-duty vehicles, once the California rules identified at N.J.A.C. 7:27-28A.11 are incorporated by reference.

In addition to the increase in the useful life and warranty periods, California's Low NO_x Omnibus rules include revisions that will result in additional variations from the existing Federal requirements, which are currently applicable in New Jersey. The Low NO_x Omnibus rules

increase the operational hours as part of the increased useful life period and re-introduce operational hours as part of the warranty period of a heavy heavy-duty (HHDD) engine. See CARB Low NO_x ISOR, pp. III-48 and 60. Since HHDD vehicles tend to idle for long periods of time, they often accumulate more hours of use at a disproportionately higher rate than miles of use. See *id*. Thus, CARB determined that lengthening the operational hours associated with the increased useful life period and including operational hours in the warranty period better reflects real-world usage of the trucks. See *id*.

The Low NO_x Omnibus rules, beginning with MY 2022 in California (but in MY 2027 in New Jersey if the proposed rules are adopted), expand the useful life and warranty period applicability to include heavy-duty hybrid vehicles that are equipped with California optionally certified heavy-duty hybrid powertrains. See CARB Low NO_x ISOR, pp. III-55 and 60. CARB determined that "it is feasible, if properly designed and integrated, for the durability of a downsized combustion engine in a hybrid powertrain to rival the expected durability of the larger engine that is used as the exclusive power source for similar vehicle applications." *Id*. at III-55. Thus, the useful life and warranty periods for optionally certified hybrid powertrains "will be the same as for a diesel engine that would typically be used in a comparable vehicle." *Id*. at III-60. Pursuant to the proposed rules, this expansion of the useful life and warranty periods applies in New Jersey beginning with MY 2027 for optionally certified hybrid powertrain engines.

The Low NO_x Omnibus rules, beginning with MY 2027, include an updated minimum maintenance interval schedule for heavy-duty Otto-cycle engines with a GVWR greater than 14,000 pounds. See CARB Low NO_x Omnibus ISOR, p. III.49. The updated schedule as applied to

each system component is located in Table III-12 in CARB's Low NO_x Omnibus ISOR, p. III-50, which includes a column that lists the minimum maintenance intervals required by the existing Federal rules, which are currently applicable in New Jersey, in order to compare and contrast the schedules. CARB based the updated schedule on its review of maintenance intervals set forth in the owner's manuals of the applicable-sized engines and vehicles. See *id*. at III-51.

The Low NO_x Omnibus rules maintain California's existing definition of "warranted parts" as applied to heavy-duty diesel engines and vehicles through MY 2026. See 13 CCR 2035. However, beginning with MY 2027, the definition of a warranted part is expanded to include heavy-duty engine or vehicle greater than 14,000 pounds GVWR of any fuel type. *Id*. The expansion of the definition ensures that all emission control system components are included in the definition of warranted parts for non-diesel heavy-duty vehicles. See CARB Low NO_x Omnibus ISOR, p. III-42. In addition, beginning with MY 2022 in California (but MY 2027 in New Jersey), the definition of a warranted part for heavy-duty hybrid vehicles greater than 14,000 pounds GVWR and California-certified hybrid powertrains, which are optionally certified, is expanded to include any part that affects regulated emission of criteria pollutants, including the electric motor, energy storage, and battery management systems. See *id*.

Finally, the Low NO_x Omnibus rules extend California's long-time designation of catalytic converter beds in diesel engines as non-replaceable parts to all heavy-duty Otto-cycle engines. *Id*., p. III-52. The designation "means that manufacturers can only schedule repairs or replacements if they pay for them." *Id*. at III-51.

Emission Warranty Information and Reporting and Corrective Actions and Recalls: 13 CCR 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2121, 2123, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2133, 2137, 2139, 2139.5, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2166, 2166.1, 2167, 2168, 2169, 2169.1,2169.2, 2169.3, 2169.4, 2169.5, 2169.6, 2169.7, 2169.8, and 2170

The Department proposes to incorporate by reference 13 CCR 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2121, 2123, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2133, 2137, 2139, 2139.5, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2166, 2166.1, 2167, 2168, 2169, 2169.1,2169.2, 2169.3, 2169.4, 2169.5, 2169.6, 2169.7, 2169.8, and 2170. Generally speaking, these sections cover the emission warranty information and reporting (EWIR) program and the corrective action procedures for California-certified engines and vehicles. Below is a short glossary of frequently used terms and acronyms that are used in this section of the Summary:

Acronym/Abbreviation	**Definition**
EIR	Emissions Information Report
EWIR	Emissions Warranty Information and Reporting
FIR	Field Information Report

Currently, the only certification required for the bulk of the heavy-duty vehicles and engines in New Jersey is the EPA certification, which means those vehicles are subject only to the EPA's warranty and recall requirements and procedures. Pursuant to the Low NO_x Omnibus rules, which the Department proposes to incorporate by reference, California's heavy-duty emission standards and procedures will include significantly different warranty coverage and

recall provisions than the EPA's rules currently do. That is primarily due to the inclusion of the new, more stringent emission standards and longer useful life and warranty periods. "The intent of the EWIR program and associated corrective action procedures is to ensure that defective emission control components are expeditiously identified and remedied through corrective action." CARB Low NO_x Omnibus ISOR, p. II-19.

Prior to the adoption of the Low NO_x Omnibus rules, the California rules required manufacturers to track the number of claims made during the warranty period for replacement/repair of components within the emission control system. See *Id*., p. I-32. If the number of claims for a particular component reached certain graduated thresholds, the manufacturer was required to submit various reports to CARB. If the failure rate reached the highest of the graduated threshold levels, CARB could require, or the manufacturer could voluntarily take, corrective action. See *ibid*.

Over the years, CARB documented the many challenges of enforcing the warranty and corrective action requirements. The challenges included manufacturers' resistance to taking corrective actions, which resulted in delayed repairs. Such delays were compounded by the fact that defective emission control components do not necessarily impact the ability of the consumer to operate the vehicle. See CARB Low NO_x Omnibus ISOR, p. II-20. Thus, vehicles with defective emission control system components will continue to operate and emit in excess of the emission standards for long periods, unless the warranty and corrective action requirements are more consistently enforced to ensure repairs are made timely. See CARB Low NO_x Omnibus ISOR, p. II-19.

California has addressed these problems in its new Low NO_x Omnibus rules make several changes to the EWIR program and the corrective action procedures to address these concerns. Starting with MY 2024 in California (but in MY 2027 in New Jersey) each of the graduated thresholds for reporting will be lowered. See Low NO_x Omnibus ISOR, p. III-61. Reporting falls into two categories: (1) unscreened claims, which "refer[s] to the number of parts replaced during the warranty period for any reason, regardless of whether the replaced or repaired part actually experienced a failure"; and (2) actual failures. *Ibid*. A claim threshold is based on either the percentage of claims or the number of individual claims, whichever is greater. *Ibid*. By lowering the number of individual claims (not the percentage) that triggers the reporting threshold, the Low NO_x Omnibus rules "ensure that for engine families with a population of less than 2,500 engines, warranty claims are tracked and any issues are addressed quickly." *Ibid*. Below, is Table III-15 from CARB's Low NO_x Omnibus ISOR, which compares the revised reporting and corrective action thresholds beginning in MY 2024 (but will begin in MY 2027 in New Jersey), with those applicable to earlier model years, which are identified in the table as "current" (and which generally harmonize with the EPA's existing warranty periods).

Table III-15. Reporting and Corrective Action Thresholds

MYs	EWIR Threshold	FIR Threshold	EIR Threshold	Corrective Action Threshold
Current	1% or 25 Unscreened Claims	4% or 50 Unscreened Claims	4% or 50 Failures	4% or 50 Failures
2024-2026	1% or 12 Unscreened Claims	4% or 25 Unscreened Claims	4% or 25 Failures	4% or 25 Failures

2027-2030	1% or 12 Unscreened Claims	Years 1-5 4% or 25 Unscreened Claims Years 6-7 5% or 30 Unscreened Claims Years 8-10 7% or 50 Unscreened Claims	Years 1-5 4% or 25 Failures Years 6-7 5% or 35 Failures	Years 1-5 4% or 25 Failures Years 6-7 5% or 35 Failures
2031 and subsequent	1% or 12 Unscreened Claims	Years 1-5 4% or 25 Unscreened Claims Years 6-7 5% or 35 Unscreened Claims Years 8-10 7% or 50 Unscreened Claims	Years 1-5 4% or 25 Failures Years 6-7 5% or 35 Failures Years 8-10 7% or 50 Failures	Years 1-5 4% or 25 Failures Years 6-7 5% or 35 Failures Years 8-10 7% or 50 Failures

Note: The threshold is the greater of the percentage of the population for which there is a warranty claim or failure, or the number of warranty claims or failures specified for each threshold.

CARB Low NO_x Omnibus ISOR, p. III-64.

In addition to lowering the reporting thresholds as shown above, the Low NO_x Omnibus rules require manufacturers to submit reports to CARB throughout the useful life of the emission-related components rather than the shorter warranty period as required previously. See CARB Low NO_x Omnibus ISOR, p. III-61. The intent is to "allow CARB staff to determine whether replacement parts adequately address the in-use issues that caused the original versions of the parts to fail at unacceptably high rates or if additional corrective action is necessary." *Id*. at III-62. Beginning with MY 2024 in California (but with MY 2027 in New

Jersey), the Low NO_x Omnibus rules allow CARB to require corrective action when the failure rates meet or exceed the corrective action thresholds. *Id*. at III-65. This change is in contrast to CARB's rules pertaining to prior MYs that prevented CARB from exercising its recall powers unless it could show the reporting thresholds were met and "a substantial number of vehicles or engines contained a failure in an emission-related component that resulted in the failure of the vehicles or engines to meet applicable emission standards over their useful lives." *Id*. at III-66. Table III-16 below contrasts the requirements for MY 2024 and later engines and vehicles, which are identified as "proposed," with California's list of requirements applicable to prior model year engines and vehicles, which are identified in the table as "current" (and generally harmonize with the EPA's existing warranty periods, which are currently applicable in New Jersey). The revisions to the EWIR Program and corrective action and recall procedures are intended to facilitate expeditious identification and corrective action for defective emission control system components.

Table III-16. Current and Proposed EWIR Requirements

	Current Requirements	**Proposed Requirements**
6.2 Parts Storage	• No storage requirement.	• Parts must be stored for 2 years.
6.3 Demonstration of Compliance with Emission Standards	• Manufacturers may demonstrate compliance with emission standards to overcome the presumption of noncompliance in order to avoid taking corrective action.	• No longer applicable. The need for corrective action will be based solely on failure rates.
6.4 Corrective Action Procedures	• Components are not identified for specific types of corrective action.	• Certain components are identified as being subject to recall and extended warranties, while some are only subject to extended

	• Extended Warranty coverage is not required for replacement parts. • Corrective action plans must be submitted within 45 days of being informed of a nonconformity.	warranties. (Any component is subject to recall if it reaches a 25% failure rate within 5 years.) • Extended warranty coverage is required for replacement parts. • Corrective Action Plans must be submitted within 90 days of exceeding the corrective action threshold.
6.5 Recall and Corrective Action Plan	• Manufacturers are required to submit corrective action plans for approval prior to implementation. The plans are reviewed to ensure that they will adequately address the problem that is occurring in the field.	• Manufacturers would be required to submit much of the same information, but include additional information so that CARB staff would be able to make more informed decisions when evaluating and approving recall and corrective action plans.
6.6 Approval and Implementation of Corrective Action Plan	• Manufacturers are required to implement corrective action plans within 45 days of receiving approval.	• Manufacturers would be required to implement the corrective action plan within 30 days of receiving approval, unless there is good cause to extend the deadline
6.7 Notification of Owners	• Manufacturers are required to notify vehicle and engine owners of corrective action.	• Manufacturers may have to take additional action to ensure that vehicle and engine owners are notified, such as using certified mail.
6.8 Owner Notification Letter	• Manufacturers must submit owner notification letters for approval as part of the corrective action plan.	• Manufacturers would follow the same approval process, but include additional information specified in Subsection 6.8.
6.9 Preliminary Tests	• Under an ordered recall, Executive Officer can request test data to demonstrate the	• No change to current requirements.

	effectiveness of corrective action repairs.	
6.10 Communication with Repair Personnel	• Manufacturers must submit repair instructions and technical service bulletins related to corrective action repairs as part of the corrective action plan.	• In addition to submitting repair instructions and technical service bulletins, manufacturers would also submit any updates to repair instructions or technical service bulletins.
6.11 Carryover and Carry Across Applications	• Though warranty and failure rate information may have been used when evaluating if it is appropriate to use carryover or carry across data, it was not explicitly stated how it would be used.	• Heavy-duty diesel and heavy-duty Otto-cycle test procedures would explicitly state that carryover or carry across data cannot be used if past MYs have exhibited that they are equipped with components that have failure rates greater than the corrective action thresholds and if an improved version of the component is not being used.

CARB Low NO_x Omnibus ISOR, p. III-72.

In summary, the Low NO_x Omnibus rules significantly revise California's EWIR program and corrective action and recall procedures beginning with MY 2024 to ensure that defective emission control system components are identified quickly and that manufacturers take the necessary corrective actions. The Department notes however, that after Table III-16 (as replicated above) was published in CARB's Low NO_x Omnibus ISOR on June 23, 2020, CARB issued a Notice of Amendments on May 5, 2021, with a few revisions to the Low NO_x Omnibus rule requirements that are not reflected in the table. See 5/5/21 Notice of Amendments, pp. 12-13. Specifically, the requirement to store parts, which is noted in the first row of Table III-16, was eliminated. See *id*. at 28-29. This provision was originally included so that the parts

could be analyzed to determine the valid failure rate reported, but it was determined that this requirement would be too costly. *Ibid*. Additionally, the total ban on carryover or carry across data, which is noted in the last row of Table III-16, was modified. See *id*. at 50. Rather than imposing an outright ban, "[t]he proposed change would allow manufacturers to request a carryover or carry across application based on data from an engine family or test group that is equipped with such an emissions control component only if they extend the emissions warranty coverage for that component to the full useful life period of the engine or test group for which certification is sought." *Ibid*.

Engine Durability Demonstration Program, In-Use Emissions Data Reporting and Heavy-Duty In-Use Testing Program: 13 CCR 1956.8, 2065, 2112, 2137, 2139, 2139.5, and 2140

The Department proposes to incorporate by reference 13 CCR 1956.8, 2065, 2112, 2137, 2139, 2139.5, and 2140. These sections broadly cover California's heavy-duty engine durability demonstration program, heavy-duty in-use emissions data reporting, and the heavy-duty in-use testing. Below is a short glossary of frequently used terms and acronyms that are used in this section of the Summary:

Acronym/Abbreviation	**Definition**
DDP	Durability demonstration program
FTP	Federal test procedure
HD	Heavy-duty
HDIUC	Heavy-duty in-use compliance
HDIUT	Heavy-duty in-use testing
HDTT	Heavy-duty transient test cycle
MAW	Moving average window
NTE	Not-to-Exceed
OBD	On-board diagnostics
PEMS	Portable emissions measurement system

RMC-SET	Ramped modal cycle version of the supplemental emissions test

As discussed in the purpose and scope section above, CARB issues an executive order when a manufacturer establishes that an engine meets the applicable certification requirements. Once the executive order is issued, a manufacturer is able to sell that engine in California. "The approval process to obtain an Executive Order includes many elements. The durability demonstration program (DDP) is one of the components of the on-road heavy-duty engine certification process." CARB Low NO_x Omnibus ISOR, p. I-37. The DDP requires the manufacturer to make two demonstrations. First, the manufacturer must show "that emission-related components are durable through the full useful life of the engine." *Id*. at I-38. Second, the manufacturer must show "that the deteriorated emissions test results at the end of the useful life periods do not exceed applicable emission standards." *Id*. at I-38. "To simulate heavy-duty engine and emission-related control component aging throughout the applicable useful life period, manufacturers operate engines over test cycles as specified in a durability demonstration program." *Id*. at ES-3-4.

After an engine is certified and receives an executive order by meeting the requirements of the DDP program under simulated use testing, California's rules require that manufacturers "test … a fraction of their engine families, with the specific engine families specified by U.S. EPA and CARB" pursuant to the heavy-duty in-use testing (HDIUT) program while they are operated on the road under real world conditions using a portable emissions measurement system (PEMS). CARB Low NO_x Omnibus ISOR, p. ES-4. CARB evaluates the in-use test data, and may require independent testing under a companion program known as the heavy-duty in-use

compliance program (CARB's in-house testing) and may require a recall if either process discovers a component is defective. See ES-4 and I-12. Much like the DDP, the purpose of the heavy-duty in-use testing (HDIUT) program is "to ensure that emissions from diesel engines in vehicles greater than 8,500 pounds GVWR are controlled under real-world conditions, i.e., during normal vehicle operation in the field, throughout their useful life." *Id*. at III-31. But unlike the DDP, the HDIUT program's testing occurs after the certification process is complete and is far more limited in scope.

Based upon its research, which included reviews of engine compliance activities reports from EPA, CARB found that its DDP program was "not accurately simulating the factors contributing to engine and emission control deterioration." CARB Low NO_x Omnibus ISOR, p. II-21. As a result, CARB determined there was a disconnect between the operations of the emission control systems under real-world conditions and operations under the simulated, laboratory testing. *Id*. Similarly, CARB observed that the findings of its HDUIT program were not valid since the data on which they were based failed to capture a significant percentage of emissions during real-world operational conditions. *Id*. at II-11. Accordingly, when California revised its heavy-duty vehicle and emission standards through the Low NO_x Omnibus rules, it made several changes to the testing and data reporting requirements and procedures of CARB's DDP and HDUIT programs.

Beginning with MY 2027, CARB's Low NO_x Omnibus rules require manufacturers of heavy-duty Otto-cycle engines "to account for the lengthened useful life in the existing procedures for bench aging of [three-way catalysts] for the durability demonstration." See CARB Low NO_x Omnibus ISOR, p. III-78. *Id*. Additionally, heavy-duty Otto-cycle engines not

previously subject to testing pursuant to the HDIUT or HDIUC programs, will be subject to HDIUC testing starting with MY 2024 engines. CARB's Low NO_x Omnibus rules made no changes to the DDP data requirements for heavy-duty Otto-cycle engine, and it determined that unlike the heavy-duty diesel engines (discussed further below), heavy-duty Otto-cycle engines will be subject to CARB evaluation based on the FTP cycle standards alone. See *Id*. at III-33.

For heavy-duty diesel engines, the Low NO_x Omnibus rules include new testing and reporting standards that will assist CARB in its efforts to better predict the impact of real-world conditions on the emission control systems of engines. CARB staff determined that based on the current, predominant technology, testing under the DDP "requires a longer break-in period to ensure aftertreatment systems have stabilized in their ability to control exhaust emissions." *Id*. at III-79. A break-in period is a term used to describe the operating time it takes "to ensure that the emission levels [from an engine] have stabilized." Accordingly, beginning with MY 2024 engines, the break-in period for testing will be increased from 125 hours to 300 hours for the applicable certification test cycles. *Id*.

During DDP testing, manufacturers simulate the "aging cycle" to ensure that the emission control systems in an engine will be able to meet emission standards over long-term use (that is, during the useful life). CARB Low NO_x Omnibus ISOR, p. III-80. Beginning with MY 2024, the Low NO_x Omnibus rules will require manufacturers to choose between two standardized aging cycles for purposes of the DDP testing. Since manufacturers could propose and use a custom aging cycle for purposes of testing vehicles with earlier model years, this change standardizes testing among the manufacturers and better reflects real-world operations. See *ibid*. In addition to limiting DDP testing to two aging cycle options, beginning in

MY 2027, the Low NO_x Omnibus rules adjust the length of the aging cycles used in the DDP to account for the longer, full useful life period for the engine and the aftertreatment system. *Id*. at III-82 to 83. Likewise, the Low NO_x Omnibus rules adjust the DDP testing procedures to ensure that the impacts of different variables (that is, size, configuration) are factored in. See *id*. at 81. Specifically, manufacturers must "generate applicable engine dynamometer cycles for [Heavy- Duty Transient Test] HDTT, 55-cruise, and 65-cruise cycles and compare those cycles to the standard engine dynamometer certification cycles (FTP, RMC-SET). Manufacturers will be required to use the cycle with the highest load factor in the DDP." See *id*. at III-81.

Additional revisions to the DDP concern the Diesel Aftertreatment Accelerated Aging Cycle (DAAAC). See *id*. at III-83. California's Low NO_x Omnibus rules, beginning with MY 2024, allow manufactures to use the DAAAC protocol or propose other protocols to simulate aging of the aftertreatment system. See *id*. at III-83 to 84. However, a manufacturer that chooses the accelerated aftertreatment aging option, must store on the OBD system and periodically submit to CARB additional emissions data from in-use, on-road engines. See *id*. at III-84.

The Low NO_x Omnibus rules include revisions to test procedures and data collection for the HDIUT and HDIUC programs for heavy-duty diesel engines. The specific changes are:

- The NTE-based test procedures will be replaced "with the MAW test procedures for the manufacturer-run HDIUT program and for CARB's HDIUC testing beginning with 2024 and subsequent MY engines, with some modifications between 2026 and 2027 and subsequent model year engines." See *Id*. at III-33. CARB staff determined that changes to the testing procedure were necessary because the NTE testing protocols used for prior model years "does not evaluate the vast majority of operating conditions." *Id*. at III-32.

- Beginning with the MY 2027 and later engines, a manufacturer's engine will have to demonstrate emissions control during cold start operation for testing. See CARB Low NO_x Omnibus ISOR, p. III-40. "A cold start exclusion for testing will be allowed for [model years 2024, 2025, and 2026] to give manufacturers more time to refine any needed hardware or calibration changes needed for the 2027 MY." *Id*.
- Beginning with MY 2024, there will be "an additional method to verify compliance with the idling emission standards," with the more stringent standards for criteria pollutants set by the rule. See CARB Low NO_x Omnibus ISOR p. III-40.
- Manufacturers will be required "to record and report two new types of OBD parameters from the engine control unit (ECU) during in-use testing. The first type includes data stream parameters, all service mode data, and tracked data." *Id*. at III-41. "The second type of data required is 1 Hz [Hertz] real-time data collected during the entire time of in-use testing." *Id*.

Part III: Miscellaneous Provisions

Tractor Auxiliary Power Units (APU) Certification: 13 CCR 2423(n), 2485(c)(2), 2485(c)(3), and 2485(h)

The Department is proposing to incorporate by reference 13 CCR 2423(n), 2485(c)(2), 2485(c)(3), and 2485(h). These paragraphs govern certifications required for auxiliary power units (APUs), which are also sometimes referred to as auxiliary power systems (APS). APUs are small engines sometimes used on heavier vehicles that need power for extended periods of time for cabin climate control and electricity, particularly for trucks

equipped with sleeper berths. See CARB Low NO_x Omnibus ISOR, p. I-43. The APU can be run while the primary vehicle engine is shut down, thus reducing emissions and saving on fuel. *Ibid*.

Although California's rules moved generally in tandem with the Federal phase 2 greenhouse gas standards, in 2018, California did not adopt a section of the Federal rules pertaining to an APU certification requirement. See CARB Low NO_x Omnibus ISOR, p. II-23. But California has incorporated the requirement into the Low NO_x Omnibus rules. See *id*. at III-91. As the Federal phase 2 greenhouse gas standards currently apply in New Jersey, this administrative change to the California rules will have no impact on vehicles sold in New Jersey if adopted.

Hybrid Powertrain Certification: 13 CCR 1956.8, 2035, 2036, and 2112

The Department's notice of proposal incorporates by reference 13 CCR 1956.8, 2035, 2036, and 2112. These sections primarily govern exhaust emission standards and emission control system warranty provisions. Pursuant to the Low NO_x Omnibus rules, beginning in MY 2024, manufacturers will have the option to certify "hybrid powertrains to criteria pollutant emission standards using powertrain testing procedures[, which] would allow heavy-duty hybrid vehicle manufacturers to seek voluntary powertrain-based (as opposed to engine-based, or chassis dynamometer-based) certification. The powertrain testing procedures would align with corresponding federal procedures for powertrain testing and would be based on the [EPA] Phase 2 [greenhouse gas] technical amendments for powertrain testing." See CARB Low NO_x Omnibus ISOR, p. III-90. Similar to the revision pertaining to the APU certification procedures discussed

above, this revision harmonizes California's powertrain testing procedures with the Federal procedures. See *id*.

Emissions Averaging, Banking, and Trading Program Amendments

As part of the Low NO_x Omnibus rules, California "established a separate California-only averaging, banking, and trading (CA-ABT) program starting with the 2022 MY engines." CARB Low NO_x Omnibus ISOR, p. ES-11. This California-only program allows manufacturers to voluntarily transfer a portion of the credits in their Federal averaging, banking, and trading (Federal ABT) accounts. See *id*. Though the California ABT program is included in the rules the Department proposes to incorporate by reference, credits in the CA-ABT program can be generated only through sales of vehicles in California. See *id*. III-73 to 74. Accordingly, manufacturers selling engines and vehicles in New Jersey will continue to bank credits through the Federal ABT program.

Repeal of N.J.A.C. 7:27-28

Proposed new N.J.A.C. 7:27-28A requires that new motor vehicles rated in excess of 8,500 pounds GVWR and new motor vehicle engines intended for use in a motor vehicle rated in excess of 8,500 pounds GVWR that are sold, leased, rented, imported, delivered, purchased, acquired, registered, received, or otherwise transferred in this State, or offered for sale, lease, or rental in New Jersey be certified by California as complying with its emission standards and testing requirements. Existing N.J.A.C. 7:27-28 has required since MY 2005 that new diesel motor vehicles rated in excess of 14,000 pounds GVWR and new diesel motor vehicle engines intended

for use in a motor vehicle rated in excess of 14,000 pounds GVWR that are sold for use in New Jersey must be certified by California as complying with its emission standards and testing requirements. As the vehicles covered at existing N.J.A.C 7:27-28 are a subset of the vehicles proposed to be covered pursuant to proposed new N.J.A.C. 7:27-28A beginning with MY 2027, the Department proposes to repeal N.J.A.C. 7:27-28, Heavy-Duty Diesel New Engine Standards and Requirements Program to avoid potential confusion among vehicle manufacturers and dealers in determining which engines and vehicles may be sold in New Jersey in a given MY. In other words, the repeal will prevent the new standards of the Low NO_x Omnibus rules from being applicable in New Jersey to some vehicles earlier than others. Pursuant to proposed N.J.A.C. 7:27-28A, all covered vehicles will be subject to the new standards beginning with MY 2027.

Diesel Vehicle Inspection Tests and Procedures

While the State moves toward increased electrification of the transportation sector, the Department must continue to reduce pollutants from fossil fuel powered heavy-duty diesel vehicles that will remain on the State's roads. To do so, not only are more stringent standards necessary, but to ensure compliance, appropriate emission tests, and procedures conducted by licensed, trained inspectors with requisite testing equipment are also required, particularly as emission control technology advances. Existing N.J.A.C. 7:27-14.5 does not require diesel vehicles with a GVWR of 8,501 to 17,999 pounds to undergo an OBD inspection or smoke opacity test at a licensed inspection facility, by a licensed inspector, which diesel vehicles with a GVWR 18,000 pounds or greater must undergo. The Department proposes to amend N.J.A.C.

7:27-14.5, Motor vehicle inspections, so that all heavy-duty diesel vehicles and diesel buses are subject to the same inspection procedures and tests.

Background

The Legislature delegated authority to both the Department and the New Jersey Motor Vehicle Commission (MVC) to regulate motor vehicle emissions. See N.J.S.A. 26:2C-8.1, 39:8-2, and 39:8-61. The Department is charged with adopting rules establishing emissions inspection procedures, exhaust emission standards, and test methods and standards for emission control apparatus and related items for diesel-powered motor vehicles, N.J.S.A. 26:2C-8.1 and 39:8-2 and 61. The MVC is directed to adopt rules "with respect to the type and character of the inspections to be made, the facility at which the vehicle shall be inspected, the frequency of inspections of motor vehicles and the approval or rejection of motor vehicles as a result of these inspections," N.J.S.A. 39:8-2.

The Department's Emission Standards, Tests, and Procedures for Diesel Vehicles, N.J.A.C. 7:27-14

The existing emissions tests and procedures for the inspection of diesel vehicles covered at N.J.A.C. 7:27-14, Control and Prohibition of Air Pollution from Diesel-Powered Motor Vehicles, are set forth at N.J.A.C. 7:27-14.5, Motor vehicle inspections, and 7:27B-4, Air test method 4: Testing procedures for diesel-powered motor vehicles. There are two categories of tests: visual tests that do not require instrumentation to conduct (a visible smoke test, an indicator light check, a visual fuel leak test, and an emission control apparatus examination) and instrumented tests (a smoke opacity test, or if equipped with On-Board Diagnostics (OBD), an OBD inspection). N.J.A.C. 7:27-14.5 sets forth which tests and procedures apply to each class of

diesel vehicle. The standards to determine if a vehicle passes inspection are established at N.J.A.C. 7:27-14.6, Motor vehicle standards.

MVC's Self-Inspection Rules for Diesel Vehicles, N.J.A.C. 13:20-26

MVC's rules allow owners or lessees of diesel vehicles with GVWR 8,501 to 17,999 pounds to maintain and inspect their own vehicles. N.J.A.C. 13:20-43.2. These owners and lessees are required to certify, in writing, with their vehicle registration renewal, that the vehicle "'has been inspected and maintained in conformity with state self-inspection requirements.'" See 29 N.J.R. 1264(a). N.J.A.C. 13:20-26.17 states that a self-inspection certification is a representation that the vehicle complies with the Department's emission standards at N.J.A.C. 7:27-14 and applicable requirements regarding muffler and emission control apparatus. Additionally, the certification is a representation that "the diesel vehicle can successfully pass the test procedures set forth at N.J.A.C. 7:27B-4." N.J.A.C. 13:20-26.17(c).

Proposed Amendments, N.J.A.C. 7:27-14.5

Pursuant to existing N.J.A.C. 7:27-14.5(a)4 and (d), the emission tests and procedures for diesel vehicles subject to MVC's self-inspection program are limited to non-instrumented tests: a visible smoke test, an indicator light check, a visual fuel leak test, and an emission control apparatus examination. For vehicles with a GVWR equal to or greater than 18,000 pounds, the inspection tests and procedures include an instrumented test. N.J.A.C. 7:27-14.5(d). Specifically, these vehicles must undergo a smoke opacity test or, if equipped with On-Board Diagnostics (OBD), an OBD inspection. A smoke opacity test, which is used to determine compliance with opacity limits, measures the optical properties of diesel exhaust and provides an indirect way of measuring diesel particulate matter emissions. See

https://dieselnet.com/tech/measure_opacity.php. Vehicles equipped with OBD monitor the status of emission controls and engine performance, alerting the driver through a dashboard indicator if there is a malfunction. During an OBD inspection, a licensed inspector connects inspection equipment to the vehicle using a standardized connector and checks for malfunctions using the vehicle computer. The OBD inspection procedure is largely a process whereby the diesel emissions testing equipment and the motor vehicle's OBD system interface and exchange information. Pursuant to MVC rules, these tests must be performed on an annual basis at a licensed facility as part of MVC's periodic inspection program. N.J.A.C. 13:20-26.17.

The purpose of an emissions inspection is to ensure that a vehicle is in optimum operating condition and is not emitting excess air pollutants. The Legislature has recognized the public health risks posed by diesel exhaust emissions. See N.J.S.A. 39:8-59. The amendments at N.J.A.C. 7:27-14 are consistent with the legislative finding that diesel exhaust emissions "contribute significantly to air pollution problems within the State; that such emissions diminish the quality of life and health of our citizens; and that the technology and state of the art in determining and controlling the level of unacceptable exhaust emissions from ... diesel-powered motor vehicles are continually being advanced and that the procedures, test methods and standards for determination of such unacceptable levels must be reflective of those advances." *Id*.

Vehicle emission control technology has advanced to a level that requires equally advanced testing and inspection. These instrumented tests must be performed by a trained inspector using specialized equipment and software. Engine malfunctions or deteriorated

emission controls may not result in a change in engine performance noticeable to the driver. In both cases, electronic instrumentation is required to detect conditions resulting in excess emissions. Further, in instances of vehicles with tampered emission controls, an objective, trained inspector will find and report what the vehicle owner may not.

Inspection facilities licensed by the MVC are required to have emission testing equipment approved by the Department and employ licensed emissions inspectors. N.J.A.C. 13:20-44.9 and 44.18. The MVC's inspector licensing program, which requires an applicant to complete a training program and pass a written examination, and to complete periodic refresher trainings and testing once licensed, ensures that all licensed inspectors understand, for example, the technical details of emission test and OBD inspection procedures, equipment operation, calibration, maintenance, and regulations, as well as emission control device function, configuration, and inspection. N.J.A.C. 13:20-43.17. By contrast, vehicle owners who are currently allowed to perform self-inspections pursuant to MVC rules are not required to be licensed and, therefore, are generally neither properly trained nor equipped to comply with the proposed inspection standards and make determinations. Therefore, in order to effectuate the inspection testing and procedures that the Department is proposing to require that for diesel vehicles with GVWR of more than 8,500 and less than 18,000 pounds, the MVC will need to update its inspection requirements to include these vehicles in its periodic inspection program.

When MVC updates its rules to require these diesel vehicles to pass inspection at a licensed inspection facility, this will also ensure that any tampering is identified and remedied. Recent enforcement work by the EPA has shown prevalent tampering of diesel vehicles in this weight range, averaging around 15 percent of the national population of these vehicles. See

EPA Letter dated November 20, 2020 and Enclosure, Tampered Diesel Pickup Trucks: A Review of Aggregated Evidence from EPA Civil Enforcement Investigations, https://int.nyt.com/data/documenttools/epa-on-tampered-diesel-pickups-11-20/6d70536b06182ad2/full.pdf. The EPA estimates the rate of tampering to be 5.6 percent in New Jersey.

For all of these reasons, the Department is proposing to amend N.J.A.C. 7:27-14.5(a), so that all heavy-duty diesel vehicles, that is, all diesel-powered motor vehicles with a GVWR exceeding 8,500 pounds and diesel buses, will be subject to the same tests and procedures using testing equipment approved by the Department. To accomplish this, the Department proposes to delete subsection (a), which sets forth the categories of diesel vehicles to which the section is applicable. As amended, proposed N.J.A.C. 7:27-14.5 requires all testing to be done with equipment approved by the Department. The testing includes an OBD inspection or smoke opacity test.

Proposed recodified N.J.A.C. 7:27-14.5(c) requires a person testing a heavy-duty diesel vehicle or a diesel bus to perform all of the tests at (c)1 through 4. Therefore, the proposed rules will require diesel vehicles with a GVWR of 8,501 to 17,999 pounds to undergo an OBD inspection or smoke opacity test. As noted above, to effectuate this change, MVC will have to amend its corresponding rules to ensure that these vehicles are inspected by a licensed inspector at a licensed inspection facility, where these tests can be performed. All other heavy-duty diesel vehicles are already subject to an OBD or smoke opacity test at a licensed inspection facility, by a licensed inspector.

In addition to the proposed changes at N.J.A.C. 7:27-14.5, Motor vehicle inspections, the Department proposes to repeal N.J.A.C. 7:27-14 Appendix, Control and Prohibition of Air Pollution from Diesel-Powered Motor Vehicles. The proposed amendments at N.J.A.C. 7:27-14.5 simplify the inspection requirements for diesel motor vehicles by eliminating distinctions between different weight classes and vehicle types (for example, trucks versus buses). As proposed, there would be one set of tests for light-duty diesel vehicles and one set of tests for all heavy-duty diesel vehicles. As such, the Department believes the appendix is no longer a useful addition to the rules.

The proposed amended rules refer to "light-duty diesel vehicle" and "heavy-duty diesel vehicle," rather than "light-duty diesel-powered motor vehicle" and "heavy-duty diesel-powered motor vehicle," consistent with the defined terms at existing N.J.A.C. 7:27-14.1.

Proposed amendment at N.J.A.C. 7:27-14.1 and 15.1

The Department proposes to amend the definition of "gross vehicle weight rating" or "GVWR" at N.J.A.C. 7:27-14.1 and 15.1 to mean "the value specified by the manufacturer as the maximum design loaded weight of a single vehicle." With this amendment, the definition will no longer refer to a combination vehicle and will expressly refer to the maximum "design" loaded weight, consistent with the definition of this term in the relevant California and the EPA rules.

Proposed amendments at N.J.A.C. 7:27-15

N.J.A.C. 7:27-14 governs the control and prohibition of emissions from diesel-powered motor vehicles, while N.J.A.C. 7:27-15 governs the control and prohibition of emissions from gasoline-fueled motor vehicles. Both subchapters generally prohibit activities that cause excess emissions. The Department proposes to amend N.J.A.C. 7:27-15.3 and 15.7 to conform these provisions to the comparable provisions at N.J.A.C. 7:27-14.3, General prohibitions, to ensure consistency across both programs.

Subchapter 14 generally prohibits any "person" from: idling a diesel vehicle; tampering with a diesel vehicle by, for example, disconnecting, detaching, deactivating, or altering the design or design element installed on the vehicle to control emissions; or selling, leasing, or offering to sell or lease any tampered vehicle. N.J.A.C. 7:27-14.3. Subchapter 15 contains similar provisions prohibiting the same activities. N.J.A.C. 7:27-15.3 prohibits the operation of a vehicle that: emits visible smoke in excess of three consecutive seconds; fails to meet the standards at N.J.A.C. 7:27-15.5 or 15.6; and/or is not certified by the EPA or California as meeting the emission standards applicable to the model year in which it was manufactured. N.J.A.C. 7:27-15.7 prohibits the tampering of a vehicle by disconnecting, detaching, deactivating, or otherwise altering an element of design originally installed on a motor vehicle, the operation of a tampered vehicle on the public roadways, and the offer for sale or lease of such a vehicle. The prohibitions at N.J.A.C. 7:27-15.3, General public highway standards, and 15.7, Prohibition of tampering with emission control apparatus, refer to an "owner or operator" of a gasoline-fueled motor vehicle. The Department proposes to amend N.J.A.C. 7:27-15.3 and 15.7 to replace "owner or operator" with "person," consistent with Subchapter 14.

Amendments at N.J.A.C. 7:27A-3.10(m)

At N.J.A.C. 7:27A-3.10(m), the Department proposes new civil administrative penalties for violations of existing N.J.A.C. 7:27-14.4(a)2 and 5, proposed N.J.A.C. 7:27-15.3(a), and proposed new N.J.A.C. 7:27-28A. The Department also proposes to correct an error related to a penalty for violations of N.J.A.C. 7:27-14.3(e)2. Existing N.J.A.C. 7:27A-3.5 authorizes the Department to impose a civil administrative penalty for a violation of any provision at N.J.A.C. 7:27, the Air Pollution Control Act (Act), or any rule promulgated, or administrative order, operating certificate, registration requirement, or permit issued pursuant to the Act, even if the violation is not otherwise included at N.J.A.C. 7:27A.

The Department proposes to add civil administrative penalties for violations of existing N.J.A.C. 7:27-14.4(a)2 and 5. N.J.A.C. 7:27-14.4(a)2 prohibits the operation on a public highway of a diesel vehicle with visible smoke for greater than three consecutive seconds. As visible smoke is an indication of excess emissions and poor vehicle maintenance, a penalty is appropriate to deter this conduct and mitigate emissions of PM2.5 and NO_x. The Department also proposes new penalties for violations at N.J.A.C. 7:27-14.4(a)5, which prohibits any person from operating a vehicle which has a tampered retrofit device or closed crankcase ventilation system installed pursuant to N.J.A.C. 7:27-32. The existing penalty schedule provides a penalty for the actual tampering, which is prohibited at N.J.A.C. 7:27-14.3(f), but does not provide a penalty for operating a tampered vehicle. A penalty is appropriate to provide an additional deterrent and prevent emissions in excess of the levels that N.J.A.C. 7:27-32 were meant to mitigate. The Department proposes civil administrative penalties for violations of proposed

amended N.J.A.C. 7:27-15.3(a), which pertains to gasoline vehicles, comparable to those proposed for existing N.J.A.C. 7:27-14.2(a)2, which pertains to diesel vehicles.

The proposed penalties at N.J.A.C. 7:27A-3.10(m)14 and 15 and at new N.J.A.C. 7:27A-3.10(m)28A are consistent with existing penalties for similar violations of other Department rules. For example, the Department determined that the failure to make records available pursuant to new N.J.A.C. 7:27-28A.9 is similar to the requirement to submit annual sales data at N.J.A.C. 7:27-29.11(a) and (b); therefore, the penalty provisions for violations of the requirements are consistent.

Under the Grace Period Law, N.J.S.A. 13:1D-125 to 133, a person responsible for a minor violation is afforded a period of time by the Department to correct the violation in order to avoid being subject to a penalty. Based upon the criteria set forth at N.J.S.A. 13:1D-129, the Department has determined which of the proposed penalties at N.J.A.C. 7:27A-3.10(m) are minor and, thus, subject to a grace period, and which are non-minor and, thus, not subject to a grace period. Generally, the Department has determined that violations that do not result in excess emissions (and, therefore, pose minimal risk to the public health, safety, and the environment) and do not materially and substantially undermine or impair the goals of the regulatory program are "minor." Pursuant to the existing rules, a minor violation can be ineligible for a grace period if the conditions at N.J.A.C. 7:27A-3.10(s) are not met.

Finally, the Department proposes to correct an error at N.J.A.C. 7:27A-3.10(m)14 for a violation of N.J.A.C. 7:27-14.3(e)2; specifically, the Department proposes to amend "five or fewer" to "five or more." The penalty in the preceding row at N.J.A.C. 7:27A-3.10(m)14 applies to four or fewer vehicles so this penalty should apply to five or more vehicles.

Social Impact

The Department anticipates that the proposed rules will have a positive social impact in New Jersey. As explained in the Environmental Impact, the Department expects the proposed rules will reduce emissions of PM2.5 and NO_x, a precursor of ozone and secondary PM2.5. All of these air pollutants cause adverse health impacts, as discussed below. Therefore, by reducing emissions of these harmful air pollutants, the Department expects corresponding health benefits, resulting in a positive social impact, particularly in local communities disproportionately impacted by heavy truck traffic.

Adverse Health Impacts of Ground-Level Ozone

Increased concentrations of ground level ozone have been linked to a number of adverse health impacts, including, but not limited to, eye irritation, aggravated asthma and other respiratory distress, and premature death. See 2020 Report on Climate Change at 63-64. Ozone exposure can cause irritation of the lungs, which can make the lungs more vulnerable to diseases, such as pneumonia and bronchitis, increase incidents of asthma and susceptibility to respiratory infections, reduce lung function, reduce an individual's ability to exercise, and aggravate chronic lung diseases. Increased ozone concentrations severely affect the quality of life for susceptible populations – small children, the elderly, and asthmatics – and present health risks for the public in general. Exposure to ozone for several hours at relatively low concentrations significantly reduces lung function and induces respiratory inflammation in normal, healthy people during exercise. This decrease in lung function is generally accompanied by symptoms, such as chest pain, coughing, sneezing, and pulmonary congestion. Research strongly suggests that, in addition to exacerbating existing asthma, ozone also causes asthma in

children. Long-term exposure may lead to scarring of lung tissue and lowered lung efficiency. Repeated exposure may cause permanent lung damage. When ozone reaches unhealthy levels, children, people who are active outdoors, and people with respiratory disease are most at risk. See USEPA 2016 RIA at 6-2 to 6-6.

Additionally, there is some evidence that the health impacts of increased ozone may be elevated when combined with other climate-related impacts, such as the higher temperatures that occur during heat waves. See 2020 Report on Climate Change at 66. This is particularly significant for New Jersey's urban areas where high temperatures are often accompanied by high levels of other local air pollutants. See *id*.

Adverse Health Impacts of NO_x and PM2.5

NO_x as an air pollutant adversely impacts public health and further, contributes to the formation of secondary PM2.5, which along with direct PM2.5, causes additional public health risks. The EPA has established a NAAQS for NO_x, as measured by nitrogen dioxide (NO_2). See 83 FR 17,226 (April 18, 2018). Long-term exposure to low concentrations of NO_2 causes adverse respiratory effects, including lung irritation and increased pulmonary inflammation in children with asthma. See USEPA 2016 RIA at 6-6 to 6-7. The Department measures NO_2 levels at 10 locations throughout the State: Bayonne, Camden Spruce Street, Chester, Columbia, Elizabeth Lab, Fort Lee Near Road, Jersey City, Millville, Newark Firehouse, and Rutgers University in New Brunswick. The design value for NO_2, which determines whether there is a violation of the NAAQS, is the three-year average of the 98th percentile of the one-hour daily maximum concentrations. Design values at the urban monitoring sites are consistently higher than the rural sites. The Department, therefore, expects that the proposed rules will particularly benefit

urban areas, while reducing NO_x emissions throughout the State. See 2018 NJ Air Quality Report, Executive Summary, https://www.nj.gov/dep/airmon/pdf/2018%20NJ%20AQ%20Report-bookmarked.pdf#page=4.

PM2.5 has significant health impacts due to its ability to penetrate deeply into the lungs. See EPA, Health and Environmental Effects of Particulate Matter (PM), https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm. Exposure to PM2.5 has been linked to premature mortality, lung cancer, cardiovascular effects and disease, and nervous system effects. Exposure to PM2.5 has also been linked to respiratory effects including changes in lung function, decrements in lung function growth, increased respiratory symptoms, such as coughing, difficulty breathing, and irritation of the airways, respiratory infection, and aggravated asthma. See 85 FR 82,684, 82,695 through 82,703. Studies also indicate that "asthma, lung function decrement, respiratory symptoms, and other respiratory problems appear to occur more frequently in people living near busy roads." 69 FR 38,958, 38,966. One study "indicated that long-term residence near major roads, an index of exposure to primary mobile source emissions (including diesel exhaust), was significantly associated with increased cardiopulmonary mortality." *Id*. "Other studies have shown children living near roads with high truck traffic density have decreased lung function and greater prevalence of lower respiratory symptoms compared to children living on other roads." *Id*. Diesel PM emissions also contain "numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene" referred to as air toxics. See CARB, Overview: Diesel Exhaust & Health,

https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health. In summary, the effects of NO_x and PM2.5 on public health have been widely and extensively studied by the EPA and others. The benefits of reducing these air pollutants include reduced incidence of premature mortality and morbidity from exposure to both PM2.5 and ozone. See EPA, Integrated Science Assessment for Oxides of Nitrogen – Health Criteria, United States Environmental Protection Agency, EPA/600/R-15/068, January 2016 (EPA ISA for Oxides of Nitrogen), http://ofmpub.epa.gov/eims/eimscomm.getfile?p_download_id=526855; and U.S. EPA, Integrated Science Assessment (ISA) for Particulate Matter, EPA/600/R-08/139F, December 2009, http://ofmpub.epa.gov/eims/eimscomm.getfile?p_download_id=494959. Other health impacts that have been recognized include reduced incidence of morbidity from exposure to NO_x. See National Research Council. 2002. Estimating the Public Health Benefits of Proposed Air Pollution Regulations. Washington, DC: The National Academies Press. https://doi.org/10.17226/10511; Driscoll, C.T, Buonocore, J., Reid, S., Fakhraei, H, and Lambert, K.F. 2014. Co-benefits of Carbon Standards Part 1: Air Pollution Changes under Different 111d Options for Existing Power Plants. Syracuse University, Syracuse, NY and Harvard University, Cambridge, MA. A report of the Science Policy Exchange. 34 pp.

Heavy-Duty Emission Standards

The Department expects a positive social benefit to result from the proposed Heavy-Duty Emission Standards, effective beginning Model Year 2027, which will complement the State's deliberate phased approach toward electrification of the transportation sector. Specifically, the more stringent NO_x emission standards, as well as other requirements including

strengthened in-use testing and enhanced warranty and useful life provisions, are anticipated to result in emission reductions, as discussed at greater length in the Environmental Impact.

The proposed rules require engine manufacturers to provide and guarantee more durable and longer-lasting emission controls. The proposed Heavy-Duty Emission Standards also include expanded emissions warranty reporting requirements for manufacturers, which will ensure more thorough collection of information when emission controls fail. Thus, the Department expects the proposed rules to benefit the buyers and owners of these vehicles, if repairs are necessary or manufacturer defects are detected during the longer warranty period. Moreover, the Department anticipates an overall social benefit from these requirements, which will collectively bolster the new emission standards by better ensuring that vehicles will remain in compliance with the emission standards over time. As heavy-duty engines tend to have long operating lifespans, the proposed rules will better protect New Jersey residents from excess exhaust emissions from these sources for as long as possible.

Diesel Vehicle Inspection Procedures and Standards

As discussed in the Environmental Impact, the Department expects the proposed inspection test procedures and standards for all diesel vehicles will reduce harmful NO_x emissions, which contribute to ozone and secondary PM2.5 formation, as well as direct PM2.5 emissions. These benefits would be realized when the MVC adopts rules requiring vehicles with a GVWR of greater than 8,500 and less than 18,000, which are currently excluded, to undergo periodic inspections. By requiring appropriate inspection procedures for all vehicles affected by the proposed Heavy-Duty Emission Standards, the amendments will ensure that the benefits of the Heavy-Duty Emission Standards are fully realized. As explained, the Department expects

urban areas, where high temperatures are often accompanied by high levels of local air pollutants, will particularly benefit from the proposed rules and expected reductions.

Economic Impact

The Department expects the proposed rules will have a net positive economic impact. Although the proposed rules will result in increased compliance costs, the Department anticipates a net savings when avoided health costs are considered.

Heavy-Duty Emission Standards

The Department expects that the proposed Heavy-Duty Emission Standards will result in increased compliance costs for manufacturers and that these costs will likely be passed through to dealers and vehicle owners/lessees. However, the Department expects a net savings when avoided health and societal costs are considered.

Monetized Health Benefits

The proposed rules will incorporate California's rules pertaining to emission standards and supporting requirements for gasoline and diesel engines and vehicles with a GVWR greater than 8,500 pounds, which, pursuant to California's recently adopted Low NO_x Omnibus rules, will require manufacturers of heavy-duty vehicles to reduce NO_x emissions produced by these vehicles. The Department's estimated emissions reductions of NO_x, which will reduce ozone and secondary PM2.5, are described in detail in the Environmental Impact.

The Department relied on the CO-Benefits Risk Assessment Health Impact Screening and Mapping Tool (COBRA), which was developed by the EPA to estimate the health impacts of changes in air pollution emissions.

The Department expects the proposed Heavy-Duty Emission Standards will provide benefits in avoided health costs from reducing criteria air pollutants emitted by fossil fuel powered heavy-duty vehicles. Specifically, as explained in the Environmental Impact, the Department expects a reduction of NO_x emissions, which is linked with the following negative health outcomes in the COBRA tool: mortality, nonfatal heart attacks, hospital admissions for respiratory and cardiovascular conditions, acute bronchitis, upper and lower respiratory symptoms, emergency room visits for asthma, asthma exacerbation, restricted activity days for minors, and lost work days. Following the approach used by CARB, the Department chose to focus its analysis on the avoided health costs associated with mortality, hospitalization, and emergency room visits. The COBRA tool was used to estimate Statewide reductions in NO_x from the highway vehicles sector. Benefits were limited to New Jersey, although the Department notes that additional health benefits are expected in neighboring states as a result of these proposed rules.

The Department estimates that from 2027 through 2050, the NO_x reductions from the proposed rulemaking will result in between 37 and 84 avoided premature deaths, nine fewer hospitalizations from cardiovascular illness, eight avoided hospitalizations from respiratory illness, and 25 avoided emergency room visits. The Department estimates that implementation of the Heavy-Duty Emission Standards will result in monetized benefits from avoided premature deaths and avoided health incidents from 2027 through 2050 between approximately $475 million and $1.07 billion.

This amount is likely an underestimate of the avoided health costs from removing NO_X from the air, as there are additional health concerns linked to emissions that may not be

captured by the COBRA tool. For example, PM2.5, polycyclic aromatic hydrocarbons (PAHs), nitrogen dioxide, and black carbon have been associated with deficits in intelligence, memory, and behavior. PAHs, which are a component of black carbon and PM2.5, have been associated with developmental delay; reduced IQ; symptoms of anxiety; depression; and inattention; attention deficit hyperactivity disorder (ADHD); and reduced size of brain regions important for processing information and impulse control. See American Journal of Public Health, *Healthy Air, Healthy Brains: Advancing Air Pollution Policy to Protect Children's Health*, March 13, 2019, by D.C. Payne-Sturges et.al, https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2018.304902. Black carbon and PM2.5 have also been associated with asthma exacerbation. See Science of the Total Environment, *Acute effects of black carbon and PM2. 5 on children asthma admissions: a time-series study in a Chinese city*, by Hua, J., Yin, Y., Peng, L., Du, L., Geng, F., and Zhu, L. (2014), Vol. 481, pp. 433-38. It was estimated that nationwide in 2008, $4 billion in direct medical costs and nearly $5 billion in indirect costs, such as lost productivity resulting from parents' caring for sick children, could be attributed to asthma. Applying a range of attributable fractions (10 percent to 35 percent), the best estimate of nationwide childhood asthma costs in 2008 that could be associated with environmental factors was $2.2 billion. Health Affairs, *Reducing the Staggering Costs of Environmental Disease in Children, Estimated at $76.6 Billion in 2008*, 2011, by L. Trasande & Y. Liu in Health Affairs, https://www.healthaffairs.org/doi/pdf/10.1377/hlthaff.2010.1239.

Additional Benefits

The Department also expects potential additional Statewide monetary benefits in the form of savings to each vehicle owner, as a result of the longer warranties and other provisions of the Heavy-Duty Emission Standards that are anticipated to result in a longer useful life of a vehicle subject to the proposed rules. As discussed by CARB, two elements of the proposed rules are expected to provide cost-savings for vehicle purchasers: lengthened warranty and Emissions Warranty Information and Reporting (EWIR). CARB EA at 89-93. As CARB notes, although "the added costs associated with the longer warranty periods would ultimately be passed on to the consumers in the form of an increased purchase price for the trucks, some but not all, vehicle buyers would gradually recoup the initial increase in purchase price as they save money on repairs. For these vehicle buyers, the increased purchase price of the vehicle would be offset by savings benefits over time." CARB Low NO_x Omnibus ISOR, p. V-11. The proposed rulemaking also requires "manufacturers to more expeditiously repair or replace parts that are identified as having systemic issues as identified via the EWIR program" resulting in "cost savings for vehicle purchasers because components that they previously had to pay for out-of-pocket would now be repaired or replaced under an extended warranty or recall." *Id*. at V-14. The Department expects similar economic benefits in New Jersey.

Summary of Costs

The Department estimated the costs of implementing the proposed rulemaking by adjusting the cost estimates developed by CARB in its regulatory impact analysis. As CARB described, “The Proposed Amendments would require engine manufacturers to produce lower-emitting heavy-duty combustion engines, which would increase upfront production and operational costs, compared to existing engines, and would result in direct and indirect

incremental costs. The direct and indirect incremental costs would likely be passed on to the engine/vehicle operators. Elements contributing to increased costs include establishing more stringent emission standards over existing regulatory cycles, amendments to in-use test procedures, modifications to the durability demonstration procedure for certification, lengthened warranty periods, lengthened useful life periods, amendments to EWIR reporting and corrective action procedures, and requiring NO_x data collection and reporting." CARB Low NO_x Omnibus ISOR at IX-46.

To estimate the costs, the Department scaled CARB's values to reflect vehicle miles traveled (VMT) in New Jersey. Though CARB's analysis assumed significant costs associated with the development of standards, certification of vehicles, and research and development of new technology, the Department assumed these costs would not apply to New Jersey's costs, as manufacturers will already be conducting these activities to meet California's requirements.

After carrying forward these assumptions, the Department estimates the total compliance costs for manufacturers of heavy-duty vehicles from 2022 through 2050 will be approximately $250 million. The Department expects some or all of these costs will be passed through to dealers and vehicle owners in the form of higher vehicle prices. CARB estimated that the lifetime net impact per vehicle ranges from $412.00 to $8,841, depending on vehicle type and model year. See CARB Low NOx Omnibus ISOR at ES-14 through ES-16. As an example, CARB provided the following description of the price increase for a diesel vehicle 19,501 to 33,000 pounds GVWR: "CARB staff expects the initial vehicle purchase price to be about $6,923 higher than it otherwise would be. A buyer of such a vehicle would receive savings of $1,641 over the life of the vehicle, and would pay an additional $532.00 for DEF [diesel exhaust fluid],

meaning that the net impact on the vehicle purchaser would be an increase of about $5,814 over the life of the vehicle. Note that CARB's analysis was completed in 2020, so it is likely that inflation has increased the per-vehicle costs described above. While not insignificant, in this example these costs are relatively modest when compared to the total purchase price of MHDD [medium heavy-duty diesel cycle] vehicles with 2031 and subsequent MY engines, representing about 5.6 percent of baseline vehicle purchase price." *Id*. Note that the values provided by CARB include the costs of establishing new technology to meet California's standards. By adopting a similar standard, New Jersey will enable manufacturers to share costs across consumers in both states, lowering the per-vehicle lifetime net impact in both states.

Diesel Vehicle Inspection Procedures and Standards

The Department anticipates that the proposed diesel vehicle inspection procedures and standards will have a net positive economic impact. As set forth in the Environmental Impact, applying the vehicle test procedures and standards to all diesel vehicles is necessary to realize the full benefits of the Department's air quality programs. The Department also considered costs to current owners of diesel vehicles with a GVWR greater than 8,500 and less than 18,000 pounds, whose vehicles would be required to undergo inspection at a licensed inspection facility when the MVC updates its rules to require periodic inspections for this class of vehicles. In calculating costs, the Department considered a range of scenarios. The MVC may require all of these vehicles to be inspected at a private inspection facility (PIF), consistent with vehicles with a GVWR 18,000 pounds and above. Alternatively, the MVC may allow these vehicles to be inspected at either a PIF or a Centralized Inspection Facility (CIF), or the MVC may direct all of these vehicles to be inspected at a CIF.

Monetized Health Benefits

As set forth in the Environmental Impact, the Department estimates additional potential emission reductions to be 154 tons of NO_x per year and 25 tons of PM10 per year by applying the test standards and procedures to diesel vehicles with a GVWR greater than 8,500 and less than 18,000 pounds. To roughly estimate the avoided health costs associated with these reductions in NO_x and PM10, the Department relied on EPA's COBRA tool for estimating the health co-benefits of emissions reductions, finding avoided health costs between $11 million and $26 million per year.

In addition, when the MVC amends it periodic inspection requirements to include diesel vehicles with a GVWR greater than 8,500 and less than 18,000 pounds in accordance with the standards and procedures the Department is proposing, these regular inspections will ensure that tampered or modified emission controls in these vehicles are efficiently identified and corrected, generating further reductions in NOx and PM. Using the EPA's estimates, over the lifetime of all tampered vehicles, the Department anticipates NOx emissions will be reduced by approximately 5,800 tons, when compared to their tampered state. Similarly, the Department anticipates direct PM emissions will be reduced by approximately 51 tons for the lifetime of all tampered vehicles returned to original emissions system operation. Again, the Department used the EPA's COBRA tool. The estimated avoided health costs associated with these reductions is between $82 million and $187 million over the lifetime of all of these vehicles.

Summary of Costs

The proposed inspection procedures and standards will impact owners of diesel vehicles greater than 8,500 and less than 18,000 pounds GVWR. Based upon 2022 data, there

Department estimates that there are approximately 100,000 of these vehicles registered in the State. The Department cannot ascertain the exact number of diesel vehicles greater than 8,500 and less than 18,000, because the data sets available sort vehicles up to 19,500 GVWR. Thus, the Department is using a conservative estimate of 100,000. More than 55 percent of the total number of vehicles registered in the State with a GVWR greater than 8,500 and less than 18,000 are commercially registered. The Department cannot accurately assess the costs for the additional inspections because the MVC will need to amend its rules, which will dictate the location of inspections. If the MVC were to require these vehicles to be inspected at a PIF, consistent with the requirements for vehicles 18,000 pounds and above, there would be no cost to the State. Vehicle owners, however, would bear the additional cost of an inspection through a private facility. Pursuant to the Department's proposed rules, the age and weight of the vehicle would determine the type of test that will be performed and, thus, the cost to the vehicle owner. Vehicles that are 8,501 to 14,000 pounds should receive an opacity test if MY 2007 and older and an OBD test if MY 2008 and newer and OBD eligible. The heavier vehicles covered by this rulemaking—14,001 through 17,999 pounds—should receive an opacity test if MY 2013 and older, and an OBD test if MY 2014 and newer and OBD eligible. This should result in approximately half of the vehicles affected by the proposed rules requiring an opacity test and the remainder requiring an OBD test. Inspection pricing is market driven and currently ranges from $90.00 to $150.00 for the annual opacity test. As OBD testing has not yet been implemented for vehicles other than light duty vehicles, the Department cannot estimate the market price for an OBD test.

If the MVC were to require these vehicles to be inspected at a CIF, there would be no cost to the vehicle owner. The State, however, would bear the added cost of additional inspections for approximately 100,000 vehicles. The MVC could decide to require inspections annually or on a different schedule (for example, every other year or every third year). The frequency of inspections would impact the costs to the State. Historically, inspections at CIFs cost approximately $19.00 per vehicle. However, this number does not account for the possibility that the CIF may require extra staffing and/or additional equipment to accommodate the vehicles requiring an opacity test. The Department estimates that opacity testing equipment costs approximately $6,500 per unit, and the MVC would have to decide how many CIFs would need to be equipped.

Based on internet surveys of annual repair and maintenance costs for many of the most prevalent vehicle models that will be affected by this proposed amendment, the Department estimates the cost of additional repairs required in order to maintain a vehicle in a condition able to pass inspection is between $600.00 and $1,000 per year. This range is roughly half of the range found for total maintenance costs and reflects the fact that emissions control equipment on modern diesel vehicles is quite complex and expensive to repair compared with other vehicle systems such as suspension or interior heating and cooling. Individual vehicle owner's experiences will likely vary widely as newer vehicles can be expected to require little to no maintenance and any actual repairs should be covered under warranty, whereas older vehicles may have extensive repair costs, at least to pass their first inspection pursuant to this rulemaking.

Repeal of N.J.A.C. 7:27-28

The Department's proposed repeal of existing N.J.A.C. 7:27-28 is not expected to have a substantial economic impact, because it will only delay the compliance date for a subset of the covered vehicles for a few model years.

Environmental Impact

The Department anticipates that the proposed rules addressing heavy-duty vehicles and engines will have a positive environmental impact due to the expected reductions of NO_x emissions, which contribute to the formation of ground-level ozone and secondary PM2.5, and direct PM2.5 (of which black carbon is a component).

Climate Change and Air Quality

The 2020 New Jersey Scientific Report on Climate Change is the Department's effort to compile scientific material in a comprehensive report detailing both the effects and the impacts of climate change. See New Jersey Department of Environmental Protection. 2020. New Jersey Scientific Report on Climate Change, Version 1.0 (Eds. R. Hill, M.M. Rutkowski, L.A. Lester, H. Genievich, N.A. Procopio) Trenton, NJ 184 pp. (2020 Report on Climate Change). While the report examines climate change at the global and regional level, its purpose is to explain the current and anticipated effects and impacts in New Jersey. See *id*. at 3. In fact, one of the report's findings is that New Jersey is uniquely vulnerable to climate change due to multiple factors, including its coastal location, population density, and geography. See *id*., Executive Summary.

Climate scientists worldwide agree that the substantial increase in heat-trapping greenhouse gases in the earth's atmosphere from fossil fuel production and combustion, as well as land degradation are the principal causes of climate change. See *id*., p. vi. As the 2020

Report on Climate Change explains the increasing CO_2 concentration was first observed over 60 years ago. *Id*. at 15. "Since then other human-sourced greenhouse gases have been recognized as contributing to climate change, such as methane (CH_4), nitrous oxide (N_2O), ozone (O_3), many halogenated gases (especially chlorofluorocarbons [CFC-11 and CFC-12]), among others." *Id*. at 16. Although CO_2 is the most abundant greenhouse gas, scientists have recently begun to study the role of other short-lived climate pollutants/forcers, such as hydrofluorocarbons, methane, and black carbon in climate change. See *id*. at 25-26. It is now understood within the scientific community that while these pollutants and forcers tend to have shorter atmospheric lives, they also have much higher warming potentials, making them significant contributors to climate change. See *id*.

Climate change affects temperature, precipitation, sea-level rise, and ocean acidification. See 2020 Report on Climate Change at 28. And "[a]s temperature, precipitation, sea-level rise, and ocean acidification increase, so will the impacts to New Jersey's air, water, habitats, and wildlife." *Ibid*. at vii. Climate induced increases in air pollution will also further degrade the environment, reducing visibility and damaging crops and forests. *Ibid*. Increased air pollution will lead to adverse health impacts, such as increased respiratory and cardiovascular health problems and more premature deaths. *Ibid*.

Of particular relevance is the interaction between climate change and air pollution, specifically, ground-level ozone. In the stratosphere, ozone provides protection from the sun's harmful ultraviolet rays. Ozone is harmful, however, when created in the Earth's lower atmosphere, or troposphere, by the interaction of "precursor" pollutant gases such as NO_x and volatile organic compounds (VOCs) with heat and sunlight.

Ground-level ozone

As discussed more fully in the Social Impact statement, ground-level ozone (also referred to herein as "ozone") harms our health. With respect to the physical environment, the damaging effects "of ozone can be observed across a variety of scales, i.e., subcellular, cellular, leaf, whole plant, population and ecosystem." See USEPA, Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2, Regulatory Impact Analysis, August 2016 (USEPA 2016 RIA), pp. 6-25, https://nepis.epa.gov/Exe/ZyPDF.cgi/P100P7NS.PDF?Dockey=P100P7NS.PDF. Plant-level effects, when widespread, can cause "broad changes in ecosystems, such as productivity, carbon storage, water cycling, nutrient cycling, and community composition." *Id*. Ozone damage to sensitive species includes visible injury to leaves and impaired photosynthesis, which is the process by which the plant makes carbohydrates, its source of energy and food. *Id*. By interfering with the ability of plants to produce and store food, ozone can lead to reduced crop and forest yields, including timber production, and can lessen overall plant productivity and growth. *Id*. Ground-level ozone makes plants more susceptible to harsh weather, disease, insects, and other pollutants. It also damages the foliage of trees and other plants, sometimes marring the landscape of cities, national parks and forests, and recreation areas. *Id*. at 6-25.

Ozone-climate penalty

As the 2020 Report on Climate Change explains, "[t]he atmospheric conditions that generate high ozone levels are high temperatures, plenty of sunshine, and stagnant air masses, and often result in elevated levels of particulate matter and/or other colored gases that may appear visually as haze or smog…." *Id*. at 61. The many factors that contribute to ground-level

ozone concentrations at any given time and location can be separated into two general categories. *Id*. at 62. The first category includes sources that emit ozone precursors, such as trucks that emit NO_x. Precursor emissions are expected to decline generally but remain high in dense urban areas. *Id*. at 62. The second category includes meteorological conditions that are conducive to the formation of ozone, such as a warming climate. *Id*. at 61-62. Meteorological changes are expected to cause the primary climate change impacts on ozone formation. *Id*. at 62. This phenomenon, which is frequently referred to as the "ozone-climate penalty," is explained as "the deterioration of air quality due to a warming climate, in the absence of anthropogenic (human-caused) polluting" activities. *Id*. Thus, "even as emissions are reduced, ozone formation may still increase due to the warmer climate," *id*., making it more important to continue to reduce emissions of ozone precursors, even as it may become more difficult to reduce ozone pollution.

NO_x and PM

In addition to its role as an ozone precursor, NO_x can cause rainfall to become highly acidic, damaging leaves and plant structures during rain events. See NJDEP, Health and Environmental Effects of Ground-Level Ozone, https://www.nj.gov/dep/cleanairnj/health.html. NO_x also contributes to the formation of secondary PM2.5, either through condensation or complex reactions with other compounds in the atmosphere. PM2.5 includes all particulate matter having an aerodynamic diameter less than or equal to 2.5 microns, including condensable particulate matter. Particulate matter, also called particle pollution, is a term for a mixture of solid particles and liquid droplets in the air. See EPA Particulate Matter (PM) Basics, https://www.epa.gov/pm-pollution/particulate-matter-pm-basics. PM10 refers to inhalable

particulate matter with a diameter generally 10 microns or less. See CARB, Inhalable Particulate Matter and Health (PM2.5 and PM10), https://ww2.arb.ca.gov/resources/inhalable-particulate-matter-and-health. Particulate matter includes larger particles known as PM10, such as dust, dirt, soot, smoke, as well as smaller particles, known as PM2.5. More than 90 percent of particulate matter in diesel exhaust is less than one micron in diameter and, therefore, is a subset of PM2.5. *Id*.

As more fully discussed in the Social Impact statement, PM2.5 has been linked to public health risks. Particles generally also cause harm to the environment when they settle on ground or water. Particulate matter can acidify lakes and streams, change the nutrient balance in coastal waters and large river basins, deplete nutrients in soil, damage farm crops and sensitive forests, affect ecosystem diversity, and contribute to acid rain effects. *Id*. PM2.5 also is the main cause of reduced visibility, or haze.

When PM2.5 is discharged directly from combustion sources, such as diesel vehicles, it contains a component known as black carbon that is a climate forcer. Though black carbon is a short-lived climate pollutant, it has a high global warming potential.

Heavy-Duty Emission Standards

As explained in the Summary, the Department proposes new N.J.A.C. 7:27-28A to incorporate by reference California's rules pertaining to emission standards and supporting requirements for gasoline and diesel engines and vehicles with a GVWR greater than 8,500 pounds. New Jersey's proposed Heavy-Duty Emission Standards will require fossil fuel powered heavy-duty vehicles and engines sold in the State to meet more stringent NO_x emission standards. The proposed Heavy-Duty Emission Standards will also impose requirements, such as longer

warranty periods, to ensure that the vehicles remain in compliance with the standards through their useful lives.

The primary environmental benefit of the proposed Heavy-Duty Emission Standards is expected to be the reduction of NO_x emissions as a result of both the emission standards and the additional requirements to ensure that the vehicles' emission controls function as intended for an extended period of time. To estimate the projected NO_x emission reductions as a result of the proposed Heavy-Duty Emission Standards, the Department relied upon the methodology and assumptions described in the Final Report prepared for The International Council on Clean Transportation (ICCT) by Sonoma Technology. See Benefits of State-level Adoption of California Medium- and Heavy-Duty Vehicle Regulations, Sonoma Technology, Final Report, October 11, 2021, www.theicct.org (ICCT Report). The ICCT Report describes all of the data used and assumptions made for purposes of modeling the benefits of ACT, Low NO_x Omnibus rules and the Phase 2 GHG standards. Generally, the ICCT Report used EPA's MOtor Vehicle Emission Simulator (MOVES) emission modeling to develop a baseline for emission and vehicle activity for the years 2020 to 2050 in five-year increments. See ICCT Report, p. 3. It then developed adjustment factors to account for three California programs: Advanced Clean Trucks, Low NO_x Omnibus, and the Phase 2 GHG Standards. *Ibid*. Once the modeling was complete, the results were interpolated for each intermediate year and for various scenarios (that is, Business as Usual, adoption of ACT and Low NOx Omnibus rules, ACT adoption only, etc.). *Ibid*.

In September 2022, the ICCT adjusted the emission reduction benefits from the 2021 ICCT Report to account for a MY 2027 implementation date for the Low NO_x Omnibus rules in New Jersey. https://theicct.org/benefits-ca-multi-state-reg-data/. The Department is providing the

ICCT's emissions benefit estimates for each year starting with 2027 and ending with 2050 based upon the updated data for New Jersey. The estimated emission benefits are based on the assumption that the new standards will remain in place through 2050. Below is a table with the estimated emission reduction benefits for each year, as well as the estimated total (cumulative) emission reductions:

Calendar Year	Omnibus Benefits NO_x Short Tons
2027	253
2028	378
2029	504
2030	630
2031	790
2032	950
2033	1,110
2034	1,270
2035	1,430
2036	1,590
2037	1,760
2038	1,910
2039	2,080
2040	2,240
2041	2,330
2042	2,440
2043	2,530
2044	2,640
2045	2,730
2046	2,800
2047	2,860
2048	2,920
2049	2,980
2050	3,050
Total	44,175

See *Ibid*. (Tank-to-Wheel NO_x Emissions by Scenario (short tons per year)), 2020-2050.

Repeal of N.J.A.C. 7:27-28

Existing N.J.A.C. 7:27-28, Heavy-Duty Diesel New Engine Standards and Requirements Program, requires that, beginning with MY 2005, new diesel-fueled motor vehicles rated in excess of 14,000 pounds GVWR and new, diesel-fueled motor vehicle engines, intended for use in a motor vehicle rated in excess of 14,000 pounds GVWR that are sold for use in New Jersey, must be certified by California as complying with its emission standards and testing requirements. As proposed new N.J.A.C. 7:27-28A requires certification by California for all engines and vehicles rated in excess of 8,500 GVWR, the applicability of these two subchapters would overlap, creating the potential for confusion among vehicle manufacturers and dealers about which engines and vehicles may be sold in New Jersey in a given MY. Accordingly, the Department proposes to repeal N.J.A.C. 7:27-28, so that it will be clear that the more stringent emission standards incorporated by reference at N.J.A.C. 7:27-28A, Heavy-Duty Emission Standards, will apply to all covered vehicles in the same MY, 2027. Though California's emission standards would have applied to new, diesel-fueled motor vehicles rated in excess of 14,000 pounds GVWR and new diesel-fueled motor vehicle engines intended for use in a motor vehicle rated in excess of 14,000 pounds beginning in MY 2024 if N.J.A.C. 7:27-28 was not repealed, the loss of a single MY of a smaller subset of engines is not expected to have a substantive environmental impact.

Vehicle Inspection Procedures and Standards

The Department also proposes amendments at N.J.A.C. 7:27-14, Control and Prohibition of Air Pollution from Diesel Powered Motor Vehicles, so that all heavy-duty diesel vehicles, that is, all diesel-powered motor vehicles with a GVWR exceeding 8,500 pounds, will be subject to the same tests and procedures, including the use of testing equipment approved by the Department. Regular OBD inspections may help to ensure that vehicle owners are made aware of faulty components in the vehicle's emission system during the warranty period.

Diesel vehicles with a GVWR from 8,501 to 17,999 pounds are the only category of diesel vehicles that are not required to pass a smoke opacity test or OBD test under the Department's existing rules, or to be inspected at an inspection facility by a licensed inspector pursuant to existing MVC rules. The Department's proposed amendments require instrumented tests that, as explained in the Summary above, must be performed at a licensed facility. Thus, when the Motor Vehicle Commission adopts rules to require this category of vehicles to be inspected at a licensed inspection facility, the rules together will extend the same inspection requirements to all diesel vehicles. By requiring all vehicles to pass an inspection performed by a properly trained and licensed inspector at a licensed facility with proper equipment to conduct the necessary tests, such as opacity and OBD, vehicles emitting excess pollutants will be identified and repaired. In addition, the Department expects that required regular inspections will dissuade vehicle owners from altering vehicle emission control systems. The Department, therefore, expects the inspection testing requirement amendments at N.J.A.C. 7:27-14 to have a positive environmental benefit when effectuated through complementary MVC inspection program amendments.

To estimate the emission reductions as a result of vehicle maintenance and repairs that will likely result from the inspection requirement, the Department calculated the estimated

emission reductions by using EPA's MOtor Vehicle Emission Simulator (MOVES). MOVES is an emission modeling system used by states to estimate emissions for mobile sources at the national, county, and project level for criteria air pollutants, greenhouse gases, and air toxics. The EPA's current MOVES model includes calculations reflecting the emission increases in both light-duty and heavy-duty vehicles that result from age, mileage, tampering, and poor maintenance. California has a similar model called EMission FACtor (EMFAC) that additionally includes repair effectiveness rates. The Department evaluated historic inspection failure rates, then applied MOVES' assumptions to estimate the total amount of excess emissions resulting from those failures. Based upon New Jersey's current inspection compliance rates and the repair effectiveness rates from California's EMFAC model, the Department estimated the percent of excess emissions that will be eliminated as a result of the MVC's proposed inspection requirement. To estimate the emission reductions that will be achieved once the approximately 100,000 registered 8,501 to 17,999 pound diesel vehicles in the State are inspected, the Department used both the percent of excess emissions resulting from inspection failures and the percent of excess emissions that will be eliminated as a result of the repairs triggered by inspection. The Department calculated the emission reductions to be approximately 154 tons of NO_x and 25 tons of PM10. As the majority of diesel exhaust is PM2.5 or smaller, the Department estimates that most if not all of this benefit is in the form of PM2.5. These emission reductions are equivalent to removing 90,000 cars from the roads. The Department expects these emission reductions to particularly benefit urban, environmentally overburdened communities, which experience heavy diesel truck traffic and are most impacted by direct diesel pollution.

The Department expects further benefit by mitigating excess emissions that result from the tampering with vehicle emission control systems. Recent enforcement work by the EPA has shown that tampering of medium-duty diesel vehicles is prevalent, averaging around 15 percent of the national population of these vehicles. As noted above, medium-duty vehicles with a GVWR greater than 8,500 and less than 14,001 pounds are a subset of heavy-duty vehicles. The EPA estimates that more than 550,000 vehicles have been functioning with tampered systems in the last decade, resulting in 570,000 tons of excess NO_x and 5,000 tons of excess PM emitted during their lifetime. See EPA Letter dated November 20, 2020 and Enclosure, Tampered Diesel Pickup Trucks: A Review of Aggregated Evidence from EPA Civil Enforcement Investigations, https://int.nyt.com/data/documenttools/epa-on-tampered-diesel-pickups-11-20/6d70536b06182ad2/full.pdf (11/20/20 EPA Letter). The added pollution is equivalent to adding more than nine million untampered medium-duty diesel vehicles to the nation's roadways.

The EPA estimates the rate of tampering to be 5.6 percent in New Jersey. See 11/20/20 EPA Letter. To calculate the potential emissions benefits to New Jersey if tampered vehicles are identified through proper inspection and required to be returned to their original emission system operation, the Department utilized the EPA's estimated 5.6 percent tampering rate and the EPA's estimated excess emissions due to tampering. The Department first divided the total (nationwide) excess emissions for NO_x (570,000) and for PM (5,000) by the total (nationwide) number of tampered vehicles (550,000) to calculate the excess, per vehicle NO_x emissions (1.036 tons) and PM emissions (0.0091 tons). The Department then took the estimated number of medium-duty diesel vehicles in the State (100,000 based on 2020 registration data)

and multiplied by the EPA's estimated 5.6 percent rate of tampering to determine the estimated total number of tampered vehicles in New Jersey (5,600 vehicles). The Department then multiplied the estimated total number of tampered medium-duty diesel vehicles in the State (5,600) by the estimated excess NO_x emissions per vehicle (1.036 tons) and excess PM emissions per vehicle (0.0091 tons) to calculate the estimated lifetime excess emissions for all vehicles in New Jersey. The Department estimated total excess emissions over the lifetime of these vehicles to be 5,802 tons of NO_x and 51 tons of PM. The excess emissions reflect the emissions benefit over the lifetime of all of these tampered vehicles if these vehicles are identified during regular inspection at an inspection facility and required to be repaired to pass inspection.

Federal Standards Statement

N.J.S.A. 52:14B-1 et seq. (P.L. 1995, c. 65), requires State agencies that adopt, readopt, or amend State rules that exceed any Federal standards or requirements to include in the rulemaking document, a Federal standards analysis.

Heavy-Duty Emission Standards

The Federal Clean Air Act (CAA) (42 U.S.C. §§ 7401 et seq.) granted the State of California, which has some of the worst air pollution in the nation, the authority to enact stricter emission standards than the national standards set by the EPA. See 42 U.S.C. § 7543. The CAA also authorizes qualifying states to adopt and enforce emission standards for which California has received a waiver, if the state gives two years' lead time. See 42 U.S.C. § 7507.

Thus, once the EPA grants California's request for a waiver for the Low NO_x Omnibus rules, pursuant to 42 U.S.C. § 7543, the more stringent emission standards that the Department proposes to incorporate by reference will be a Federally authorized standard. If, however, a waiver is not granted, the rules will not be applied or enforced pursuant to N.J.A.C. 7:27-31.3. Given the framework of the CAA, the proposed rules would not exceed a Federal standard once a waiver is granted. Thus, no further analysis is necessary.

Diesel Vehicle Inspection Procedures and Standards

The proposed amendments at N.J.A.C. 7:27-14 apply the same test procedures and standards to all heavy-duty diesel vehicles. The Federal regulations that control establishment of enhanced inspection and maintenance programs are set forth generally at 40 CFR Parts 51 and 85. However, the Federal rules do not include test procedures and standards for diesel vehicles; therefore, the Department has determined that there are no comparable Federal standards. Accordingly, no Federal standards analysis is required.

Amendments at N.J.A.C. 7:27-15

The Department proposes amendments at N.J.A.C. 7:27-15 to conform the provisions with N.J.A.C. 7:27-14. The proposed amendments ensure consistency between the two programs; therefore, no Federal standards analysis is required.

Repeal of N.J.A.C. 7:27-28

The Department's proposed repeal of N.J.A.C. 7:27-28 would not exceed a Federal standard. Thus, no further analysis is necessary.

Jobs Impact

The Department anticipates that the proposed rules will have a small impact on job retention or creation in the State. As provided below, the Department anticipates that the proposed Heavy-Duty Emission Standards may result in the loss of 0.01 percent of New Jersey's baseline employment; whereas, the amended inspection requirements for diesel vehicles with a GVWR greater than 8,500 and less than 18,000 pounds may result in increased employment due to a need for additional licensed inspectors, if the PIFs and/or CIFs cannot absorb the additional vehicle inspection requirements with existing staffing. For these reasons, the Department is unable to estimate the net number of jobs that would be affected by the proposed rules.

Heavy-Duty Emission Standards

As part of its economic analysis, CARB estimated the impact of the Low NO_x Omnibus rules on the total employment in California in the following sectors: Government, Retail and Wholesale, Services, Construction, Transportation, Manufacturing, Financial Services, and Information Services. CARB estimated a slightly negative impact from 2022 to 2050. According to CARB, "as the requirements of the Proposed Amendments would go into effect, affected sectors would likely experience increases in production costs and hence slightly slower employment than they otherwise would experience." CARB, Further Detail on Costs and Economic Analysis, August 27, 2020, p.73, https://ww3.arb.ca.gov/regact/2020/hdomnibuslownox/appc3.pdf. CARB also anticipated that "[t]he largest decrease in employment would manifest in the manufacturing, construction, transportation, and retail [and] wholesale trade sectors, which are estimated to realize an increase in production costs due to the increased heavy-duty truck prices driven by the

Proposed Amendments." *Id*. On net, CARB estimated a decrease of employment of roughly 2,000 jobs, less than 0.01 percent of baseline California employment. Adjusting for the size of New Jersey's employment as of October 2020, this would represent roughly 350 jobs in 2050.

Diesel Vehicle Inspection Procedures and Standards

The proposed changes to the required inspection tests and procedures for diesel vehicles with a GVWR of 8,501 through 17,999 pounds would mean that an estimated 100,000 vehicles would need to be inspected by trained inspectors at properly equipped facilities. The Department, therefore, anticipates that the proposed rules may result in additional jobs related to the inspection of these vehicles when the MVC updates its rules to require these vehicles to undergo periodic inspections. As of the date of this rulemaking, there are approximately 300 PIFS performing inspections on the roughly 125,000 heavy-duty diesel vehicles over 18,000 pounds that are registered in the State. As of the date of filing this notice of proposal with the Office of Administrative Law, there are approximately 25 CIFS performing inspections on the roughly 6.5 million light-duty and heavy-duty gasoline-powered vehicles and light-duty diesel-fueled vehicles that are registered in the State.

For the PIFs, this equates to 1.6 inspections per facility per business day. If the MVC imposes an annual (as opposed to biennial) inspection frequency for these diesel vehicles with a GVWR greater than 8,500 and less than 18,000 pounds, the Department estimates, based on the total number of additional vehicles to be inspected and the number of facilities, that inspections will increase the daily throughput to 2.53 inspections per facility per business day, or roughly one additional inspection per facility. The Department anticipates that this could necessitate the hiring of additional inspectors. However, the Department anticipates that these

facilities will be able to absorb the increased inspections from this additional category of vehicles and does not expect that the total number of licensed inspection facilities will need to increase to accommodate the additional inspections.

If the MVC imposes an annual (as opposed to biennial) inspection frequency for these diesel vehicles with a GVWR greater than 8,500 and less than 18,000 pounds, this could necessitate the hiring of additional inspectors at these facilities. The MVC could, however, structure their rules to require inspections less frequently than annually and/or allow certain vehicles to complete their inspections at CIFs while requiring others to go to the PIFs, or the MVC could structure its rules to require all inspections at CIFs. Thus, the impacts to employment will not be entirely clear until the MVC adopts new rules consistent with the proposed inspection procedures and standards.

Repeal of N.J.A.C. 7:27-28

The Department's proposed repeal at N.J.A.C. 7:27-28 is not expected to have an impact on job creation or retention in the State, because it will only delay the compliance date of the emission standards for a subset of the covered vehicles for a few model years.

Agricultural Industry Impact

The Department anticipates that the proposed rules will have a positive impact on the agricultural industry in New Jersey due to the expected reductions of NO_x and PM2.5 emissions. As discussed in the Environmental Impact, NO_x emissions contribute to the formation of ozone and secondary PM2.5; NO_x, ozone, and particle pollution all harm crops and vegetation. For this reason, the proposed rules, which as discussed in the Economic Impact will increase the

costs of on-road vehicles used in the agricultural industry, should still have a net positive impact on agriculture in the State by reducing emissions of pollutants that are harmful to crops and vegetation.

Regulatory Flexibility Analysis

As required by the New Jersey Regulatory Flexibility Act, N.J.S.A. 52:14B-16 et seq., the Department has evaluated the reporting, recordkeeping, and other compliance requirements that the proposed rules would impose upon small businesses. The Regulatory Flexibility Act defines the term "small business" as "any business which is a resident in this State, independently owned and operated and not dominant in its field, and which employs fewer than 100 full-time employees." Based upon this definition, the proposed Heavy-Duty Emission Standards and the revised diesel vehicle inspection tests and procedures may impose compliance, recordkeeping, and reporting requirements on small businesses, as discussed below. These requirements and their associated costs are discussed in the Summary and Economic Impact statements. In light of the impacts from emissions from diesel vehicles with a GVWR greater than 8,500 and less than 18,000 pounds that are not inspected and do not meet the more stringent NO_x emission standards, as discussed in the Social and Environmental Impact statements, the Department does not propose an exemption or accommodation for small businesses.

Heavy-Duty Emission Standards

The Department is not aware of any vehicle manufacturer that is resident in New Jersey that employs fewer than 100 full-time employees. However, small businesses involved in

selling heavy-duty vehicles could be affected by the rules if dealerships experience cost increases due to increased compliance costs to manufacturers. The Department does not anticipate any additional paperwork requirements for dealers associated with the proposed rules.

As small businesses often own heavy-duty vehicles that are used for business operations, the Department anticipates small businesses will be impacted given the likelihood that these costs will be passed on to dealers and consumers through higher vehicle prices.

Diesel Vehicle Inspection Procedures and Standards

The proposed changes to the inspection requirements for diesel vehicles with a GVWR of greater than 8,500 and less than 18,000 pounds would mean that these vehicles would need to be inspected by trained inspectors at properly equipped facilities, which would be effectuated through a change in the MVC's rules requiring these vehicles to participate in the MVC's periodic inspection program. Therefore, the Department anticipates that the number of annual inspections at licensed inspection facilities will increase as a result of the proposed rulemaking when the MVC updates its rules. The MVC may require inspections of these vehicles at the approximately 300 PIFs currently used to inspect vehicles with a GVWR greater than 18, 000. Nearly all of the PIFs, if not all, employ fewer than 100 people full-time and would, therefore, be categorized as small businesses. Thus, if the MVC updates its rules to require inspections at PIFs (rather than CIFs or some combination of the two), the Department anticipates that the number of inspections these small businesses would be performing would increase under the proposed rulemaking, and there would be a related increase in the amount of recordkeeping and reporting.

The Department also anticipates some impact on small businesses that own diesel vehicles with a GVWR greater than 8,500 and less than 18,000 pounds that will have to be inspected at a licensed facility. These small businesses would need to pay for the inspection and necessary repairs, the estimated costs of which are discussed in the Economic Impact.

Repeal of N.J.A.C. 7:27-28

The Department's proposed repeal at N.J.A.C. 7:27-28 is not expected to have an impact on small businesses because it simply delays the application and enforcement of California's emission standards for a small subset of the covered vehicles.

Housing Affordability Impact Analysis

In accordance with N.J.S.A. 52:14B-4, the Department has evaluated the proposed rules to determine their impact, if any, on the affordability of housing. Given that the proposed rules are only applicable to heavy-duty vehicles, as discussed in the Summary above, the Department has determined that the proposed rules are unlikely to impact housing affordability or the average costs of housing in the State.

Smart Growth Development Impact Analysis

In accordance with N.J.S.A. 52:14B-4, the Department has evaluated the proposed rules to determine their impact, if any, on housing production in Planning Areas 1 or 2, or within designated centers, under the State Development and Redevelopment Plan. Given that the proposed rules are only applicable to heavy-duty vehicles, as discussed in the Summary above,

the rules are unlikely to evoke a change in housing production in Planning Areas 1 or 2, or within designated centers, under the State Development and Redevelopment Plan.

Racial and Ethnic Community Criminal Justice and Public Safety Impact

In accordance with N.J.S.A. 52:14B-4(a)(2) and 2C:48B-2, the Department has evaluated this rulemaking and determined that it will not have an impact on pretrial detention, sentencing, probation, or parole policies concerning adults and juveniles in the State. Accordingly, no further analysis is required.

Full text of the rules proposed for repeal may be found in the New Jersey Administrative Code at N.J.A.C. 7:27-14 Appendix and 7:27-28.

Full text of the proposed new rules and amendments follows (additions indicated in boldface **thus**; deletions indicated in brackets [thus]):

CHAPTER 27

AIR POLLUTION CONTROL

SUBCHAPTER 14. CONTROL AND PROHIBITION OF AIR POLLUTION FROM DIESEL-POWERED MOTOR VEHICLES

7:27-14.1 Definitions

The following words and terms, when used in this subchapter, shall have the following meanings, unless the context [already] **clearly** indicates otherwise.

. . .

"Gross vehicle weight rating" or "GVWR" means the value specified by the [vehicle] manufacturer as the maximum **design** loaded weight of a single [or combination] vehicle.

...

7:27-14.5 Motor vehicle inspections

[(a) This section applies to the motor vehicle inspection of a diesel-powered motor vehicle, as follows:

1. The testing of a heavy-duty diesel vehicle, as designated by the Chief Administrator of the MVC, as part of the roadside enforcement program established pursuant to N.J.S.A. 39:8-64 and N.J.A.C. 13:20-46, Diesel Emission Inspection and Maintenance Program;

2. The testing of a heavy-duty diesel vehicle, as designated by the Chief Administrator of the MVC, as part of the periodic inspection program established pursuant to N.J.S.A. 39:8-64 and N.J.A.C. 13:20-26.17, Compliance with diesel emission standards, equipment requirements, and test procedures; inspection and verification of installation of best available retrofit technology devices; periodic inspection program for diesel emissions; self-inspection; exempt vehicles;

3. The testing of a diesel bus as part of the periodic inspection program pursuant to N.J.A.C. 13:20-30, Inspection of school buses, or N.J.S.A. 48:4-1 et seq., and N.J.A.C. 16:53, Autobuses;

4. The testing of a diesel-powered motor vehicle as part of the self-inspection programs pursuant to N.J.A.C. 13:20-26, Compliance with diesel emission standards and equipment, periodic inspection program for diesel emissions and self-inspection of certain classes of motor vehicles; and

5. The testing of a light-duty diesel vehicle subject to the enhanced inspection and maintenance program pursuant to N.J.S.A. 39:8-1 et seq.]

[(b)] **(a)** A person testing a diesel-powered motor vehicle[, as referenced at (a)1, 2, 3, and 5 above,] shall use diesel emissions testing equipment approved by the Department in accordance with N.J.A.C. 7:27B-4.6.

[(c)] **(b)** A person testing a [diesel-powered motor] **heavy-duty diesel** vehicle **or a diesel bus** [in accordance with (a)1, 2, and 3 above] shall perform one of the following:

1. – 2. (No change.)

[(d)] **(c)** A person testing a [diesel-powered motor] **heavy-duty diesel** vehicle **or a diesel bus** [in accordance with (a)1 through 4 above] shall perform the following:

1. – 4. (No change.)

[(e)] **(d)** A person testing a light-duty [diesel-powered motor] **diesel** vehicle [in accordance with (a)5 above] shall perform the following:

1. - 3. (No change.)

Recodify existing (f)-(i) as **(e)-(h)** (No change in text.)

APPENDIX

(RESERVED)

SUBCHAPTER 15. CONTROL AND PROHIBITION OF AIR POLLUTION FROM GASOLINE-FUELED MOTOR VEHICLES

7:27-15.1 Definitions

The following words and terms, when used in this subchapter, shall have the following meanings**,** unless the context clearly indicates otherwise.

...

"Gross vehicle weight rating" or "GVWR" means the value specified by the manufacturer as the maximum **design** loaded weight of a single [or combination] vehicle.

...

7:27-15.3 General public highway standards

(a) No [owner or operator of a gasoline-fueled motor vehicle] **person** shall cause, suffer, allow**,** or permit the operation of [the] **a** motor vehicle upon the public roads, streets**,** or highways of the State or any public or quasi-public property in the State**,** if the vehicle emits visible smoke in the exhaust emissions or in the crankcase emissions for a period in excess of three consecutive seconds.

(b) No [owner or operator of a gasoline-fueled motor vehicle] **person** shall cause, suffer, allow, or permit the operation of [the] **a** motor vehicle upon the public roads, streets, or highways of the State or any public or quasi-public property in the State, if the vehicle fails to meet any applicable standard at N.J.A.C. 7:27-15.6.

(c) No [owner or operator of a gasoline-fueled motor vehicle] **person** shall cause, suffer, allow**,** or permit the operation of [the] **a** motor vehicle upon the public roads, streets**,** or highways of the State or any public or quasi public property in the State**,** if the motor vehicle does not satisfy and pass all applicable motor vehicle inspection testing requirements at N.J.A.C. 7:27-15.5.

(d) No [owner or operator of a gasoline-fueled motor vehicle] **person** shall cause, suffer, allow**,** or permit the operation of [the] **a** motor vehicle upon the public roads, streets**,** or highways of the State or any public or quasi-public property in the State**,** if the motor vehicle is a 1968 or later model year vehicle (or, if the vehicle was originally sold in California, a 1966 or later model year vehicle), and the motor vehicle is not certified by either of the following agencies as meeting the applicable emission standards for motor vehicles manufactured in the model years listed below:

1. – 2. (No change.)

7:27-15.7 Prohibition of tampering with emission control apparatus

(a) No [owner or operator of a motor vehicle] **person** shall cause, suffer, allow**,** or permit any of the following, unless it is performed in accordance with EPA Memorandum 1A or it is exempt from prohibition by CARB Executive Order (information on devices or modifications approved by CARB Executive Order may be obtained from the California Air Resources Board, 1001 "I" Street, PO Box 2815, Sacramento, CA 95812 or at www.arb.ca.gov):

1. – 4. (No change.)

(b) (No change.)

SUBCHAPTER 28 (RESERVED)

SUBCHAPTER 28A. MODEL YEAR 2027 OR LATER HEAVY-DUTY NEW ENGINE AND VEHICLE STANDARDS AND REQUIREMENTS

7:27-28A.1 Definitions

The following words and terms, when used in this subchapter, shall have the following meanings, unless the context clearly indicates otherwise.

"California Air Resources Board" or "CARB" means the agency or its successor agency established and empowered to regulate sources of air pollution in the State of California, including motor vehicles, pursuant to Section 39003, California Health & Safety Code, 1999, incorporated herein by reference, as amended or supplemented.

"CCR" means the California Code of Regulations.

"Certification" or "certified" means a finding by CARB or the USEPA that a motor vehicle, motor vehicle engine, or air contaminant emission control system has satisfied the criteria for the control of specified air contaminants from motor vehicles, adopted by CARB or the USEPA, respectively, as set forth in their respective regulations.

"Department" means the New Jersey Department of Environmental Protection.

"Gross vehicle weight rating" or "GVWR" means the value specified by the manufacturer as the maximum design loaded weight of a single vehicle.

"Lease" means any commercial transaction recognized under the laws of this State as a means of creating a right to use a good and includes renting. It also includes offering to rent or lease.

"Medium-duty passenger vehicle" means medium-duty passenger vehicle as defined at 13 CCR 1900.

"Model year" or "MY" means model year as defined at 40 CFR 85.1502(a)(8).

"New motor vehicle" means a motor vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser.

"New motor vehicle engine" means an engine in a new motor vehicle or a motor vehicle engine, the equitable or legal title to which has never been transferred to the ultimate purchaser.

"Person" means any individual or entity and shall include, without limitation, corporations, companies, associations, societies, firms, partnerships, and joint stock companies, and shall also include, without limitation, all political subdivisions of any states, and any agencies or instrumentalities thereof.

"Sale" or "sell" means the transfer of equitable or legal title to a motor vehicle or motor vehicle engine to the ultimate or subsequent purchaser.

"Ultimate purchaser" means, with respect to any new motor vehicle or new motor vehicle engine, the first person who in good faith purchases a new motor vehicle or new motor vehicle engine for purposes other than resale.

"Zero-emission vehicle" or "ZEV" shall have the same meaning as the term "zero-emission vehicle" as defined at 13 CCR § 1963(c).

7:27-28A.2 Purpose and scope

(a) This subchapter establishes emission standards in New Jersey that are the same as the California emission standards for vehicles and engines of the same model years and gross vehicle weight rating for:

1. All model year 2027 or later new motor vehicles rated in excess of 8,500 pounds GVWR; and

2. All model year 2027 or later new motor vehicle engines intended for use in motor vehicles rated in excess of 8,500 pounds GVWR.

7:27-28A.3 Applicability

(a) Except as specifically provided herein, on or after January 1, 2027, this subchapter applies to:

1. All model year 2027 or later new motor vehicles rated in excess of 8,500 pounds GVWR; and

2. All model year 2027 or later new motor vehicle engines intended for use in motor vehicles rated in excess of 8,500 pounds GVWR.

(b) The specified engine and vehicle standards and requirements set forth in the provisions of the California Code of Regulations, as identified at N.J.A.C. 7:27-28A.11 shall not be operative in New Jersey, unless or until such time as California receives a waiver from the United States Environmental Protection Agency pursuant to 42 U.S.C. § 7543, as published in the Federal Register, for the applicable engine standard, vehicle standard, or other emission requirement.

7:27-28A.4 Requirements for engine and vehicle transactions

(a) No person who is a resident of this State, or who operates an established place of business within this State, shall sell, lease, import, deliver, purchase, acquire, register, receive, or otherwise transfer in this State, or offer for sale, lease, or rental in this State a model year 2027 or later, new motor vehicle rated in excess of 8,500 pounds GVWR or a

model year 2027 or later, new motor vehicle engine intended for use in a motor vehicle rated in excess of 8,500 pounds GVWR, unless the California Air Resources Board has issued an executive order certifying the vehicle or engine and it meets all of the requirements of the California Code of Regulations identified at N.J.A.C. 7:27-28A.11 that apply to the model year and gross vehicle weight rating of the vehicle or engine in question.

(b) For the purposes of this subchapter, it is conclusively presumed that the equitable or legal title to any motor vehicle with an odometer reading of 7,500 miles or more has been transferred to an ultimate purchaser, and that the equitable or legal title to any motor vehicle with an odometer reading of less than 7,500 miles has not been transferred to an ultimate purchaser.

7:27-28A.5 Exemptions

(a) Notwithstanding the provisions at N.J.A.C. 7:27-28A.3, the requirements set forth at N.J.A.C. 7:27-28A.4, 28A.7, 28A.8, and 28A.11 do not apply to:

1. A medium-duty passenger vehicle;

2. A zero emission vehicle rated in excess of 8,500 pounds GVWR;

3. A vehicle held for daily lease or rental to the general public or engaged in interstate commerce, that is registered and principally operated outside of New Jersey;

4. A vehicle transferred by inheritance;

5. A vehicle transferred by court decree;

6. A vehicle having a certificate of conformity issued pursuant to the Clean Air Act that was originally registered in another state by a resident of that state, who subsequently establishes residence in this State;

7. A vehicle sold or transferred directly from one dealer to another dealer;

8. A vehicle sold for the purpose of being wrecked or dismantled; or

9. A vehicle sold exclusively for off-highway use.

7:27-28A.6 Prohibition against stockpiling

No person shall purchase any new motor vehicle rated in excess of 8,500 pounds GVWR or any new motor vehicle engine intended for use in a motor vehicle rated in excess of 8,500 pounds GVWR, greater than normal business needs for the purpose of evading the requirements of this subchapter.

7:27-28A.7 Manufacturer compliance with California warranty

Each manufacturer of a vehicle subject to N.J.A.C. 7:27-28A.3 shall warrant to the ultimate purchaser and each subsequent purchaser that the vehicle will comply during its period of warranty coverage with all applicable requirements set forth in the sections of the California Code of Regulations, as identified at N.J.A.C. 7:27-28A.11.

7:27-28A.8 Manufacturer compliance with California orders and voluntary recalls

(a) Any order or enforcement action taken by the CARB to correct noncompliance with any section of Title 13 of the California Code of Regulations, which action results in the recall of any vehicle pursuant to any provision of the California Code of Regulations identified at N.J.A.C.

7:27-28A.11, shall be applicable in New Jersey, except where the manufacturer demonstrates to the Department's satisfaction within 30 days of issuance of the CARB action that the action is not applicable to vehicles subject to N.J.A.C. 7:27-28A.3.

(b) Any emission-related recall campaign, voluntary or otherwise, initiated by any manufacturer that results in the recall of any vehicle pursuant to any provision of the California Code of Regulations identified at N.J.A.C. 7:27-28A.11 shall be applicable in New Jersey, except where the manufacturer demonstrates to the Department's satisfaction within 30 days of the CARB approval of the campaign that the campaign is not applicable to vehicles subject to N.J.A.C. 7:27-28A.3.

7:27-28A.9 Recordkeeping

(a) Any person who operates a place of business that sells, leases, or rents new MY 2027 or later motor vehicles rated in excess of 8,500 pounds GVWR or new model year 2027 or later motor vehicle engines intended for use in motor vehicles rated in excess of 8,500 pounds GVWR in this State shall maintain records of all the business's sales, leases, rentals, imports, purchases, acquisitions, receipt of, or other transfers of new MY 2027 or later motor vehicles rated in excess of 8,500 pounds GVWR or new model year 2027 or later motor vehicle engines intended for use in motor vehicles rated in excess of 8,500 pounds GVWR for a period of no less than five years after the date of the transaction.

(b) Upon the request of the Department, the owner or operator of the place of business shall make the records specified at (a) above available for inspection at the place of business by any representative of the Department during normal business hours.

(c) Upon receipt of a written request from the Department, the owner or operator of the place of business shall timely submit a copy of the records specified at (a) above to the Department by mail or by other means as agreed to by the Department.

7:27-28A.10 Right to enter

(a) The Department, or its representative, shall have the right to enter and inspect any site, building, equipment, or vehicle, or any portion thereof, at any time, in order to ascertain compliance or non-compliance with the Air Pollution Control Act, N.J.S.A. 26:2C-1 et seq., this subchapter, any exemption, or any order, consent order, agreement, or remedial action plan issued, approved, or entered into pursuant thereto. Such right shall include, but not be limited to, the right to test or sample any material, motor vehicle, or motor vehicle engine, or any emissions therefrom, at the facility; to sketch or photograph any portion of the site, building, vehicles, or motor vehicle engines; to copy or photograph any document or record necessary to determine such compliance or non-compliance; and to interview any employees or representatives of the owner, operator, or registrant. Such right shall be absolute and shall not be conditioned upon any action by the Department, except the presentation or appropriate credentials, as requested, and in compliance with appropriate standard safety procedures.

(b) Failure to comply with any of the obligations or requirements of this subchapter shall subject the violator to an enforcement action pursuant to the provisions at N.J.S.A. 26:2C-19 and N.J.A.C. 7:27A-3.

7:27-28A.11 Incorporation by reference

(a) Unless specifically excluded by this subchapter, when a provision of the CCR is incorporated by reference, all notes, comments, appendices, diagrams, tables, forms, figures, publications, and cross-references are also incorporated by reference.

(b) Supplements, amendments, and any other changes including, without limitation, repeals or stays that affect the meaning or operational status of a California rule incorporated by reference, brought about by either judicial or administrative action and adopted or otherwise noticed by the State of California, shall be paralleled by a similar change to the New Jersey rule, so that the New Jersey rule will have the same meaning and status as its California counterpart. To satisfy the identicality requirement of the Clean Air Act, at 42 U.S.C. § 7507, all new California regulations related to certification of model year 2027 or later new motor vehicles rated in excess of 8,500 pounds GVWR and model year 2027 or later new motor vehicle engines intended for use in motor vehicles rated in excess of 8,500 pounds GVWR are also incorporated into this subchapter by this automatic process.

(c) In the event that there are inconsistencies or duplications in the requirements of the provisions incorporated by reference from the CCR and the rules set forth in this subchapter, the provisions incorporated by reference from the CCR shall prevail.

(d) Nothing in the provisions incorporated by reference from the CCR shall affect the Department's authority to enforce statutes, rules, permits, or orders administered or issued by the Commissioner.

(e) On or after (the operative date of this rulemaking or the operative date of California's regulations, whichever is later), any new California rules, amendments, supplements, and other changes that are brought about through administrative or judicial action and

automatically incorporated through the prospective incorporation by reference process shall be effective upon publication in the California Regulatory Notice Register and operative on the operative date cited by California in the relevant California Regulatory Notice Register notice, unless the Department publishes a notice of proposal repealing the adoption in New Jersey of the California regulation in whole or in part, and/or proposing to otherwise amend the affected New Jersey rules.

(f) The following provisions of the CCR are incorporated by reference within this subchapter, except as provided at (f)1 through 7 below:

Table 1	
Provisions Incorporated by Reference	
California Code of Regulations (CCR)	
Title 13	
Chapter 1	
Motor Vehicle Pollution Control Devices	
Article 1	
General Provisions	
Section 1900	Definitions
Article 2	
Approval of Motor Vehicle Pollution Control Devices (New Vehicles)	
Section 1956.8	Exhaust Emission Standards and Test Procedures - 1985 and Subsequent Model Heavy-Duty Engines and Vehicles, 2021 and Subsequent Zero-Emission Powertrains, and 2022 and Subsequent Model Heavy-Duty Hybrid Powertrains
Section 1961.2	Exhaust Emission Standards and Test Procedures - 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles
Section 1965	Emission Control and Smog Index Labels – 1979 and Subsequent Model Year Vehicles
Section 1968.2	Malfunction and Diagnostic System Requirements – 2004 and Subsequent Model Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles
Section 1971.1	On-Board Diagnostic System Requirements--2010 and Subsequent Model-Year Heavy-Duty Engines
Article 6	

Emission Control System Warranty	
Section 2035	**Purpose, Applicability and Definitions**
Section 2036	**Defects Warranty Requirements for 1979 Through 1989 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles; 1979 and Subsequent Model Motorcycles and Heavy-Duty Vehicles; and Motor Vehicle Engines Used in Such Vehicles; and 2020 and Subsequent Model Year Trailers**
Section 2037	**Defects Warranty Requirements for 1990 and Subsequent Model Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles and Motor Vehicle Engines Used in Such Vehicles**
Chapter 2	
Enforcement of Vehicle Emission Standards and Enforcement Testing	
Article 1.5	
Enforcement of Vehicle Emission Standards and Surveillance Testing for 2005 and Subsequent Model Year Heavy-Duty Engines and Vehicles	
Section 2065	**Applicability of Chapter 2 to 2005 and Subsequent Model Year Heavy Duty Engines and Vehicles.**
Article 2.1	
Procedures for In-Use Vehicle Voluntary and Influenced Recalls	
Section 2111	**Applicability**
Section 2112	**Definitions**
Appendix A to Article 2.1	
Section 2113	**Initiation and Approval of Voluntary and Influenced Recalls**
Section 2114	**Voluntary and Influenced Recall Plans**
Section 2115	**Eligibility for Repair**
Section 2116	**Repair Label**
Section 2117	**Proof of Correction Certificate**
Section 2118	**Notification**
Section 2119	**Record keeping and Reporting Requirements**
Section 2121	**Penalties**
Article 2.2	
Procedures for In-Use Vehicle Ordered Recalls	
Section 2123	**Initiation and Notification of Ordered Emission-Related Recalls**
Section 2125	**Ordered Recall Plan**
Section 2126	**Approval and Implementation of Recall Plan**
Section 2127	**Notification of Owners**
Section 2128	**Repair Label**
Section 2129	**Proof of Correction Certificate**
Section 2130	**Capture Rates and Alternative Measures**
Section 2131	**Preliminary Tests**
Section 2133	**Record keeping and Reporting Requirements**
Article 2.3	

In-Use Vehicle Enforcement Test Procedures	
Section 2137	**Vehicle Selection**
Section 2139	**Testing**
Section 2139.5	**CARB Authority to Test for Heavy-Duty In-Use Compliance**
Section 2140	**Notification of In-Use Results**
Article 2.4	
Procedures for Reporting Failure of Emission-Related Components	
Section 2141	**General Provisions**
Section 2142	**Alternative Procedures**
Section 2143	**Failure Levels Triggering Recall**
Section 2144	**Emission Warranty Information Report**
Section 2145	**Field Information Report**
Section 2146	**Emissions Information Report**
Section 2147	**Demonstration of Compliance with Emission Standards**
Section 2148	**Evaluation of Need for Recall**
Section 2149	**Notification of Subsequent Action**
Article 5	
Procedures for Reporting Failures of Emission-Related Equipment and Required Corrective Action	
Section 2166	**General Provisions**
Section 2166.1	**Definitions**
Section 2167	**Required Recall and Corrective Action for Failures of Exhaust After-Treatment Devices, On-Board Computers or Systems, Urea Dosers, Hydrocarbon Injectors, Exhaust Gas Recirculation Valves, Exhaust Gas Recirculation Coolers, Turbochargers, Fuel Injectors**
Section 2168	**Required Corrective Action and Recall for Emission-Related Component Failures**
Section 2169	**Required Recall or Corrective Action Plan**
Section 2169.1	**Approval and Implementation of Corrective Action Plan**
Section 2169.2	**Notification of Owners**
Section 2169.3	**Repair Label**
Section 2169.4	**Proof of Correction Certificate**
Section 2169.5	**Preliminary Tests**
Section 2169.6	**Communication with Repair Personnel**
Section 2169.7	**Recordkeeping and Reporting Requirements**
Section 2169.8	**Extension of Time**
Section 2170	**Penalties**
Chapter 9	
Article 4	
Off-Road Compression-Ignition Engines and Equipment	

Section 2423(n)	**Exhaust Emission Standards and Test Procedures - Off-Road Compression-Ignition Engines**
Chapter 10	
Article 1	
Commercial Motor Vehicle Idling	
Sections 2485(c)(2), 2485(c)(3), and 2485(h)	**Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling**
Title 17	
Division 3	
Chapter 1	
Subchapter 10	
Article 4	
Subarticle 12	
Greenhouse Gas Emission Requirements for New 2014 and Subsequent Model Heavy-Duty Vehicles	
Section 95661	**Applicability**
Section 95662	**Definitions**
Section 95663	**Greenhouse Gas Exhaust Emission Standards and Test Procedures for New 2014 and Subsequent Model Heavy-Duty Vehicles**

1. At 13 CCR 1956.8(a)(2)(C)2b, replace “California” with “New Jersey”;

2. At 13 CCR 2035, replace “registered in California” with “registered in New Jersey”;

3. At 13 CCR 2036, replace “California statutorily authorized motor vehicle emissions inspection and maintenance program” with “New Jersey statutorily authorized motor vehicle emissions inspection and maintenance program”;

4. At 13 CCR 2485(c)(3)(A), replace “operate in California” with “operate in New Jersey”;

5. At 13 CCR 2485(c)(2)(D)1 and 2485(c)(2)(D)2, replace “location in California” with “location in New Jersey”;

6. At 13 CCR 2485(c)(3)(D), replace "operation of the APS in California" with "operation of the APS in New Jersey"; and

7. At 13 CCR 1956.8(a)(2)(F), replace the text to read as follows:

"(F) Transit Agency Diesel-Fueled Bus and Engine Exemption Request For 2027 and subsequent model diesel-fueled medium heavy-duty or heavy heavy-duty engines used in urban buses, the Department will approve a Transit Agency Diesel-Fueled Bus and Engine Exemption Request made by a transit agency that meets each of the conditions and requirements at subparagraphs 1 and 2 below. If granted, an exemption request will allow a transit agency to purchase, rent, or lease exempt buses, contract for service with bus service providers to operate exempt buses, or re-power buses with engines that are certified to both the federal emission standards for 2010 and later model year diesel-fueled medium heavy-duty or heavy heavy-duty engines and vehicles, as set forth at title 40, Code of Federal Regulations section 86.007-11, as last amended October 25, 2016, and the Greenhouse Gas Emissions and Fuel Economy Standards for Medium- and Heavy-Duty Engines and Vehicles – Phase 2 requirements promulgated at 81 FR 73,478.

1. Conditions

If an exemption request is filed for the purpose of making a purchase of a MY 2027 or subsequent MY diesel-fueled medium heavy-duty or heavy heavy-duty engine to be used in an urban bus, the transit agency's

exemption request shall demonstrate that there are no diesel-fueled medium heavy-duty or heavy heavy-duty engines used in urban buses certified to meet the Exhaust Emission Standards for 2027 and Subsequent Model Light Heavy-Duty Engines, and Medium Heavy-Duty Engines located at 13 CCR 1956.

2. Requirements and Procedures

a. The transit agency must submit its Transit Agency Diesel-Fueled Bus and Engine Exemption Request to the Department.

b. The Transit Agency Diesel-Fueled Bus and Engine Exemption Request must be submitted by May 1st of the first calendar year in which the exemption is requested.

c. The Transit Agency Diesel-Fueled Bus and Engine Exemption Request must identify the number of exempt buses needed for each bus type.

d. If the transit agency requests to apply the exemption request to an existing contract, the Transit Agency Diesel-Fueled Bus and Engine Exemption Request must include a copy of the contract.

e. The Transit Agency Diesel-Fueled Bus and Engine Exemption Request must identify the number of exempt buses or re-powered buses that the transit agency requests for each calendar year within the triennial period of the Transit Agency Diesel-Fueled Bus and Engine Exemption Request, where the year the request is submitted is counted as the first calendar year.

3. The Department will issue an Executive Exemption Approval Letter if all foregoing conditions and requirements at subparagraphs 1 and 2 above are met. The Executive Exemption Approval Letter will allow a triennial quota for the purchase, rent, lease, contract for service, or re-power of exempt buses or engines. The triennial quota expires at the end of the third calendar year of the triennial period.

4. If the Transit Agency Diesel-Fueled Bus and Engine Exemption Request is approved by the Department, the transit agency may proceed with engine repower or exempt bus purchase, lease, rental, or contract for service. In the instance where new exempt engines and buses will be purchased or manufactured under the contract, the Executive Exemption Approval Letter will allow the bus and engine manufacturers to sell exempt engines to and manufacture exempt buses for the transit agency that has obtained the exemption. The transit agency must notify all parties involved of the approval and provide a copy of the issued Transit Agency Diesel-Fueled Bus and Engine Exemption Approval Letter to the engine and bus dealer(s), bus manufacturer(s), and engine manufacturer(s) involved with delivering the exempt buses or engines to the transit agency.

5. A transit agency may request a hearing to review the Department's denial of an Executive Exemption Approval Letter pursuant to the procedures set forth at N.J.A.C. 7:27-1.32."

CHAPTER 27A

AIR ADMINISTRATIVE PROCEDURES AND PENALTIES

SUBCHAPTER 3. CIVIL ADMINISTRATIVE PENALTIES AND REQUESTS FOR ADJUDICATORY HEARINGS

7:27A-3.10 Civil administrative penalties for violation of rules adopted pursuant to the Act

(a) - (l) (No change.)

(m) The violations of N.J.A.C. 7:27, whether the violation is minor or non-minor in accordance with (q) through (t) below, and the civil administrative penalty amounts for each violation are as set forth at the following Civil Administrative Penalty Schedule. The numbers of the following subsections correspond to the numbers of the corresponding subchapter in N.J.A.C. 7:27. The rule summaries for the requirements set forth in the Civil Administrative Penalty Schedule in this subsection are provided for informational purposes only and have no legal effect.

1. –13. (No change.)

14. The violations of N.J.A.C. 7:27-14, Control and Prohibition of Air Pollution from Diesel-Powered Motor Vehicles, and the civil administrative penalty amounts for each violation, per vehicle, are as set forth in the following table:

Citation	Class	Type of Violation	First Offense	Second Offense	Third Offense	Fourth and Each Subsequent Offense
...						
N.J.A.C. 7:27-14.3(e)2	Sale/Offer for Sale; Lease/ Offer for	NM	$1,000	$2,000	$5,000	$15,000

	Lease by owner for four or fewer vehicles					
	Sale/Offer for Sale; Lease/ Offer for Lease by owner for five or [fewer] **more** vehicles	NM	$2,000	$4,000	$10,000	$30,000
N.J.A.C. 7:27-14.4(a)2	**Visible smoke**	**NM**	**$250**	**$500**	**$1,000**	**$2,500**
N.J.A.C. 7:27-14.4(a)5	**Retrofit device or closed crankcase ventilation system tampering**	**NM**	**$2,000**	**$4,000**	**$10,000**	**$30,000**

...

15. The violations of N.J.A.C. 7:27-15, Control and Prohibition of Air Pollution from Gasoline-fueled Motor Vehicles, and the civil administrative penalty amounts for each violation, per vehicle or, with respect to N.J.A.C. 7:27-15.7(a)4, per device/component, are as set forth in the following table:

Citation	**Class**	**Type of Violation**	**First Offense**	**Second Offense**	**Third Offense**	**Fourth and Each Subsequent Offense**
N.J.A.C. 7:27-15.3(a)	**Visible smoke**	**NM**	**$250**	**$500**	**$1,000**	**$2,500**
...						

16.-28. (No change.)

28A. The violations of N.J.A.C. 7:27-28A, Heavy-Duty 2027 or Later New Engine and Vehicle Standards and New Requirements, and the civil administrative penalty amounts for each violation, per vehicle, are as set forth in the following table:

Citation	Class	Type of Violation	First Offense	Second Offense	Third Offense	Fourth and Each Subsequent Offense
N.J.A.C. 7:27-28A.4	Deliver for sale, offer for sale, sell, import, deliver, purchase, rent, acquire, receive, or register a new motor vehicle or new motor vehicle engine not certified by CARB.	NM	$2,500	$5,000	$12,500	$30,000
N.J.A.C. 7:27-28A.6	Prohibition against stockpiling	NM	$2,500	$5,000	$12,500	$30,000
N.J.A.C. 7:27-28A.8(a)	Recall due to an order or enforcement action taken by the CARB to correct noncompliance with any section of Title 13 of the California Code of Regulations	NM	$2,000	$4,000	$10,000	$30,000
N.J.A.C. 7:27-28A.8(b)	Emission-related recall campaign, voluntary or otherwise, initiated by any manufacturer	NM	$2,000	$4,000	$10,000	$30,000
N.J.A.C. 7:27-28A.9	Recordkeeping	M	$500	$1,000	$2,500	$7,500

29.-33. (No change.)

(n)-(v) (No change.)