Agency of Natural Resources
REGULATION SUMMARY DOCUMENT
Advanced Clean Cars II, Advanced Clean Trucks, Low NOx Heavy-Duty Omnibus, and the Phase 2 Greenhouse Gas Rule

This document includes a summary of the Agency of Natural Resources proposed regulations for Advanced Clean Cars II, Advanced Clean Trucks, Low NOx Heavy-Duty Omnibus, and the Phase 2 Greenhouse Gas Rule. In this rulemaking, ANR proposes to amend existing rules and adopt new rules that reduce greenhouse gas and criteria air pollutant emissions from passenger cars, light-duty trucks, and medium- and heavy-duty vehicles and engines that are delivered for sale or placed in service in Vermont.

ANR has authority to adopt and amend these regulations pursuant to Section 177 of the Clean Air Act (CAA) and 10 V.S.A. §§558 and 567 of the Vermont Air Pollution Control Laws, which allow the ANR Secretary to set emission control requirements on sources of air contaminants in Vermont and specifically to control such emissions from motor vehicles through the prescription of requirements for the use of equipment that will reduce or eliminate emissions.

The original adoption and previous amendments of rules adopted pursuant to Section 177 of the CAA are found in the Vermont Department of Environmental Conservation Regulations Chapter 5 (Air Pollution Control), Subchapter XI (Low Emission Vehicle Program), and Appendix F (Provisions of the California Code of Regulations). In this rulemaking, ANR has created a new Chapter 40, entitled *Vermont Low Emission Vehicle and Zero Emission Vehicle Rules*, which will include existing requirements, proposed amendments, and new rules adopted pursuant to Section 177 of the CAA. Creating a new chapter allows ANR to update these rules on a more regular basis, as necessary to align with California's mobile sources program.

Background

In 1967, the federal Clean Air Act (CAA) established the framework for controlling mobile source (i.e., cars, trucks, buses, and other vehicles) emissions in the United States. Although most states were preempted by Section 209 of the CAA from adopting state vehicle emissions standards, California was granted a special exemption to the federal preemption due to the state's long-standing mobile sources program and unique air quality problems.[1] This exemption gave California the authority to set its own vehicle emission standards as long as such standards are at least as protective as the federal standards. The California Air Resources Board (CARB) develops and adopts specific rules and regulations needed to achieve healthful air quality and address climate change. The relevant CARB regulations are found in Title 13 (Motor Vehicles) and Title 17 (Public Health) of the California Code of Regulations (CCR).[2]

[1] 42 U.S.C. §7543.
[2] California Code of Regulations, Title 13, *Motor Vehicles*, https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=I88D700E0D46911DE8879F88E8B0DAAAE&originationContext=documenttoc&transitionType=Default&contextData=%28sc.Default%29; California Code of Regulations, Title 17. *Public Health,* https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=IC39BB410D60711DE88AEDDE29ED1DC0A&originationContext=documenttoc&transitionType=Default&contextData=%28sc.Default%29.

A subsequent amendment to the CAA added Section 177 that allows other states to adopt the California standards if they are "identical to the California standards" for which California received a waiver of preemption from implementing the federal motor vehicle standards from the U.S. Environmental Protection Agency (EPA).[3] Section 177 also requires that states adopting the California vehicle emission standards provide vehicle manufacturers with at least two model years' lead time before the standards may be enforced.[4]

Pursuant to Section 177, Vermont has the authority to regulate emissions from motor vehicles so long as those regulations are identical to California's. Over the past two decades, Vermont has adopted many of California's regulatory programs for light- and medium-duty vehicles, including the Low Emission Vehicle (LEV) program beginning with model year 2000 and Zero Emission Vehicle (ZEV) program for model year 2004 and beyond which were later combined into the Advanced Clean Cars (ACC) program for model years 2015 through 2025. The existing ACC requirements include a LEV program which focuses on the emissions of criteria air pollutants and greenhouse gases, and a ZEV program which requires auto manufacturers to deliver a certain percentage of battery electric and plug-in hybrid vehicles to Vermont.

Recognizing that emissions from medium- and heavy-duty vehicles and engines pose significant threats to public health and climate change, California has adopted regulations for these vehicles that aim to reduce criteria air pollutant and greenhouse gas emissions and are more stringent than federal regulations. Until this rulemaking, Vermont's program has not focused on regulating emissions from heavy-duty vehicles.

In response to the threat of climate change, in September 2020 the General Assembly enacted the Global Warming Solutions Act (GWSA), Act 153, which set goals to achieve greenhouse gas emission reductions and created a Climate Council charged with adopting an initial Climate Action Plan in December 2021. The Initial Climate Action Plan directed ANR to adopt California's Advanced Clean Cars II, Advanced Clean Trucks, the Low NOx Heavy-Duty Omnibus, and the Phase 2 Greenhouse Gas emission standards for trucks and trailers because these rules are critical to meet Vermont's required reductions of greenhouse gas emissions from the transportation sector. ANR must adopt these regulatory amendments before the end of 2022 to meet the deadlines in the GWSA and mirror California's implementation of the rules.

The deployment of ZEVs also supports meeting goals identified in the 2020 Multi-State Medium- and Heavy-Duty Zero Emission Vehicle Memorandum of Understanding, which sets a new medium- and heavy-duty vehicle sales goal of 100% ZEVs by 2050.

Advanced Clean Cars II

Advanced Clean Cars II (ACCII) is an amendment to Vermont's existing ACC program which covers passenger cars and light-duty trucks. ACCII includes a Low-Emission Vehicle (LEV) regulation that reduces both criteria air pollutant and greenhouse gas emissions from new internal combustion engine vehicles (ICEVs) for model year 2026 and beyond, and a zero-emission vehicle (ZEV) regulation that increases the number of electric vehicles for sale in Vermont.

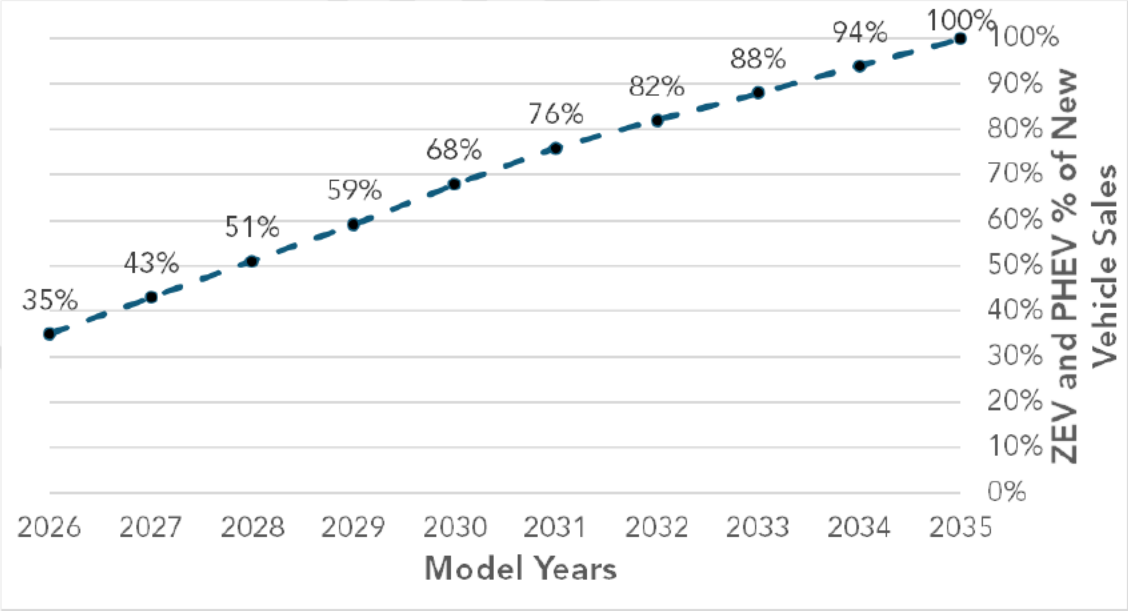
[3] 42 U.S.C. § 7507.

[4] A model year begins on January 2 of the prior calendar year.

The ACCII LEV regulation requires manufacturers to produce a percentage of vehicles certified to increasingly more stringent emission categories, according to schedules based on vehicle fleet emission averages for each manufacturer. The LEV regulation contains greenhouse gas and criteria air pollutant exhaust emission standards for 2026 and subsequent model year passenger cars, light-duty trucks, and medium-duty vehicles. [5]

The ACCII ZEV regulation requires that all passenger car and light-duty truck vehicles delivered by manufacturers for sale in Vermont by 2035 meet the definition of zero-emission vehicle (ZEV).[6] A ZEV is a vehicle that produces zero vehicle exhaust emissions of any criteria air pollutant or greenhouse gas. The most common types of ZEVS are battery electric vehicles (BEV), hydrogen fuel cell electric vehicles (FCEV). BEVs utilize batteries to store the electrical energy that powers the motor. FCEVs are fueled primarily by hydrogen stored on board to power a fuel cell in combination with a traction battery that produces electricity to power the electric motors, and may also have off-vehicle charge capability. Although not a ZEV by definition because of its internal combustion engine emissions, plug-in hybrid-electric vehicles (PHEV) use a battery to power an electric motor, as well as another fuel, such as gasoline or diesel, to power an internal combustion engine.

ACCII is not a requirement that consumers purchase an electric vehicle, or that dealers sell a required volume of electric vehicles. ACCII is a requirement imposed solely on auto manufacturers to deliver a certain annual percentage of ZEVs to Vermont, increasing to 100% ZEVs by 2035. The annual ZEV requirement aligns with where the market is expected to be in 2026 and continues to ramp up quickly. Small volume manufacturers must comply with the annual ZEV requirement beginning with the 2035 model year. Below is a table summarizing the ZEV requirement:



[5] CARB Proposed Regulation Order, 13 CCR § 1961.4, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/appa1.pdf; CARB Proposed Regulation Order, 13 CCR § 1961.2, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/appa2.pdf.
[6] CARB Proposed Order, 13 CCR § 1962.4, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/appa5.pdf.

Manufacturers earn credits for each certified ZEV produced for sale in Vermont and partial credits for PHEVs. These credits may be earned previously by the manufacturer starting with model year 2024 or acquired from another party. ZEV credits can also be earned by early compliance with ZEV requirements and through the environmental justice vehicle value option. The environmental justice vehicles value option will incentivize automakers to invest in community carshare programs, produce more affordable ZEVs, and ensure that more used ZEVs are available. To provide flexibility for manufacturers for model years 2026 through 2030, ACCII includes "pooling" which allows manufacturers to move a specified percentage of excess ZEV and PHEV credit values earned in one state for use in another state where there is a shortfall relative to the requirement.

ACCII also includes enhanced consumer protection measures to improve vehicle warranties and ensure durability of battery technology. These ZEV assurance measures are necessary to ensure both that ZEVs function as expected over their lifetimes and that consumers are not deterred from purchasing them both new and used. For example, ZEVs must meet the following requirements:

- Minimum certification range value greater than or equal to 200 miles, determined by California according to the 2026 ZEV and PHEV Test Procedures.
- Minimum durability requirement for useful life, designed to maintain 80% or more of the certification range value for a useful life of 10 years or 150,000 miles, which occurs first, and comply with data reporting requirements.
- Battery labeling requirements for recyclability and repurposing.
- Data standardization including battery state of health to determine the current level of deterioration in the battery relative to when it was new.
- Service information requirements to disclose repair information to independent repair shops.
- Minimum warranty requirements to provide protection for consumers that experience failures or defects early in the life of the vehicle.
- Onboard diagnostics requirements to track and diagnose emission failures.
- Charging requirements, including an on-board charger with a minimum charging capability.

The ACCII regulations are not currently adopted in California but will be by the time ANR's new regulations are adopted later this year. California proposed amendments to the existing ACC program on April 15, 2022, initiating the rulemaking process for ACCII. To adopt ACCII, California proposes to adopt CCR title 13, sections 1961.4, 1962.4, 1962.5, 1926.6, 1962.7, and 1962.8, and proposes to amend CCR title 13, sections 1900, 1961.2, 1961.3, 1962.2, 1962.3, 1965, 1968.2,1969, 1976, 1978, 2037, 2038, 2112, 2139, 2140, 2147, 2317, 2903. These provisions will be incorporated by reference in Chapter 40 of the Vermont Department of Environmental Conservation Regulations. To adopt these standards for model year 2026, Vermont must adopt these regulations two years in advance of January 2, 2025, or January 2, 2023. For more information on ACCII, see CARB's Initial Statement of Reasons and background materials.[7]

[7] CARB, Advanced Clean Cars II, Initial Statement of Reasons, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/isor.pdf; CARB, Advanced Clean Cars II, Public Materials, https://ww2.arb.ca.gov/rulemaking/2022/advanced-clean-cars-ii.

Advanced Clean Trucks

The Advanced Clean Trucks Rule (ACT) is a new regulatory program that has been adopted and implemented in California and a number of other states, including New York, Massachusetts, New Jersey, and Oregon. Vermont has had limited to no regulations covering emissions from medium- and heavy-duty vehicles in the past, so this would be a new rule and not an amendment.

The purpose of the ACT Rule is to accelerate the widespread adoption of ZEVs in the medium-and heavy-duty truck sector and reduce the amount of harmful emissions generated from on-road trucks. The ACT Rule applies to manufacturers of medium- and heavy-duty vehicles over 8,500 pounds gross vehicle weight rating (GVWR)[8] which includes passenger vans, buses, pickups, vocational trucks, box trucks, and tractor trailer combinations used locally and for long-haul applications.

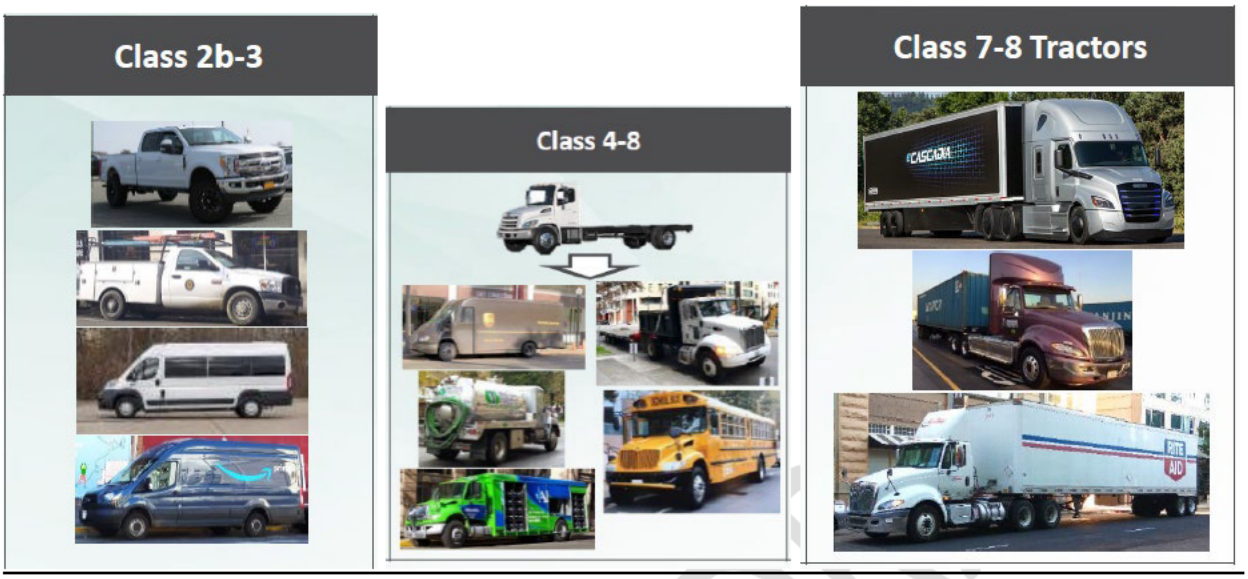
The ACT Rule has two main components, a manufacturers ZEV sales requirement and a one-time reporting requirement for large entities and fleets. In this rulemaking, ANR does not plan to adopt the one-time reporting requirement for large entities and fleets because ANR currently lacks the staff capacity and resources to facilitate data collection and then process the volume of data and information this requirement will generate. ANR intends to adopt this reporting requirement at a later date as resources allow.

The ACT Rule requires manufacturers to sell ZEV trucks as an increasing percentage of their annual sales from model years 2026 to 2035.[9] Manufacturers with annual state sales less than 500 units are exempt from the ZEV sales requirement but can opt-in to earn credits for selling ZEVs. As with ACCII, this is not a requirement that fleet owners or truck operators purchase electric vehicles, but a requirement on the manufacturers of medium- and heavy-duty trucks to transition from diesel trucks and vans to electric zero-emission trucks beginning in model year 2026.

The ACT requires the sale of at least 30% zero-emission trucks by 2030 (depending on vehicle classification). By model year 2035, zero-emission truck sales would need to be 55% of Class 2b – 3 truck sales, 75% of Class 4 – 8 truck sales, and 40% of truck tractor sales. Light-duty trucks (e.g., the F-150 Lightning) are covered under ACCII, discussed above.

Model Year	Class 2b-3	Class 4-8	Class 7-8 Tractors
2026	10%	13%	10%
2027	15%	20%	15%
2028	20%	30%	20%
2029	25%	40%	25%
2030	30%	50%	30%
2031	35%	55%	35%
2032	40%	60%	40%
2033	45%	65%	40%
2034	50%	70%	40%
2035+	55%	75%	40%

[8] GVWR generally refers to the weight specified by the manufacturer as the loaded weight of a single vehicle.
[9] CARB, Final Regulation Order, Advanced Clean Trucks, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2019/act2019/fro2.pdf.



The Class 2b-3 group (GVWR of 8,501 - 14,000 lbs) consists mainly of full-size pickup trucks and vans.[10] Examples of full-size vans include the Ford Transit, Mercedes Sprinter, and Chevrolet Express, and examples of heavy-duty pickup trucks include the Ford F250 and RAM 2500. Class 3 includes the same types as Class 2b with a higher payload, but also includes a higher fraction of incomplete vehicles and stripped chassis (with a frame and engine but has no cab or body) that often become walk-in vans and box trucks with final assembled by a body manufacturer. This market is primarily served by many of the same manufacturers of lighter duty vehicles including Fiat Chrysler of America, Ford, General Motors, Mercedes, and Nissan.

The Class 4-8 group (GVWR above 14,000 lbs, excluding tractors) mainly function in vocational applications as urban delivery vehicles, as work-site trucks, and numerous other fields. The top three manufacturers in Class 4-8 are Ford, Freightliner, and International. The Class 7-8 tractor group (GVWR above 26,000 lbs) consists of on-road semi-trucks that haul trailers.

To determine compliance with the sales requirement, affected manufacturers incur deficits for each non-ZEV vehicle sold into Vermont starting with model year 2026. The deficit is calculated as the product of the model year percentage requirement from the table above, and the appropriate weight class modifier for each vehicle. Every model year, the deficits generated by each vehicle are summed for each vehicle group.

These deficits must be met with compliance credits generated from producing and selling ZEVs to the ultimate purchaser in Vermont, starting with model year 2024. To qualify for credits, ZEVs sold by manufacturers must meet the Zero-Emission Powertrain (ZEP) Certification requirements. Partial credits from selling near-zero emission vehicles (NZEVs) can be used to offset up to half of the manufacturer's annual deficits through model year 2030. ZEV and NZEV credits may be traded, sold, or otherwise transferred between manufacturers. Compliance is achieved when the manufacturer's total credits offset their total deficits.

[10] Class 2a and 2b are subsections of Class 2; Class 2a refers to vehicles with a GVWR of 6,001-8,500 lb. and Class 2b refers to vehicles with a GVWR of 8,501-10,000 lb.

California adopted the ACT regulation on March 15, 2021 at California Code of Regulations title 13 sections 1963 through 1963.5 and sections 2012 through 2012.2. These provisions will be incorporated by reference in Chapter 40 of the Vermont Department of Environmental Conservation Regulations. Vermont will not be able to adopt this rule in time to mirror the implementation date in California due to the two-model year lead time requirement explained in the background above. To maximize emission reductions projected to be achieved via the ACT rule starting with model year 2026, ANR must adopt this rule by the end of 2022. For more information on ACT, see CARB's Final Statement of Reasons.[11]

Heavy-Duty Engine and Vehicle Omnibus Rule

The Heavy-Duty Engine and Vehicle Omnibus (HD Omnibus) Rule and associated amendments require NOx emissions reductions from new on road heavy-duty engines and vehicles, and ensure emission reductions are maintained as those engines and vehicles are operated.[12] The HD Omnibus Rule requires a 90% reduction in NOx emission from model year 2027 engines.

The HD Omnibus Rule includes the following amendments summarized below:

- 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,
- Phase 2 Heavy-Duty Greenhouse Gas Regulations, and
- Powertrain Test Procedures.

The HD Omnibus includes exhaust emission standards for low oxides of nitrogen (NOx) and particulate matter (PM) that would apply to heavy-duty Otto-cycle and diesel engines intended for use in vehicle service classes with gross vehicle weight ratings (GVWR) greater than 10,000 pounds.

The HD Omnibus Rule includes an emissions averaging, banking, and trading program that would allow manufacturers that elect to produce and certify heavy-duty zero-emission vehicles (ZEV) to generate NOx credits, in order to incentivize the sales of heavy-duty ZEVs earlier than would be required by the Advanced Clean Trucks (ACT) Regulation.

To legally sell new engines, manufacturers must certify that their engines will comply with applicable emission standards throughout a specified period called the regulatory useful life. This ensures that manufacturers consider deterioration in emissions performance in the initial design of the engine. Manufacturers demonstrate that the emissions from engines meet emission standards at the time of

[11] CARB, Advanced Clean Trucks Regulation, Final Statement of Reasons, http://ww2.arb.ca.gov/sites/default/files/barcu/regact/2019/act2019/fsor.pdf.
[12] CARB, Title 13, Final Regulation Order, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2020/hdomnibuslownox/froa-1.pdf; CARB, Title 17, Final Regulation Order, https://ww2.arb.ca.gov/sites/default/files/barcu/board/rulemaking/hdomnibuslownox/froa-2.pdf.

certification using a durability demonstration program (DDP) which simulates heavy-duty engine and emission-related control component aging throughout the applicable useful life period.

To help ensure that emission controls are sufficiently durable to control emissions over applicable useful life periods, and well-maintained and repaired when needed, the HD Omnibus Rule lengthens the criteria pollutant emissions warranty and useful life period requirements for heavy-duty vehicles and engines. For components that fail under warranty, manufacturers may be required to report certain data to CARB and Vermont. If failure rates are high enough, manufacturers are required to conduct corrective actions such as recalling faulty components.

The HD Omnibus Rule requires manufacturers to test engines while they are operated on the road using portable emissions measurement systems. All heavy-duty engine manufacturers must conduct heavy-duty in-use testing (HDIUT) on their engine families, as specified by CARB which evaluates the in-use test data via the not-to-exceed (NTE) method. CARB also has the ability to independently test any engine family through CARB's in-house Heavy-Duty In-Use Compliance Program (HDIUC). Engine families that fail test requirements are subject to potential recall.

The HD Omnibus provides manufacturers an option to certify hybrid powertrains to criteria pollutant emission standards using specified hybrid-powertrain testing procedures. The hybrid-powertrain testing procedures would align with federal powertrain testing procedures and would be based on the U.S. EPA Phase 2 GHG technical amendments for powertrain testing. Powertrain testing provides an alternative to testing just the engine of a vehicle and enables manufacturers to quantify the impact of vehicle technologies such as hybridization that cannot be easily tested on an engine dynamometer.

California adopted HD Omnibus regulations on December 22, 2021 by amending California Code of Regulations title 13 sections 1900, 1956.8, 1961.2, 1965, 1968.2, 1971.1, 1971.5, 2035, 2036, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2121, 2123, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2133, 2137, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2423, and 2485 and 17 CCR 95662 and 95663 and adopting new 13 CCR 2139.5, 2166, 2166.1, 2167, 2168, 2169, 2169.1, 2169.2, 2169.3, 2169.4, 2169.5, 2169.6, 2169.7, 2169.8, and 2170. These provisions will be incorporated by reference in Chapter 40 of the Vermont Department of Environmental Conservation Regulations. For more information on the HD Omnibus Rule, see CARB's Final Statement of Reasons.[13]

<u>Phase 2 Greenhouse Gas (GHG) Rule</u>

The Phase 2 GHG Rule sets standards to reduce GHG emissions associated with medium- and heavy-duty engines, vocational vehicles[14], heavy-duty pick-up trucks and vans (PUVs) [15], and applicable tractors and

[13] CARB, Heavy-Duty Engine and Vehicle Omnibus Regulation, Final Statement of Reasons for Rulemaking, https://ww2.arb.ca.gov/sites/default/files/barcu/board/rulemaking/hdomnibuslownox/fsor.pdf.

[14] Vocational vehicles include, but are not limited to, delivery vehicles, refuse vehicles, and transit buses and have three regulatory categories according to GVWR: light heavy-duty (LHD) vehicles that range from 8,501 to 19,500 pounds, medium heavy-duty (MHD) vehicles that range from 19,501 to 33,000 pounds, and heavy heavy-duty (HHD) I-4 vehicles that have greater than 33,000 pounds.

[15] In the U.S. EPA's Phase 2 GHG Rule, EPA uses the term "heavy-duty pickups and vans" while the California regulation uses the term PUVs for these same vehicle types (i.e., class 2b vehicles with GVWR of 8,501 to 10,000 pounds and class 3 vehicles with GVWR of 10,001 to 14,000 pounds).

trailers. The Phase 2 GHG Rule requires manufacturers to improve existing technologies or develop new technologies to meet the GHG emission standards.[16] It also amends requirements for glider vehicles, glider engines, and glider kits.[17]

The Phase 2 GHG Rule sets new more stringent GHG emission standards for medium- and heavy-duty engines, tractors, vocational vehicles, PUVs, and trailers that are sold in Vermont.[18] These emission standards largely harmonize with the structure, timing, and stringency of federal Phase 2 standards jointly adopted by the U.S. EPA and the Department of Transportation's National Highway Traffic Safety Administration in 2016, providing nationwide consistency for engine and vehicle manufacturers.[19] The Phase 2 GHG requirements would apply to model year 2026 and newer Class 2b to 8 medium- and heavy-duty vehicles with greater than 8,500 pounds GVWR and the engines that power them, except for medium-duty passenger vehicles already covered in the light-duty regulations. To meet the proposed standards, regulated manufacturers are expected to apply GHG reducing technologies, and may additionally elect to take advantage of credit opportunities.

For medium- and heavy-duty vehicles, the Phase 2 GHG requirements would apply to model year 2026 and newer class 2b to 8 medium- and heavy-duty vehicles with greater than 8,500 pounds GVWR and the engines that power them, except for medium-duty passenger vehicles already covered in the light-duty regulations.

For vocational vehicles, the Phase 2 GHG Rule establishes CO^2 standards (in grams emitted from carrying a ton of cargo over a distance of one mile (g/ton-mile)) for vocational vehicles that fall within 15 subcategories, distinguished by GVWR, duty cycle, and engine type (diesel vs. gasoline). Manufacturers of motor homes, coach buses, other buses (excluding transit buses), school buses, refuse trucks, cement mixers, and emergency vehicles have an option to certify those vehicles with less stringent standards than the primary vocational standards.

For PUVs, the Phase 2 emission standards are based on a "work factor" attribute that combines truck payload and towing capabilities, with an added adjustment for 4-wheel drive vehicles. There are separate target curves for diesel-powered and gasoline-powered vehicles. The PUV standards are expressed in gCO2/mile. PUVs, many of which are ¾ and 1-ton pick-up trucks, 12- and 15- passenger vans, and large work vans, are comprised of two classes of vehicles: Class 2b and 3. Heavy-duty vehicles with GVWR between 8,501 and 10,000 lbs. are classified in the industry as Class 2b motor vehicles. Heavy-duty vehicles with GVWR between 10,001 and 14,000 lbs. are classified as Class 3 motor vehicles.

---

[16] CARB, Final Regulation Order for Phase 2 Greenhouse Gas Regulations and Tractor-Trailer GHG Regulations, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2018/phase2/finalatta.pdf.

[17] A "glider vehicle" is a vehicle where the chassis and cab assembly is produced by a vehicle manufacturer without a new engine, transmission, or rear axle and a third party installs an engine, transmission, and/or rear axle to complete the vehicle.

[18] Greenhouse Gas Exhaust Emission Standards and Test Procedures for New 2014 and Subsequent Model Heavy-Duty Vehicles, 17 CCR § 95663.

[19] Final Rule for Phase 2 Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles, https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-phase-2-greenhouse-gas-emissions-standards. Note, CARB and U.S. EPA use different terminology for vehicles in various weight classes. The main difference is the use of the terms medium-duty vehicles and medium-duty engines.

For tractors, Phase 2 emissions standards apply to ten subcategories of tractors, Class 7 and 8 and above 26,000 pounds GVWR. The engine and vehicle technologies employed to meet these standards will vary by tractor subcategory.

For trailers, the Phase 2 GHG Rule establishes separate standards for full aero box vans, partial aero box vans, non-aero box vans, and non-box trailers. A full aero box van is a box van that does not have any side or rear work performing equipment that would inhibit the application of aerodynamic technologies. A partial-aero box van has either side or rear work-performing equipment, but not both. A non-aero box van has both side and rear work performing equipment. Examples of work performing equipment include lift gates, access doors, and belly boxes. Examples of non-box trailers include flatbed, tanker, and container chassis trailers. The federal Phase 2 regulation also establishes separate standards for long box vans and short box vans. A short box van is less than or equal to 50 feet in length. A long box van is greater than 50 feet in length.

The exhaust emission standards specified in this rule apply to trailers based on the effect of trailer designs on the performance of the trailer in conjunction with a tractor; this accounts for the effect of the trailer on the tractor's exhaust emissions, even though trailers themselves have no exhaust emissions. Trailer fleet owners have the option of either purchasing Phase 2 certified trailers, or installing Phase 2 approved aerodynamic technologies and low-rolling resistance (LRR) tires to meet the requirements.

Additional elements of the Phase 2 GHG Rule include:

- Phase 2 certification requires manufacturers to submit certification information directly to CARB for an independent review and approval. Engine and vehicle families for which U.S. EPA has issued a federal Certificate of Conformity would not be automatically "deemed to comply" with the California Phase 2 requirements.
- Additional vehicle labels are required for vocational vehicles and tractors to identify emission control systems that can be visually inspected by enforcement staff.
- Additional reporting of engine and A/C system-related information is required by manufacturers in initial certification information and each certified vehicle's end-of-year report.
- Manufacturers of motor homes, coach buses, school buses, refuse trucks, cement mixers, and emergency vehicles have an option to certify those vehicles with a less stringent process called "custom chassis". Custom chassis standards are significantly less stringent than the primary vocational vehicle standards and include a simplified certification process. This optional less-stringent standard is not available for transit buses.
- Additional credit provisions would encourage the use of low global warming potential (GWP) refrigerants, the sale of PHEVs with a minimum all-electric range and low NOx emissions, and the manufacture of lower-emitting transit buses.
- Additional "light-duty style" consumer labels required for PUVs to provide consumers with easy to read information on the relative GHG emission performance of a particular PUV model as compared to other similar PUVs.

California adopted the federal Phase 2 GHG regulations plus California distinctions on April 1, 2019 by amending California Code of Regulations title 13 sections 1956.8, 1961.2, 1965, 2036, 2037, 2065, 2112, and 2141 and 17 CCR 95662 and 95663. ANR is proposing to adopt these amendments, as well as to adopt 17 CCR 95660 (Purpose) and 95661 (Applicability), which is part of California's Phase 2 GHG

Standards, but which were pre-existing sections California did not need to amend. These provisions will be incorporated by reference in Chapter 40 of the Vermont Department of Environmental Conservation Regulations. For more information on the Phase 2 GHG Rule, see CARB's Final Statement of Reasons.[20]

WORKING DRAFT

[20] CARB, Final Statement of Reasons for Rulemaking, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2018/phase2/fsor.pdf; *see also* CARB, Initial Statement of Reasons, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2018/phase2/isor.pdf.