

Proposed Amendments to the Small Off-Road Engine Regulations: Transition to Zero Emissions

Resolution 21-28

December 9, 2021

Agenda Item No.: 21-13-2

Whereas, sections 39600 and 39601 of the Health and Safety Code authorize the California Air Resources Board (CARB or Board) to adopt standards, rules and regulations and to do such acts as may be necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law;

Whereas, section 39602.5 of the Health and Safety Code authorizes the Board to adopt rules and regulations pursuant to section 43013 that will achieve ambient air quality standards required by the federal Clean Air Act in all areas of the state by the applicable attainment date, and to maintain these standards thereafter;

Whereas, sections 43013, 43100, 43101, 43102, and 43104 of the Health and Safety Code authorizes the Board to adopt and implement emission standards and test procedures for off-road vehicle or nonvehicle engines, which covers small off-road engines (SORE), for the control of air contaminants and sources of air pollution which the Board has found to be necessary, cost effective, and technologically feasible, unless preempted by federal law, to carry out the purposes of its enabling statutory authority;

Whereas, section 43013(h) of the Health and Safety Code states that it is the intent of the Legislature that the Board act as expeditiously as feasible to reduce oxides of nitrogen (NO_x) emissions from categories of vehicular and mobile sources which significantly contribute to air pollution problems;

Whereas, section 43018 of the Health and Safety Code directs the Board to endeavor to achieve the maximum degree of emission reduction possible from vehicular and other mobile sources in order to accomplish the attainment of the state ambient air quality standards at the earliest practicable date;

Whereas, in March 2017, the Board approved the Revised Proposed 2016 State Strategy for the State Implementation Plan (2016 State SIP Strategy), which includes a

measure to reduce statewide emissions of NO_x and reactive organic gases (ROG) from SORE in 2031 by 4 and 36 tons per day (tpd), respectively, to reduce emissions of NO_x and ROG from SORE in 2023 by 0.7 and 7 tpd, respectively, and in 2031 by 2 and 16 tpd, respectively, in the South Coast Air Basin, and to reduce emissions of NO_x from SORE in 2031 by 0.3 tpd in the San Joaquin Valley Air Basin;

Whereas, the 2016 State SIP Strategy SORE measure includes adopting more stringent emission standards and additional regulatory incentives to accelerate the replacement of SORE equipment with zero-emission equipment (ZEE);

Whereas, it is necessary to achieve emission reductions beyond those identified in specific measures because the 2016 State SIP Strategy does not identify measures to achieve all the reductions necessary to attain both the 1997 and 2008 ozone National Ambient Air Quality Standard (NAAQS) of 80 and 75 ppb, respectively;

Whereas, to meet the more stringent 2015 ozone NAAQS of 70 ppb, the 2022 State SIP Strategy will require additional emission reductions above and beyond the 2016 State SIP Strategy commitment;

Whereas, California's air quality regulations and programs have led to significant reductions in air pollution, which have resulted in substantial public health improvements throughout the state; however, disadvantaged communities continue to experience environmental and health inequities;

Whereas, many of these communities are affected by multiple stationary, area, and mobile sources of air pollution and suffer disproportionate health impacts;

Whereas, the high cumulative exposure burdens in these communities are a public health concern, contributing to health conditions such as cardiorespiratory disease, increased cancer risk, and an increased risk of premature death;

Whereas, expedited emission reductions of toxic air contaminants and criteria air pollutants in communities with high cumulative exposure burdens are critical to reduce these disproportionate health impacts;

Whereas, Title 13, section 2401 of the California Code of Regulations (CCR) defines a small off-road engine as any engine that produces a gross horsepower less than 25 horsepower (at or below 19 kilowatts for 2005 and later model year), or is designed (e.g., through fuel feed, valve timing, etc.) to produce less than 25 horsepower (at or below 19 kilowatts for 2005 and later model year), that is not used to propel a licensed on-road motor vehicle, an off road motorcycle, an all-terrain vehicle, a marine vessel, a snowmobile, a model airplane, a model car, or a model boat and states that any compression-ignition engine, as defined in title 13, CCR section 2421, produced during the 2000 and later model years shall not be defined as a small off-road engine;

Whereas, in September 2020, California Executive Order (EO) N-79-20 ordered the Board, to the extent consistent with State and federal law, to develop and propose

strategies, in coordination with other state agencies, United States Environmental Protection Agency (U.S. EPA), and local air districts, to achieve 100 percent zero-emission from off-road vehicles and equipment operations in the State by 2035;

Whereas, in October 2021, the Governor signed Assembly Bill 1346 by Assemblymember Berman, Air pollution: small off-road engines (AB-1346) into law, which added section 43018.11 to the Health and Safety Code;

Whereas, Health and Safety Code section 43018.11 requires the Board, consistent with federal law, to adopt cost-effective and technologically feasible regulations by July 1, 2022, to prohibit engine exhaust and evaporative emissions from new SORE;

Whereas, subsection 43018.11(a)(1) of the Health and Safety Code requires those regulations to apply to engines produced on or after January 1, 2024, or as soon as the Board determines is feasible, whichever is later;

Whereas, subsection 43018.11(a)(2) of the Health and Safety Code requires the Board, in determining technological feasibility pursuant to subsection 43018.11(a)(1), to consider (A) Emissions from small off-road engines in the state, (B) Expected timelines for zero-emission small off-road equipment development, (C) Increased demand for electricity from added charging requirements for more zero-emission small off-road equipment, (D) Use cases of both commercial and residential lawn and garden users, and (E) Expected availability of zero-emission generators and emergency response equipment;

Whereas, the Board adopted the first SORE regulations in 1990 when setting the first exhaust emission standards, including standards for hydrocarbons (HC), oxides of nitrogen (NO_x), carbon monoxide (CO), and particulate matter (PM), set forth in title 13 CCR sections 2400 through 2407, which incorporated by reference California Exhaust Emission Standards and Test Procedures for 1995 and Later Utility and Lawn and Garden Equipment Engines;

Whereas, the Board adopted amendments to the SORE exhaust emission regulations in 1998 and introduced an emission reduction credit program for production of engines that could certify below the emissions limit;

Whereas, the Board adopted the first evaporative emission standards in 2003 for emissions that occur both when the engine is in operation and when it's not, set forth in title 13 CCR sections 2750 through 2773, which incorporated by reference Small Off-Road Engine and Equipment Evaporative Emissions Test Procedure (TP-901), Test Procedure for Determining Permeation Emissions from Small Off-Road Engines and Equipment Fuel Tanks, Small Off-Road Engine and Equipment Evaporative Emissions Test Procedure (TP-902), Test Procedure for Determining Diurnal Evaporative Emissions from Small Off-Road Engines and Equipment, Small Off-Road Engine Evaporative Emission Control System Certification Procedure (CP-901), Certification And Approval Procedure for Small Off-Road Engine Fuel Tanks, and Small Off-Road

Engine Evaporative Emission Control System Certification Procedure (CP-902), Certification And Approval Procedure for Evaporative Emission Control Systems;

Whereas, the Board adopted amendments to the SORE exhaust emission regulations in 2011 that included a new set of exhaust emission test procedures, set forth in Title 13 CCR section 2403, which incorporate by reference the California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines; Engine-Testing Procedures (Part 1054) and California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines; Engine-Testing Procedures (Part 1065);

Whereas, the Board adopted the most recent amendments to the evaporative emission regulations in 2016 following validation studies that found low rates of compliance with existing emission standards;

Whereas, ZEE are available for most small off-road equipment categories, including lawn and garden equipment and utility equipment, for both residential and professional (i.e., commercial) use, and the level of performance, number of brands, and number of equipment options have increased greatly over the past decade and continue to do so today;

Whereas, the population of ZEE in California has increased in recent years such that 52 percent of small off-road equipment in use in California today is ZEE;

Whereas, CARB staff has determined that residential users have adopted ZEE readily as 59 percent of residential users' equipment is ZEE, compared to 33 percent for equipment owned by professional users;

Whereas, despite the adoption of ZEE by residential users, SORE emissions are forecast to increase in the 2020s as California's population continues to grow, and SORE emissions reductions expected under the 2016 State SIP Strategy will not be achieved under current SORE regulations;

Whereas, in California, SORE emit more NO_x and ROG than light-duty passenger cars, and without further regulatory action, SORE are forecast to emit nearly twice the amount of NO_x and ROG that California light-duty passenger cars emit in 2031;

Whereas, CARB continues to perform compliance testing to hold manufacturers accountable for meeting emission standards and ensure Californians realize the air quality benefits of the current regulations;

Whereas, current compliance testing of evaporative families shows low rates of compliance, such that of the 31 evaporative families tested by CARB between model years (MY) 2015 and 2019, 39 percent have failed, highlighting the need to adopt zero-emission technologies as quickly as possible;

Whereas, in 1995 and subsequent years, fire and police departments, and other entities that specialize in emergency response may purchase emergency equipment powered by a non-California certified engine only when such equipment with a California certified engine is not available and must submit for approval to the Executive Officer a request to purchase emergency equipment powered by a non-California certified engine, pursuant to Title 13, CCR section 2403(f);

Whereas, under the federal Clean Air Act section 209(e), new engines which are used in construction equipment or vehicles or used in farm equipment or vehicles and which are smaller than 175 horsepower are preempt from CARB's emission standards and only subject to federal emission standards;

Whereas, most equipment primarily used for fire mitigation and maintenance of defensible space are typically not subject to CARB's SORE regulations;

Whereas, approximately 11 percent of small off-road equipment in California are construction equipment or vehicles or farm equipment or vehicles which use new engines smaller than 175 horsepower and are preempt from CARB's emission standards;

Whereas, achieving maximum emission reductions from SORE through a transition to zero emissions is necessary to attain ambient air quality standards because the CARB-regulated population of small off-road equipment does not include certain preempt equipment, and maximizing emission reductions from the CARB-regulated SORE population will help reduce emissions from the overall small off-road equipment population in California;

Whereas, CARB staff has proposed amendments to title 13 CCR sections 2400, 2401, 2402, 2403, 2404, 2405, 2405.1, 2405.2, 2405.3, 2406, 2407, 2408, 2408.1, 2750, 2752, 2753, 2754, 2754.1, 2754.2, 2755, 2756, 2757, 2758, 2759, 2761, 2762, 2763, 2764, 2765, 2766, 2767, 2767.1, and 2771, proposed adoption of title 13, CCR sections 2408.2 and 2754.3, and proposed repeal of title 13, CCR section 2768 as set forth in Appendices A and B, and the documents incorporated by reference by these regulations, as set forth in Appendices C through G to the Staff Report (Initial Statement of Reasons) released to the public on October 12, 2021, (proposed amendments);

Whereas, CARB staff has proposed amendments to Title 13 CCR sections 2403 and 2754 that would set the HC + NO_x exhaust emission standards and evaporative emission standards to zero for all MY 2024 and later engines manufactured for sale or lease for use or operation in California except generator engines;

Whereas, CARB staff has determined that replacing SORE equipment with ZEE is technologically feasible because ZEE have performance characteristics comparable to SORE equipment;

Whereas, ZEE can have higher purchase prices than SORE equipment but can offer overall cost-savings for users due to decreased fuel, maintenance, and repair costs;

Whereas, CARB staff analysis has estimated that the added charging requirements for more ZEE under the proposed amendments could increase annual statewide electricity demand by 21 GWh in 2024 and 581 GWh in 2043, which represent 0.01% and 0.21% of total California electricity consumption in 2020, respectively;

Whereas, CARB emission inventory modeling indicates that generators produce the highest statewide emissions of any small off-road equipment type, and in 2020, generators accounted for approximately 14 percent of the total population of SORE equipment and 19 percent of all NO_x and ROG emissions from SORE;

Whereas, one of the main uses of SORE generators is backup power supply;

Whereas, CARB staff has determined that, while zero-emission generators are available today, the zero-emission generator market needs more time to mature to better meet demand for power supply;

Whereas, CARB staff has proposed amendments to Title 13 CCR sections 2403 and 2754 that would make emission standards for new generator engines manufactured for sale or lease for use or operation in California more stringent starting with MY 2024 and zero for MY 2028 and later engines;

Whereas, CARB staff has proposed adding Title 13 CCR sections 2408.2 and 2754.3 that would create a generator-specific emission reduction credit program that would allow manufacturers to offset emissions from generators with emission levels above the proposed emission standards by using credits earned from certifying zero-emission generators;

Whereas, the proposed generator-specific emission reduction credit program would be tiered, granting more emission reduction credits for zero-emission generators with greater energy storage and power delivery than for those with less energy storage and power delivery, which would provide the greatest credit benefits to manufacturers who develop and sell zero-emission generators in the least developed sector of the market;

Whereas, under current regulations, manufacturers are required to measure and report hot soak emissions (representing emissions that occur when placing a hot engine in storage after use on a hot summer day) when performing a test on a complete engine;

Whereas, hot soak emissions are not regulated under the current evaporative emission standards;

Whereas, some engines tested by CARB staff have met the current 24-hour diurnal emission standards, but had hot soak emissions several times higher than the diurnal emission standards;

Whereas, CARB staff has proposed amendments to Title 13 CCR section 2754 and CP-902 that would amend the evaporative emission standards to include hot soak emissions;

Whereas, an engine's exhaust emissions durability period is the period that represents the engine's useful life, and under California Part 1054.107, useful life is described as the period during which an engine is required to comply with all applicable emission standards;

Whereas, under current regulations, applicants for certification are allowed to select an emissions durability period for their engines from a range of options that generally reflect "moderate," "intermediate," or "extended" use;

Whereas, CARB staff has found that actual use times are often much longer than the emissions durability periods defined in the current regulations and that many manufacturers advertise use of their products for longer than the durability period, which suggest that some SORE may be emitting at levels above the emission standards for a large portion of their use time;

Whereas, CARB staff has proposed amendments to Title 13 CCR section 2403 that would require all engines to meet the "extended" emissions durability periods to more accurately reflect the actual lifetime of SORE equipment, preventing manufacturers from certifying to unrealistically short emissions durability periods and only meeting the emission standards for a small portion of the equipment's lifetime;

Whereas, under current regulations, the credits earned in the emission reduction credit programs can be used to offset emissions from SORE that emit at higher levels (referred to as averaging), banked for future years, or traded with other manufacturers;

Whereas, under the current evaporative emission regulations, manufacturers may not trade evaporative emission credits, limiting manufacturer flexibility and potentially resulting in unbalanced portfolios between exhaust and evaporative credits for manufacturers because credit trading is allowed under the exhaust emission regulations;

Whereas, CARB staff has proposed amendments to Title 13 CCR sections 2754.1 and 2754.3 that would add trading provisions to the evaporative emission regulations, allowing manufacturers to trade evaporative emission credits with one another, if desired;

Whereas, during evaporative emission compliance testing, CARB staff has observed fuel spilling or dripping from several pieces of equipment when the fuel caps were removed due to fuel caps that have internal tethers or attached fuel gauges;

Whereas, CARB staff concludes that there is greater likelihood that these tethers and fuel caps may cause users of SORE equipment to spill or drip fuel when removing a cap from the fuel tank, thereby creating excess emissions neither captured in current test procedures nor reflected in CARB's emissions inventory;

Whereas, CARB staff has proposed amendments to Title 13 CCR section 2756, TP-901, and TP-902 that would require that fuel caps and their tethers must not cause fuel to spill when fuel caps are removed;

Whereas, under the current evaporative emission regulations, a manufacturer that cannot meet the requirements set forth in Title 13 CCR sections 2754 through 2757, due to extraordinary reasons beyond the manufacturer's reasonable control, may apply in writing for a variance, which provides relief to the manufacturer while still requiring them to mitigate the noncompliance to the maximum extent feasible;

Whereas, the current variance provision provides no relief for those manufacturers who may have had some reasonable control over their ability to meet certain requirements but still could not meet those requirements, in essence, creating inequitable results, rewarding some manufacturers who qualify for the process while leaving out others who may need relief but do not meet the threshold criteria;

Whereas, under the proposed amendments, when the emission standards are zero, no further credits may be earned, such that, under the variance provisions currently in force, if there were insufficient credits, excess emissions may not be completely offset, which could result in higher than expected emissions and the reductions expected under the proposed amendments would not be met;

Whereas, CARB staff has proposed amendments in Title 13 CCR section 2768 that would repeal the variance provision, thereby ensuring equity for all manufacturers, because all manufacturers would be required to meet the requirements of the regulations;

Whereas, the addition of the proposed evaporative emission credit trading also would alleviate the need for variances, by enabling all manufacturers to certify their engines in a manner consistent with the SORE evaporative emission standards because manufacturers who could not meet the emission standards could acquire credits to offset emissions above the emission standards;

Whereas, CARB staff has observed that when SORE equipment is tilted (for cleaning, maintenance, transport, or storage), fuel can spill or can leak into the carbon canister, preventing the canister from working as intended to capture evaporative emissions;

Whereas, CARB staff has proposed amendments to TP-902 that would add a tilt test before evaporative emission testing, consisting of tipping a piece of equipment 90 degrees in three directions, without tilting toward the carburetor;

Whereas, currently, there is no specified procedure for determining fuel tank design pressure limits in the evaporative emission test procedures;

Whereas, if fuel tanks operate or are stored at pressures outside the window of the pressure test conducted, they may weaken under real-world use, which could result in excess evaporative emissions;

Whereas, CARB staff has proposed amendments to TP-901 and TP-902 that would add a procedure for determining design pressure limits of tanks that would ensure that manufacturers determine design pressure limits of their tanks uniformly and that pressure

tests are cycled through the higher and lower pressures that tanks may achieve when operating or being stored;

Whereas, manufacturers frequently request approval for accelerated preconditioning of fuel tanks or evaporative emission control systems when planning to conduct evaporative emission testing where, currently, manufacturers are required to precondition evaporative emission control systems or fuel tanks for 140 days or provide data documenting that emissions will not increase with further preconditioning for units preconditioned less than 140 days;

Whereas, if manufacturers wish to shorten the preconditioning time, it is vital that all evaporative emission control system components have already reached maximum permeation to ensure that the evaporative emission testing represents real-world emissions;

Whereas, CARB staff has proposed amendments to TP-901 and TP-902 that would add specifications for data documenting that evaporative emissions will not increase with further preconditioning to clarify requirements for accelerated preconditioning;

Whereas, in 2011 the Board adopted amendments to California SORE regulations designed to harmonize as closely as possible with federal test procedures for exhaust emissions to minimize administrative burden, complexity, and expenses that could result from different state and federal requirements, while still maintaining the emission reduction benefits of the California regulations, in response to small off-road engine and equipment manufacturers' request that CARB harmonize with the federal exhaust emission test procedures to reduce their burden of complying with two different test procedures;

Whereas, U.S. EPA has revised portions of the incorporated test procedures for exhaust emissions since CARB test procedures were last updated, which has created inconsistencies between federal and CARB test procedures that are unnecessary and add to regulatory complexity for manufacturers;

Whereas, CARB staff has proposed amendments to Part 1054 and Part 1065 that harmonize the test procedures with federal test procedures except where changes to federal test procedures are less stringent than the CARB's requirements;

Whereas, under the current regulations, engine families can pass compliance testing even if many of the engines tested have emissions that exceed the emission standard for one or more pollutants;

Whereas, CARB staff has proposed amendments to Title 13 CCR section 2407, Part 1054, and Part 1065 to improve compliance testing methods, and to increase the pace of compliance testing, which would reduce the number of engines sold in California that exceed the emission standards;

Whereas, CARB staff has identified and proposed various administrative amendments that are necessary to clarify the SORE regulations and incorporated certification and test procedures for better regulatory certainty;

Whereas, the Board has considered the economic impact of the proposed amendments as identified in the Standardized Regulatory Impact Assessment (SRIA), which is estimated to be \$4.08 billion from 2023 through 2043;

Whereas, the proposed amendments would reduce statewide emissions of toxic air contaminants (TACs), CO, PM, NO_x, and ROG from SORE, which would be protective of the health and welfare of all communities in California, including disadvantaged low-income communities and communities of color that bear the burden of high cumulative exposure and disproportionate health impacts;

Whereas, SORE equipment produce more noise than ZEE, and using ZEE would reduce equipment user and community exposure to noise;

Whereas, users of SORE equipment are exposed to CO, PM, TACs, and other pollutants that are emitted by SORE equipment and contribute to premature mortality and other adverse human health effects;

Whereas, frequent users of lawn and garden equipment, particularly landscaping professionals, would be exposed to these air contaminants less frequently by replacing their SORE equipment with ZEE;

Whereas, staff has estimated that, in 2031, the proposed amendments would yield statewide SORE emission reductions of approximately 7.9 tpd of NO_x and 64.5 tpd of ROG, which represent 43 percent and 51 percent reductions over the baseline scenario, respectively;

Whereas, staff has estimated that the NO_x and ROG emission reductions as a result of the proposed amendments would provide a benefit of \$8.82 billion in avoided premature death and health costs from 2023 through 2043;

Whereas, staff held three pre-rulemaking public workshops, which were attended by industry representatives, environmental organizations, and interested citizens, to discuss the development of regulatory concepts and potential amendments;

Whereas, staff attended four conventions held for landscapers, including the Green Schools Summit in Pasadena in November 2018, California Landscape Industry Show in Ontario in February 2019, Long Beach Landscape Expo in October 2019, and the NorCal Landscape Show in February 2020, and presented at five meetings attended by landscapers and members of local governmental committees in California, including meetings of the Pleasanton Committee on Energy and the Environment in January 2019, the San Francisco Integrated Pest Management Technical Advisory Committee in March 2019, the San Mateo Integrated Pest Management Workshop in April 2019, the San Francisco Commission on the Environment in November 2019, and the Tri Valley Air

Quality Community Alliance in April 2021, at which staff shared information about potential regulatory changes and ZEE capabilities and availability;

Whereas, staff contracted with the Social Science Research Center at California State University, Fullerton (CSUF) to conduct an intensive survey between 2017 and 2019 to determine the small off-road equipment population in California;

Whereas, throughout development of the CSUF survey, the SORE Working Group, which consists of interested stakeholders, including manufacturers, trade associations, government agencies, individuals, and environmental organizations, provided feedback to staff on the survey questions;

Whereas, since 2018, staff has operated a demonstration project called the ZEE Roadshow, where several brands of zero-emission lawn and garden equipment designed for professional use are loaned to landscaping crews throughout the state, providing the crews with an opportunity to use ZEE without purchasing it;

Whereas, the Staff Report and proposed regulatory changes have been made available to the public for review and comment;

Whereas, CARB's regulatory program that involves the adoption, approval, amendment, or repeal of standards, rules, regulations, or plans has been certified by the Secretary for Natural Resources under Public Resources Code section 21080.5 of the California Environmental Quality Act (CEQA; Title 14 CCR section 15251(d)), and CARB conducts its CEQA review according to this certified program (Title 17 CCR sections 60000-60007);

Whereas, in accordance with CARB's certified regulatory program, and the policy and substantive requirements of CEQA, CARB prepared an environmental analysis as part of the Staff Report that serves as a substitute document equivalent to an addendum to the final Environmental Analysis prepared for the Revised Proposed 2016 State Strategy for the State Implementation Plan, certified by the Board in March 2017, (2017 EA) that assessed the potential for significant long- or short-term adverse and beneficial environmental impacts associated with the proposed action (title 17, CCR, section 60005(b));

Whereas, the final Environmental Analysis prepared for the Revised Proposed 2016 State Strategy for the State Implementation Plan, certified by the Board in March 2017, concluded that implementation of the SIP measures, including the measures to reduce SORE emissions and increase use of ZEE, would support wise and efficient uses of energy and therefore would result in long-term beneficial impacts to energy demand, and would result in less-than-significant short-term negative impacts to energy demand as a result of short-term construction activities that may occur in response to implementing the SIP measures;

Whereas, staff determined that for the proposed amendments, CARB can rely on the 2017 EA prepared under its certified regulatory program included as an appendix in the Staff Report, and no additional environmental review is required because the

record evidence shows that the amendments will not result in new significant adverse environmental impacts or a substantial increase in severity of previously identified significant adverse impacts, as described in Chapter V of the Staff Report;

Whereas, the Board has reviewed and considered the addendum-equivalent EA with the 2017 EA;

Whereas, a public hearing and other administrative proceedings have been held according to the provisions of Chapter 3.5 (commencing with section 11340), Part 1, Division 3, Title 2 of the Government Code;

Whereas, the Board finds that:

Despite advances in reducing emissions from SORE and increased usage of ZEE, additional reductions in SORE emissions are necessary to attain ambient air quality standards and protect the health and welfare of all California residents;

Upon implementation, the proposed amendments approved herein would reduce emissions of ROG and NO_x;

Adoption of the proposed amendments is necessary to achieve the emission reductions expected under the 2016 State SIP Strategy and the goals of California Executive Order N-79-20;

Adoption of the proposed amendments is necessary to comply with section 43018.11 of the Health and Safety Code requirements to adopt cost-effective and technologically feasible regulations to prohibit engine exhaust and evaporative emissions from new small off-road engines, by July 1, 2022;

The statewide emission reductions resulting from the proposed amendments would yield health benefits throughout California, including in disadvantaged communities that continue to bear the burden of high exposure;

The proposed amendments would reduce exposure to criteria air pollutants and TACs for small off-road equipment users, including landscapers, who use the equipment frequently, which could result in additional health benefits for those users;

The higher purchase prices of ZEE and batteries may present an economic burden to small off-road equipment users, especially sole-proprietor landscapers and other small businesses;

The higher upfront costs for ZEE for many users can be offset by lower operational costs over time, and incentives such as those planned for the Clean Off-Road Equipment program will help mitigate these higher upfront costs;

Adoption of the proposed amendments and associated added charging requirements for more ZEE would not have a significant impact on statewide electricity demand;

Adoption of the proposed amendments would not impact the availability of emergency response equipment;

Adoption of the proposed amendments with a longer implementation schedule for SORE generators would achieve necessary emission reductions from SORE generators while allowing the zero-emission generator market more time to mature;

Adoption of the proposed zero-emission generator credit program is necessary to help achieve emission reductions by incentivizing manufacturers to increase development and production of zero-emission generators, particularly zero-emission generators with the greatest energy storage and highest power output;

Adoption of the proposed amendments to incorporate hot soak emissions in the evaporative emission standards is necessary to ensure a greater portion of evaporative emissions from SORE are accounted for under the emission standards and to thereby achieve the expected benefits of the emission standards;

Adoption of the proposed amendments that update the emissions durability period requirements is necessary to better ensure that equipment meet the emission standards for their full lifetime;

Adoption of the proposed amendments that update emission reduction credit program provisions to allow manufacturers to trade evaporative emission credits would enhance manufacturer flexibility and help ensure that exhaust and evaporative emission reduction credit banks are balanced, which would improve the cost-effectiveness of the proposed amendments to set exhaust and evaporative emission credits to zero;

Repeal of the variance provision under the evaporative emission regulations is necessary to create equity for manufacturers and to better ensure that SORE meet the evaporative emission standards;

Adoption of the proposed amendments to Title 13 CCR section 2756, TP-901, and TP-902 is necessary to better ensure the test procedures reflect real-world conditions and to better ensure no SORE are introduced for sale or lease for use or operation in California that have excess evaporative emissions due to fuel spillage that are neither captured in current test procedures nor reflected in CARB's emissions inventory;

Adoption of the proposed amendments to harmonize Part 1054 and Part 1065 with recent updates to federal testing procedures is necessary to reduce unnecessary administrative burdens on small off-road engine and equipment manufacturers;

Adoption of the proposed amendments to Title 13 CCR section 2407, Part 1054, and Part 1065 that improve compliance testing methods are necessary to reduce the number of engines sold in California that exceed the emission standards;

The proposed amendments meet the statutory requirements that CARB adopt rules that will reduce emissions and help meet federal ambient air quality standards identified in section 39602 of the Health and Safety Code;

CARB has broad authority to implement emission standards for off-road and non-vehicular engines including SORE identified in sections 43013 and 43018.11 of the Health and Safety Code;

The proposed amendments were developed in an open public process, in consultation with affected parties, through numerous public workshops, individual meetings, and other outreach efforts, and these efforts are expected to continue;

There exist adequate data to support the adoption of the proposed amendments and to establish that the amendments are necessary;

The economic impacts of the proposed amendments have been analyzed as required by California law, and conclusions and supporting documentation for the analysis are set forth in the Staff Report;

The cost-effectiveness of the proposed amendments has been considered;

No reasonable alternatives to the proposed amendments considered to date, or that have otherwise been identified and brought to the attention of CARB, would be more effective at carrying out the purpose for which the proposed amendments are proposed or would be as effective and less burdensome to California businesses and residents than the proposed amendments;

The proposed amendments are consistent with CARB's environmental justice policies and do not disproportionately impact people of any race, culture, income, or national origin; and

The proposed amendments are covered by the prior environmental analysis prepared to comply with CEQA, and no additional environmental review, or revisions to the prior environmental analysis, are required because substantial evidence in the records shows there are no changes that will result in new significant adverse environmental impacts or a substantial increase in severity of

previously identified significant adverse impacts.

Now, therefore, be it resolved that the Board hereby approves for adoption amendments to sections 2400, 2401, 2402, 2403, 2404, 2405, 2405.1, 2405.2, 2405.3, 2406, 2407, 2408, 2408.1, 2750, 2752, 2753, 2754, 2754.1, 2754.2, 2755, 2756, 2757, 2758, 2759, 2761, 2762, 2763, 2764, 2765, 2766, 2767, 2767.1, and 2771, title 13, California Code of Regulations, approves for adoption new sections 2408.2 and 2754.3, title 13, California Code of Regulations and repeals section 2768, title 13, California Code of Regulations, as set forth in Appendices A and B, and the documents incorporated by reference by these regulations, as set forth in Appendices C through G of the Staff Report released to the public on October 12, 2021.

Be it further resolved that if there is a possibility that any modifications to the amendments made available for one or more 15-day public comment periods may affect the conclusion of the environmental analysis, the Executive Officer shall prepare and circulate any additional environmental analysis to the extent required by CARB's regulations at Title 17 CCR section 60004.

Be it further resolved that the Board directs the Executive Officer to determine if additional conforming modifications to the proposed amendments are appropriate. If no additional modifications are appropriate, the Executive Officer shall take final action to adopt the amendments, as set forth in Appendices A and B, and the documents incorporated by reference by these regulations, as set forth in Appendices C through G of the Staff Report released to the public on October 12, 2021. If the Executive Officer determines that additional conforming modifications are appropriate, the modified regulatory language shall be made available for public comment, with any additional supporting documents and information. The Executive Officer shall consider written comments submitted during the public review period and make any further modifications that are appropriate available for public comment for at least 15 days. The Executive Officer may present the amendments to the Board for further consideration if warranted, and if not, the Executive Officer shall take final action to adopt or deny the amendments after addressing all appropriate conforming modifications.

Be it further resolved that the Executive Officer shall, upon adoption, submit the proposed regulatory action to the U.S. EPA for approval as a revision to the California State Implementation Plan (SIP) as required by the federal Clean Air Act. The adopted regulatory action would be submitted as a SIP revision because it amends regulations intending to reduce emissions of air pollutants to attain and maintain the National Ambient Air Quality Standards promulgated by U.S. EPA under the Clean Air Act.

Be it further resolved that the Board hereby determines that the requirements related to the control of emissions associated with the amendments adopted herein will not cause California I off-road engine and vehicle emission standards, in the aggregate, to be less protective of public health and welfare than applicable federal standards.

Be it further resolved that the Board hereby determines that a separate California off-road engine and vehicle emissions control program is needed to meet compelling and extraordinary conditions.

Be it further resolved that the Board hereby determines that the amendments herein are consistent with section 209 of the Clean Air Act.

Be it further resolved that, pursuant to section 209(e) of the Clean Air Act, the Executive Officer shall, upon adoption, forward the amendments to the U.S. EPA with a request for a new authorization or for confirmation that the amendments are within the scope of an existing authorization, as appropriate.

Be it further resolved that CARB will closely coordinate with air districts in implementing incentives under the Clean Off-Road Equipment program to leverage their experience with zero-emission equipment exchange programs and engage the largest number of sole-proprietors and other small landscaping businesses possible.

Be it further resolved that CARB recognizes the importance of communication and outreach about regulations for SORE and their impacts on landscapers and other small businesses. CARB recognizes that landscapers, particularly sole-proprietors, may not be aware of all potential changes to the SORE equipment market and availability of incentive funding. CARB is committed to conducting extensive outreach in multiple languages to provide information about ZEE, availability of incentive funds, and availability of demonstration equipment, including the ZEE Roadshow. Additionally, CARB recognizes the importance of workforce development for both landscapers and repair shops. CARB is committed to including workforce training and development on the use and repair of ZEE as part of the Clean Off-Road Equipment incentive funding program.

Be it further resolved that the Board directs CARB staff to review annually the status of the implementation of the proposed amendments and to conduct a technological review in the 2025 to 2026 timeframe to assess the progress towards the MY 2028 zero-emission standards for portable generators and any other engine or equipment category that may be newly subject to the MY 2028 zero-emission standards.

I hereby certify that the above is a true and correct copy of Resolution 21-28 as adopted by the California Air Resources Board.



Katie Estabrook, Board Clerk