

**STATE OF CALIFORNIA
AIR RESOURCES BOARD**

Proposed Amendments to the Small Off-)	Hearing Date:
Road Engine Regulations: Transition to)	December 9, 2021
Zero Emissions; Proposed Rulemaking;)	Agenda Item: 21-13-2
Initial Statement of Reasons)	

**COMMENTS OF THE
TRUCK AND ENGINE MANUFACTURERS ASSOCIATION**

November 29, 2021

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1. Introduction

The Truck and Engine Manufacturers Association (“EMA”) hereby submits its comments in opposition to the “Proposed Amendments to the Small Off-Road Engine Regulations: Transition to Zero Emissions” (the “Proposed SORE Amendments”) that the California Air Resources Board (“CARB”) staff has proposed to present to the Board for initial consideration at a hearing scheduled for December 9, 2021.

EMA and its members have attempted for several years to engage with CARB staff regarding the development of CARB’s rulemaking to achieve additional significant emission reductions from small off-road engines (“SORE”). Notwithstanding the industry’s good faith efforts, the scope of the proposed SORE Amendments has expanded well beyond what was described in the 2016 State SIP Strategy as the next-tier mitigation measure for SORE. Instead, what staff are now proposing amounts to an overly-aggressive interpretation, not of the underlying 2016 State SIP Strategy, but rather of the Governor’s recent Executive Order directing the transition of off-road mobile sources in California to zero emissions by 2035 – a goal that CARB proposes to accelerate by more than a decade in this case, to 2024 for all SORE except portable generators. Moreover, staff are proposing to mandate that dramatically accelerated transition to zero-emission equipment without having undertaken the necessary analysis of the technical feasibility and cost effectiveness of doing so. As a result, the pending proposal is neither reasonable nor implementable.

EMA previously submitted comments regarding CARB’s potential amendments to the SORE regulations in response to CARB’s prior solicitation of alternatives and pre-rulemaking workshops in June of 2020, and March of 2021.¹ As detailed again in our comments below, and especially with regard to Class 1, Class 2 and > 825cc SORE engines and equipment (hereinafter referred to as “non-handheld products”), the Proposed SORE Amendments are cost-prohibitive, infeasible, unenforceable, and invalid. In that regard, the Proposed Amendments do not address any of the serious overarching concerns that EMA and many other stakeholders detailed in their earlier workshop comments.

¹ Sore Amendments; Pre-Rulemaking Workshops, *Comments Of The Truck And Engine Manufacturers Association*.

EMA and its members acknowledge the significant ozone air quality attainment problems that persist in California, particularly in the South Coast Air Basin, and we recognize the need for additional cost-effective reductions of SORE-generated ROG and NO_x emissions, along with related regulatory improvements. To that end, our members have been and remain willing to develop and introduce cost-effective technology solutions to effect meaningful ROG and NO_x reductions. As evidence of that, and as detailed later in these comments, EMA has developed and proposed an alternative program that provides California with ROG and NO_x reductions equivalent to or exceeding those reasonably expected from the Proposed SORE Amendments, at a fraction of the cost. As it stands, the Proposed Amendments will lead to significant adverse results for all stakeholders and, more importantly, California's air quality.

The Proposed SORE Amendments as applied to non-handheld products are infeasible and, as confirmed by independent expert analyses, fall well short of any reasonable cost-effective thresholds. CARB has grossly underestimated the costs associated with nearly all aspects of the far-reaching Proposed Amendments, and has materially overestimated their potential benefits. CARB also has ignored the lead time provisions of the federal Clean Air Act ("CAA"), including through a mandated transition to zero-emissions equipment ("ZEE") that would take effect with less than two full model years of lead time, and without regard to the timeframe required to fulfill the applicable federal preemption waiver requirements. That clear violation of the CAA renders the Proposed Amendments ineligible for a federal preemption-waiver, and therefore invalid and unenforceable.

In addition, CARB's technical feasibility demonstrations for non-handheld products engines and equipment are wholly inadequate. As an initial matter, CARB has ignored the actual production timelines for transitioning non-handheld products to ZEE - - a process that takes more than two years *per product-line*. In that regard, CARB's purported feasibility demonstration is largely non-existent, relying on *market research* of ZEE availability without an actual evaluation of the wide array of small spark-ignition ("SSI") non-handheld products not yet suitable for a transition to ZEE, or of the actual user performance requirements that must be, but as of yet cannot be, met for those products to compete effectively in the market. CARB also has failed to acknowledge the multiple issues impacting the cost and readiness of battery power for non-handheld SORE. Consequently, unless the infeasible Proposed SORE Amendments are further revised as EMA suggests in these comments, SORE engine and equipment manufacturers will be compelled to exit the California market in 2024, with the result that new lower-emission product will become unavailable in many non-handheld product categories.

EMA's members have invested substantially in developing both low-emission and ZEE products and, as documented in the survey conducted by the California State University – Fullerton, there has been significant market penetration of ZEE in specific types of *residential* lawn and garden products, more specifically, *residential* handheld products and *residential* walk-behind mowers, power washers, air compressors and small pumps. The same cannot be said for commercial non-handheld products. Accordingly, CARB's adoption of aggressive, almost all-encompassing ZEE mandates for non-handheld and commercial products as well, without first demonstrating the feasibility and availability of comparable ZEE alternatives, and without earmarking the substantial financial incentives that will be required to assist small businesses in the mandated transition, is not implementable, and therefore not a pathway to success. In fact, CARB staff acknowledge that such financial incentive programs will be integral to the feasibility of the Proposed Amendments: "The upfront cost is a significant barrier to transforming the

population of lawn and garden equipment in the professional market to ZEE, even with lower total cost of ownership over a product's lifetime." (SRIA p. 11.)

The Proposed SORE Amendments will impose enormous costs and burdens on California consumers, local government and small businesses, many of which are owned by persons of color. CARB staff even admit that the Proposed Amendments are not expected to bring down costs. (SRIA p. 11.) Consequently, the Amendments will more likely cause those minority-owned businesses to keep their current gas-powered products longer and defer buying new, low or zero-emission products – a foreseeable market response that will delay the “scrappage” of older SORE. Alternatively, the Amendments will compel those small businesses to buy any new products out-of-state, and then use those products in California, an anticipated market response that will cause “leakage” in the hoped-for emissions reductions in California. As a result, CARB’s projected environmental and social/health benefits of the Proposed SORE Amendments are inherently overstated and simply will not be achieved.

In that regard, and contrary to one of CARB’s core assertions, the SORE market is not well prepared for full across-the-board electrification, as CARB states (without basis) in its Initial Statement of Reasons (“ISOR”). (See Staff Report p. ES-5 and SRIA, p.19.) The same holds true even if CARB staff narrow their claim of market-readiness to the residential and commercial lawn and garden market segments. (SRIA p. 10.) Indeed, the fundamental problem with the ISOR is that it ignores the breadth of the SORE market in its analysis. Because the array of products in the SORE segment is so broad, both in terms of what they do and how much they cost, a realistic analysis requires that the SORE market first be divided into handheld and non-handheld categories, and then further sub-divided and evaluated based on whether the products are for residential or for professional/commercial use. The market availability, cost and performance requirements vary substantially among those differing market segments.

While CARB staff purport to have conducted such a market-segment analysis, a critical review shows that not to be the case. For example, the “Utility Analysis” prepared by Trinity Consultants (“Trinity”), discussed further *infra*, shows that there is still a wide-ranging absence in the market of comparable ZEE products, with the exception of *residential* walk-behind mowers, corded pressure washers, and small pumps. Manufacturers’ data underscore the same conclusion. CARB staff have simply tried to gloss over the reality of what is and is not available in the SORE ZEE market. That cannot sustain this administrative rulemaking.

In addition, CARB’s proposed ZEE program is not calibrated for “success.” Rather, CARB’s Proposed Amendments are far more likely to lead to a significant deceleration in SORE scrappage, along with the accelerated development of a robust used equipment market and increased purchases of new products outside of California for use in the State (what will amount to “leakage” from an emissions inventory perspective), and an absence of CARB-compliant new engines and equipment in California. All of those clearly foreseeable consequences will cause material adverse impacts, including foregone opportunities for additional cost-effective reductions of ROG and NO_x emissions. This is explained in greater detail in the attached independent expert analyses and reports prepared by NERA Economic Consulting (“NERA”), Trinity, and Air Improvement Resources (AIR), copies of which reports are attached and incorporated by reference in these comments. (See discussion, *infra*.)

In light of the foregoing, the Board should not adopt the Proposed SORE Amendments, but instead should direct CARB staff to work in good faith with all stakeholders to develop a cost-effective SORE emission reduction program to be phased-in over a reasonable period of time, taking into account technical feasibility and cost-effectiveness, and beginning no earlier than model year (“MY”) 2025. EMA has detailed that sort of reasonable alternative program in these comments.

2. Summary of EMA Comments

The Proposed SORE Amendments are cost-prohibitive, infeasible, unenforceable, and invalid. One of the likely impacts from the cost-prohibitive and infeasible Amendments will be that users will keep their gas-powered SORE products for longer periods of time, thereby reducing scrappage rates. In addition, the Proposed Amendments will spur the development of a growing used-equipment market in and around California, and will drive users to purchase equipment that does not meet CARB’s emissions-performance requirements outside of California for subsequent use in the State. Just as significant, the Proposed Amendments could force SORE manufacturers to exit the California market.

While CARB staff may not be concerned with prematurely driving SORE engine and equipment manufacturers out of the California market, those who need this equipment to perform work or earn a living in the State surely will take note. CARB staff estimate that 88,000 California residents are employed in the landscaping business. Ninety-nine percent of the 8,600 businesses and 51,000 sole proprietorships are small businesses (mostly minority-owned) that will bear the brunt of the Proposed Amendments. (SRIA pp. 67 – 68.) The SRIA concedes that the landscaping sector of the economy also will experience a decrease in employment and personal income that may not recover during the anticipated span of the amended regulations. (SRIA pp. 82, 88 and 89.) In addition, the Proposed Amendments will result in a significant slow-down in California’s progress to reach NAAQS attainment, which will lead to still more corollary adverse impacts to the California economy.

The Proposed SORE Amendments are **invalid** and unlawful, not only because they violate the requirements for adopting valid administrative regulations (including under the California Administrative Procedures Act), but also because they directly violate the controlling “lead time” provisions of the federal Clean Air Act (“CAA”). CAA Section 209(e) (42 U.S.C. §7543(e)) mandates that new standards relating to the control of emissions cannot take effect unless the regulations afford adequate lead time to permit development of the technology necessary to meet the requirements, giving appropriate consideration to the cost of compliance within that adequate timeframe. CARB needs to demonstrate its compliance with CAA Section 209(e) in order to obtain a waiver of federal preemption under CAA section 209(b). (See 42 U.S.C. § 7543(b)(1)(c).) Since the Proposed SORE Amendments will provide *less than the minimum two years* of lead time for all of the 2024 MY requirements, CARB’s Amendments are violative of the controlling provisions of the CAA, are disqualified from receiving a waiver of federal preemption, and, as a result, are unlawful.

The Proposed SORE Amendments are **infeasible** because they broadly require new zero emission technology beginning in 2024 that in many cases does not yet even exist, and so cannot be deployed in time, which is directly at odds with California’s primary environmental objective to reduce ROG and NO_x emissions as quickly as possible. In addition, CARB has not demonstrated

the viability of the assumed zero-emission technology in the wide array of equipment encompassed by the proposed mandatory ZEE transition, especially with respect to non-handheld professional/commercial equipment, a fact *admitted* in the SRIA. CARB staff concede that ZEE is still a developing technology, however they postulate (without evidence) that there will be near-term advancements over time that will improve power, performance and run-time. Aspirational assumptions, however, are not evidence. And infeasible regulations are invalid.

CARB staff have consistently refused to engage with stakeholders to gain a full appreciation of the wide variety of non-handheld products that utilize SSI engines, or to understand the different performance requirements and “utility” considerations that apply to residential handheld products, on the one hand, and professional/commercial non-handheld products, on the other. CARB staff also have failed to acknowledge the markedly increased costs that the impacted small businesses will face if compelled to purchase ZEE starting in 2024. As noted in the Staff Report (p. 97) the vast majority of licensed landscapers are small businesses and, of those, the majority are sole proprietorships with an average annual revenue of \$32,000. CARB staff recognize the overall substantial upfront costs of the proposed ZEE transition (SRIA p. 48). During the first 4 years of ZEE ownership, landscapers would bear the majority of the higher upfront costs under the Proposed Amendments despite owning less than 10% of the total population of SORE equipment. And many of the businesses that will be most impacted by the increased costs at issue are owned by people of color.

Rather than working with stakeholders to gain a better understanding of the real stakes of this rulemaking, CARB staff have relied on internet market “research” and on a non-qualitative ZEE “Lawn and Garden Product Roadshow” to cherry-pick anecdotal information that supposedly supports a rapid transition to ZEE for **all** non-handheld equipment. CARB also purports to rely on a survey conducted by the California State University – Fullerton (“CSUF”) to identify the key purchase criteria for both residential and commercial users, but then does not actually utilize or apply those criteria in the assessment of the proposed mandated near-term transition to ZEE across-the-board (with the sole near-term exception provided for portable generators). CARB staff make the statement that since ZE technology is already on the market in some cases, there will be “minimal” transition costs for manufacturers. CARB staff completely ignore the cost and time needed to transition current gas-powered product to ZEE even when current battery technology exists. In that regard, the actual timeline that manufacturers need to transition non-handheld products to ZEE is more than two years *per product-line*. Tellingly, CARB staff gathered no real-world data, and conducted no actual technical testing or data quantification, to support the proposed rapid and wholesale transition to ZEE.

The Proposed SORE Amendments are built, in essence, on a house of cards. CARB’s ISOR overstates the relevant SORE population by relying on a fundamentally flawed survey conducted by CSUF. That survey was not reviewed using standard quality assurance/quality control (QA/QC) protocols prior to publication of the Report and the related Draft 2020 SORE Emission Inventory and Model. (See AIR Report and Comments, attached.) While CARB did delete a handful of survey responses based on industry comments on the Draft, the Final 2020 SORE Emissions Inventory and Model continues to include outlier responses and data which should not be included under standard QA/QC protocols. (*Id.*) If CARB had properly applied standard QA/QC protocols, the sample size in certain categories would no longer be sufficient or representative. Thus, CARB staff have acted arbitrarily by including inappropriate data in a transparent effort to preserve the otherwise unjustified claim that the CSUF survey is reflective of the relevant California SORE

population. The resultant overstatement of the equipment population renders the anticipated emission reductions and cost-effectiveness of the Proposed Amendments similarly overstated as well. (See AIR Report; OPEI letter of June, 2020, which reviews every response to the survey identifying which responses should have been screened-out and why.)

The Proposed SORE Amendments are **cost-prohibitive** because, as confirmed by independent expert analyses and reports (see NERA, Trinity, and AIR Reports, discussed *infra*), the costs of the potential incremental reductions of NO_x and ROG emissions from the non-handheld SORE products at issue will exceed \$304,000/ton. If the expected market impacts and responses are factored in, the anticipated reductions of NO_x and ROG will be at least 15% less due to the likely decrease in the scrappage rate of existing SORE, coupled with the related leakage from increased out-of-state purchases. In contrast, the EMA alternative program achieves equal or greater emission reductions at a fraction of that cost – approximately \$7,000/ton. That will render the Proposed Amendments even more cost-prohibitive on a relative basis, and so invalid on that ground as well.

The Proposed SORE Amendments are also **invalid** because they include provisions that diverge from the corollary federal regulations without any supporting rationale or data. For example, the proposed modification to the definition of “engine” diverges from the federal definition, and will have significant negative implications for the servicing of existing engines and products already in-use, contrary to CARB staff’s assertion. (ISOR, ES p. 1.) CARB offers no coherent rationale for that difference. That is preempted and prohibited under the federal Clean Air Act.

In addition, the Proposed Amendments are invalid since they are not supported by reasonable current technical data (including data relating to the proposed CO limit for portable generators (MY2024 – MY2027)), but instead seek to rely on outdated information that was already used to support the 2016 amendments to the evaporative regulations. CARB staff are essentially trying to “double dip” in the use of data from pre-2020 certified product. Moreover, an evaluation of the testing conducted by CARB staff of MY2020 and MY2021 product simply shows that those products meet the evaporative standards, as amended in 2016 (SRIA p. 4) - - not as they would be revised under the Proposed Amendments. Thus, there is no actual current data to support the additional proposed changes to the evaporative standards.

The remainder of EMA’s comments will provide additional detailed data and analysis in support of each of the foregoing points, and will highlight multiple other unworkable, cost-prohibitive, and infeasible aspects of CARB’s Proposed SORE Amendments. In brief, the multiple points establishing the unreasonableness and invalidity of the Proposed SORE Amendments include the following:

- (i) CARB is providing insufficient lead time for the Proposed SORE Amendments, which is manifestly unreasonable, and which will disqualify CARB from obtaining a federal CAA preemption waiver for the Proposed Amendments. To put the current Proposed Amendments in perspective, the most recent exhaust emission standards were implemented between MY 2000 and 2008; the evaporative emission standards were implemented between MY 2006 and 2013. Yet in this rulemaking, CARB is proposing to allow only one full year of lead time. (Tellingly, with respect to the evaporative emission

regulations that CARB amended in 2016, CARB still has not even applied for, let alone obtained, an EPA waiver for those amendments, despite enforcing them beginning in MY2020.)

- (ii) The Proposed SORE Amendments are arbitrary and capricious as they rely upon a CSUF survey which was not vetted with appropriate QA/QC protocols, as the basis for the Final 2020 CARB SORE Air Emission Inventory and Model. That has resulted in a significant overestimation of the SORE equipment population, as well as the relevant emissions inventory and the anticipated emission reductions. The 2020 SORE Emission Inventory and Model also relies upon invalid inputs for various specific emission factors. The result (again) is an overestimation of the expected emission reductions and benefits, and an underestimation of the likely costs of the Proposed Amendments.
- (iii) CARB has failed to demonstrate the technical feasibility of the proposed 2024 MY transition to ZEE for the wide array of covered non-handheld products, or of the 2028 MY transition to ZEE for portable generators. First, CARB staff admit that they did not even consider ZEE for SORE products outside the residential and commercial lawn and garden market segment. (SRIA p. 10.) CARB staff then attempt to rely on a market analysis that is not even based on the relevant and applicable performance criteria they identified in the CSUF survey as the basis for their determination that ZEE is technically feasible. (See ISOR p. ES-7, pp. 13–21.) Staff also point to certain responses from a “ZEE Lawn and Garden Roadshow.” But those responses do not provide *any* quantitative data. (ISOR, ES-11.) Indeed, the Staff Report concedes that “the comparison is not comprehensive and does not demonstrate that SORE equipment and ZEE have identical performance.” (p.13).

CARB staff nonetheless go on to portray the conversion of small spark-ignition products to zero-emission as “simple,” since some ZEE technology currently exists for some residential applications. But staff’s “analysis” does not account for the need for engine/power-source manufacturers to work with the equipment manufacturers in this non-integrated industry to develop, test and manufacture products utilizing a completely different power source. That is a significant omission from CARB’s analysis, since the power-source technology change at issue requires the transition from products that are currently manually-controlled with belts and pulleys, to electronic systems that require completely different components and programming. Consequently, that transition is far from simple, and will take substantially more time than the one full-year of lead time that CARB’s Proposed Amendments will provide. Further, staff provide no basis whatsoever for the proposed 2028 ZEE-transition date for portable generators (for which no suitable ZEE power systems currently exist), other than a broad statement that since battery and storage technology is improving, it should be available by then for all portable generators. Wishful thinking alone, however, cannot support a rulemaking of this magnitude.

- (iv) The Proposed SORE Amendments are cost-prohibitive, as demonstrated through independent expert analyses prepared by NERA and Trinity. Cost-prohibitive rulemakings are invalid under California law and cannot qualify for a federal preemption waiver under the federal CAA.
- (v) CARB has not sufficiently assessed or validated the proposed modification to the evaporative standards, rather relying on test data gathered between 2015 – 2019 from products certified to the standards in effect prior to the 2016 amendments. (Staff Report p. 31.) All that those data show is that SORE that were certified in MY2020 and MY2021 to the 2016 amended regulations are, as expected, compliant with the current standards. In addition, there is no data justifying the expansion of evaporative emission controls to include diurnal emissions.

Nor does CARB provide any rationale whatsoever to support the proposed modifications to the test procedures, including the proposed removal of the design certification pathway, which has been used since the adoption of the initial evaporative regulation for non-handheld products, a largely non-integrated market. Rather CARB describes the modifications as being more for “clarification” of the certification and test procedures (SRIA p. 2). But the true purpose of the modifications is revealed later in the SRIA – the modifications are “intended to reduce CARB’s compliance testing burden.” (SRIA p. 9.) CARB staff try to dismiss the impact on manufacturers, stating that the change in compliance testing is not expected to change manufacturer costs. That is a false claim that does not account for the impacts that will be placed on the manufacturing process if single compliance tests are no longer permitted. In addition, the change in certification pathways (*i.e.*, the elimination of design certification) is not feasible and will have a negative downstream effect on the national SORE market, since EPA currently relies on the CARB certification for running-loss control (if a carbon canister is not used or the gas tank not sealed). CARB’s stated rationale for modifying the evaporative standards is insufficient and amounts to unreasonably motivated public policy.

- (vi) The Proposed SORE Amendments purport to harmonize with the corollary federal regulations (SRIA p. 9), but in many cases the amendments actually *diverge* from those federal regulations in unjustified ways. And, as additional evidence of the lack of due diligence that CARB has brought to this rulemaking, the Proposed Amendments are not even based on the most current version of EPA regulations (Parts 1054 and 1065) despite their stated desire to harmonize the CARB regulations with EPA. Nor has CARB addressed issues in which the proposed amendments to the CARB regulations will actually *conflict with* the EPA regulations. For example, EPA Part 1060 does not allow the use of CA LEV III fuel; however, the proposed amendments to TP 901 and 902 *require* the use of CA LEV III fuel. In that particular case, therefore, “the divergence is such that the amended regulations will not qualify for a federal preemption waiver under the federal CAA, since the enforcement procedures are inconsistent between the CARB

and EPA regulations, such that manufacturers would be unable to meet both state and federal test requirements with one test vehicle [equipment in this case] or engine.” (See Federal Register Vol. 59 No. 138, July 20, 1994.)

- (vii) The Proposed SORE Amendments will lead consumers to accelerate the purchase of new SORE powered non-handheld products before MY2024, and to refrain from purchasing new non-handheld products after the 2024 MY (a “pre-buy/no-buy” response). The Amendments also will increase the purchase of equipment outside of California for use in the State, which will result in significant adverse air quality impacts in California, and which will significantly diminish the assumed benefits of the Proposed Amendments.
- (viii) As discussed in detail in the comments by the Portable Generator Manufacturers Association (PGMA), the Proposed SORE Amendments will compel portable generator engine and equipment manufacturers to exit the California market, since CARB staff have incorrectly assumed that portable generator manufacturers will continue to sell generators into the California market after MY2024 based on the current availability of marine generators, which are very different products that are subject to different federal regulations that account for how and where those generators are used.
- (ix) CARB’s Cost Assessment, Standardized Regulatory Impact Analysis, and Environmental Analyses are unreasonable and insufficient, and cannot meet CARB’s administrative rulemaking requirements, including under the California Administrative Procedures Act, the California Government Code, and the California Environmental Quality Act, since those Analyses, among other defects, fail to evaluate a full range of regulatory alternatives.
- (x) There is a far more cost-effective alternative to the Proposed Amendments for non-handheld products, which is an additional factor establishing the unreasonable nature of the Proposed SORE Amendments.

Cost-prohibitive, infeasible, unenforceable, and federally-preempted regulations do not reflect sound public policy, cannot be sustained, and should not be approved by the California Air Resources Board.

3. Legal Issues Impacting the Validity of the Proposed SORE Amendments

There are a number of fundamental legal issues that CARB will have to address and cure before finalizing the Proposed SORE Amendments. Otherwise, those amendments will not be eligible for a waiver of federal preemption or will be invalid on other grounds. The multiple legal issues impacting the validity of the Proposed Amendments are detailed below.

a. CARB must receive a preemption waiver from EPA *before* attempting to enforce the Proposed SORE Amendments

Section (209)(e)(1) of the Clean Air Act (CAA) provides in relevant part that “no State shall attempt to enforce any standard relating to the control of emissions” from new nonroad engines, unless the EPA Administrator authorizes a waiver of federal preemption. See 42 U.S.C.

§7543(e)(1) and (e)(2). From this, it is clear under federal law that while CARB can initiate and complete a rulemaking for the Proposed SORE Amendments, CARB will be precluded from implementing and enforcing those Amendments – including any of the ZEE requirements – until *after* an affirmative waiver determination is published in the Federal Register, which itself must come *after* the required notice and comment process regarding CARB’s application to EPA for a preemption waiver and a related authorization. (See 40 CFR §1074.101.) CARB needs to make that clear in the rulemaking record, and in any Board Resolution relating to this matter.

In the past, CARB has attempted to skirt the mandates of federal preemption by enforcing CARB’s nonroad emission standards – including the most recently revised evaporative standards for SORE that CARB adopted in 2016 – *prior to* receiving a preemption waiver and authorization. That is unlawful and could subject CARB to a mandatory injunction. CARB’s practice of honoring federal preemption in the breach cannot continue, and certainly not in connection with this very significant rulemaking. The scope and effect of express federal preemption, and any potential limited waivers thereof, are actual constraints imposed by controlling federal law, not mere suggestions that CARB can choose to ignore at its discretion. EPA has been crystal clear on this point:

EPA does not believe that section 209(e) may be interpreted to permit California to enforce any nonroad regulations before receiving authorization. Were California to enforce its regulations before it receives authorization, it would defeat the protection section 209(e) was established to provide—that California’s nonroad program only go forward if EPA authorizes it in accordance with the provisions of that section. Thus, EPA believes that while California may adopt nonroad regulations before receiving EPA authorization, its adoption must be conditioned upon EPA’s authorizing those regulations under 209(e). In short, California may adopt, but not enforce, nonroad standards prior to EPA authorization. (59 FR 36969, 36982, July 20, 1994.)

Consequently, in any final rulemaking documents, CARB must be explicit that it cannot and will not attempt to enforce any of the Proposed SORE Amendments until *after* EPA has published in the Federal Register a notice of decision waiving preemption as it otherwise would apply to the Proposed SORE Amendments.

b. CARB has failed to provide the required leadtime for the Proposed SORE Amendments

As noted, CARB must obtain a waiver of preemption and receive authorization from EPA *before* attempting to enforce the nonroad engine standards at issue. (See 42 U.S.C. §7543(e).) As a prerequisite to obtaining any such waiver, CARB must show that: (i) the proposed California nonroad standards are at least as protective of the public health as any corollary EPA standards; (ii) the proposed nonroad standards are needed to meet compelling and extraordinary air quality issues in California; and (iii) of most relevance here, the proposed standards and accompanying enforcement procedures are “consistent with this section [CAA section 209].” See 42 U.S.C. §7543(e)(2)(A). EPA has confirmed that the phrase “consistent with this section” includes “*all* of CAA section 209” (and includes an additional incorporation by reference of section 202), and that a preemption waiver will not be issued “if there is inadequate leadtime.” (See 59 FR 36969, 36983, July 20, 1994; 40 CFR §1074.105.)

One of the relevant provisions of section 209(e) in this instance is section 209(e)(B)(ii). That section of the CAA specifies that otherwise preempted nonroad regulations cannot be authorized and enforced unless California “adopted such standards *at least 2 years* before commencement of the period for which the standards take effect.” 42 U.S.C. §7543(e)(2)(B)(ii). (Emphasis added.) That provision, in essence, establishes a *minimum* lead time period – the period between the adoption of a CARB nonroad engine regulation at its enforcement – *of at least two (2) full model years*.

CARB has failed to provide the requisite, reasonable *minimum* 2-year leadtime period for the Proposed SORE Amendments. To the contrary, CARB is providing for only one (1) full year of lead time. That is unreasonable and unlawful, and will preclude CARB from receiving a preemption waiver for the Proposed SORE Amendments.

The SORE rulemaking at issue will be heard by the Board initially on December 9, 2021. That hearing likely will be followed by one or more 15-day change notices and comment periods. In addition, CARB staff will need to draft a comprehensive Final Statement of Reasons and other final rulemaking documents before ultimately sending the complete rulemaking file to the Office of Administrative Law (OAL) for its review and approval. Following OAL approval, the SORE regulations would then be transmitted to the California Secretary of State for publication in the California Code of Regulations. Only at that point would the SORE Amendments actually be “final.”

The main point from the foregoing is that the pending rulemaking to adopt the Proposed SORE Amendments will not be final until sometime well into 2022. As CARB is proposing to implement the zero-emission standards for all SORE, except generators, starting in model year 2024, CARB is only providing one full year of lead time for the proposed SORE zero-emission standards (including evaporative emissions). That is contrary to the clear dictates of CAA section 209(e)(2), and so is unlawful. Consequently, CARB will need to revise the Proposed SORE Amendments so that they take effect *no earlier than the 2025 model year*.

c. CARB must acknowledge that the Proposed SORE Amendments cannot and do not apply to smaller engines “primarily used” in farm and construction equipment

CAA section 209(e)(A) has established absolute non-waivable federal preemption for “new engines which are used in construction equipment or vehicles or used in farm equipment or vehicles and which are smaller than 175 horsepower.” (See 42 U.S.C. §7543(e)(A). The controlling federal regulations implementing that statutory provision make it clear that this absolute preemption applies to nonroad engines that are “primarily used” in commercial farming operations or “primarily used” in construction equipment at commercial construction sites. See 40 CFR §1074.5. In addition, EPA has specified that an engine that is used “51 percent” or more in farm- or construction- related activities meets the “primary use” test. (See *Id.* 59 FR 36969, 36978-79.)

To ensure consistency with controlling federal law, CARB will need to include a provision in the final SORE Amendments confirming that the Amendments do not and will not apply to engines less than 175 horsepower that are *primarily used* – 51% or more of the time -- in commercial farming and construction equipment. (See 40 CFR §1074.10.) Otherwise, the SORE

Amendments will unlawfully encroach into areas that are exclusively reserved, without exception, for federal jurisdiction.

d. CARB has failed to conduct the required Environmental Analysis for this rulemaking

CARB is taking the position that it does not need to conduct an Environmental Analysis (EA) for the Proposed SORE Amendments because CARB staff completed an EA five years ago in connection with the 27 potential mitigation measures outlined in CARB's 2016 State SIP Strategy, including a potential mitigation concept for SORE, and that should be good enough. CARB further asserts that the Proposed SORE Amendments are "substantially similar" to the "regulatory concept measure" for SORE that was outlined in the 2016 SIP Strategy. (See ISOR, p. ES-8, Section V.)

CARB's attempt to evade the requirement to conduct a fulsome EA by pointing to a few pages of analysis done for a five-year-old SIP Strategy is without merit. Section 60004 of Title 17 of the California Code of Regulations (CCR) requires that CARB prepare an EA for all proposed regulations, and further requires that the EA be a separate chapter of or appendix to the ISOR for the proposed regulations. Section 60004(b) goes on to specify the required content of the EA, all of which relates to conducting a full assessment of whether the proposed regulations could have a significant effect on the environment.

CARB can avoid undertaking and completing a full EA for a proposed regulation only under limited circumstances, including if there is a prior EA that "remains applicable to and is adequate for" the proposed rulemaking. (17 CCR §60004(b)(1)(B).) That is not the case here.

The EA that CARB is relying on and that was put together for the 2016 State SIP Strategy covered 27 potential mitigation measures that CARB proposed to implement to meet the State's NAAQS-attainment obligations. In that SIP Strategy, CARB noted that, among the various potential mitigation efforts, it intended to propose a control measure for small off-road engines in 2018, and that CARB hoped to achieve NO_x reductions of 4 tons-per-day (tpd), ROG reductions of 36 tpd, and PM_{2.5} reductions of less than 0.1 tpd by 2031. CARB described the potential SORE control measure as one that "will be developed for transitioning to zero-emission technologies, *including initial focus on incentives* for use of zero-emission equipment coupled with increasingly stringent emission standard for criteria pollutants and GHGs." (2016 State SIP Strategy, p. 115.) (Emphasis added.)

The EA for the SIP Strategy did not include any separate or distinct analysis of the potential environment impacts from the "regulatory concept" for SORE, and so included no separate analysis regarding the substantially increased storage, use, recycling and disposal of the lithium iodide batteries that would result from the envisioned SORE measure. CARB admitted as much in that EA, and specifically noted that more specific EAs *would need to be included in supplemental environmental documents*:

The level of detail in this Draft EA reflects that the State SIP Strategy is a broad program; consequently, **the analysis does not provide the level of detail that will be provided in subsequent environmental documents prepared for specific regulatory actions that ARB or other agencies may decide to pursue to reduce criteria air pollutant (CAP) emissions** (Cal. Code Regs, tit. 14 §15152.) As ARB

pursues regulations to implement any of the measures discussed in the State SIP Strategy, **each regulation would go through a project-specific environment analysis, and, as part of the Administrative Procedure Act (APA) process, a rigorous public review process. The Initial Statement of Reasons prepared for each proposed ARB regulation, also known as the Staff Report, would include a project-specific EA.**

(Draft SIP EA, p.3.) (Emphasis added.)

* * *

The level of detail of impact analysis [in the 2016 SIP Strategy] is necessarily and appropriately general, because the State SIP Strategy is a strategy and is itself programmatic. Furthermore, decisions by entities regarding the specific location and design of new facilities that may be undertaken in response to implementation of measures within the State SIP Strategy are speculative, if not impossible, to predict with precision at this stage given the lack of specificity of implementation of the specific measures, the unknown nature of new facilities that may be proposed, the influence of the business and market considerations in those decisions, and the numerous locations where such facilities might be built. **Specific development projects undertaken in response to specific measures to implement the State SIP Strategy would undergo required project level environmental review** and compliance processes at the time they are proposed.

(Draft SIP EA, p.4) (Emphasis added.)

Contrary to its own assertions and assurances in the 2016 State SIP Strategy, CARB is now claiming that, despite its prior admissions, it does not need to conduct a regulation-specific EA after all, and that the general EA developed five years ago for the 2016 SIP is fine, even though CARB previously conceded that the generic EA “does not provide the level of detail *that will be produced* in subsequent environmental documents.” CARB’s attempt to duck its responsibility to conduct an actual regulation-specific EA for the SORE Amendments is revealed to be improper and invalid by CARB’s own words.

As noted, the broad and non-specific SIP-related EA assumed that CARB would adopt SORE mitigation measures in 2018, with implementation beginning in 2022. (Draft SIP EA, p. 12.) In describing the mitigation measures for SORE that the generic EA evaluated, CARB stated that it would “develop and propose a regulation to tighten exhaust and evaporative emission standards for SORE, which includes commercial lawn and garden equipment, *with the possible inclusion of **incentives** for manufacturers to produce zero-emission equipment.* (Draft SIP EA, p.32.) (Emphasis added.) The EA also noted that the intent was to “use **incentives** and natural turnover *to replace **25 percent** of all spark-ignited small off-road engines and equipment with zero-emission equipment **by 2030.***” (*Id.*)

The Proposed SORE Amendments at issue are markedly different and more expansive than the SORE “regulatory concept” measure generically considered in the 2016 SIP-related EA. The SORE amendments at issue are not simply a tightening of emissions standards along with efforts to *incentivize* a 25 percent turnover to ZEE by 2030. To the contrary, the Proposed SORE Amendments mandate *only and all ZEE* – 100% ZEE – starting in 2024, not 2030. That is a fundamentally different program with fundamentally different ramifications, including with

respect to the manufacture, storage, use, refurbishment and disposal of significantly increased volumes of lithium iodide batteries. Moreover, CARB is now assuming (albeit incorrectly) that the Proposed SORE Amendments will yield nearly twice the amount of emission reduction than were postulated under the 2016 SIP Strategy (*i.e.*, 55 tpd of ROG v. 36 tpd, and 7.5 tpd of NO_x v. 4 tpd). This too shows that the scope and impact of the actual SORE Amendments at issue are, in fact, substantially different from the generic “regulatory concept” that was given cursory review (along with 26 other mitigation concepts) in the EA for the 2016 SIP Strategy.

Notwithstanding CARB’s prior commitment to stakeholders, CARB now claims in the ISOR for this rulemaking that “no subsequent or supplemental environmental analysis is required for the Proposed Amendments.” (ISOR, p. 83.) The alleged basis for CARB’s claim is that “the Proposed Amendments are substantially similar to the regulatory concept measure previously included within the 2016 State SIP Strategy.” (ISOR, p. 84.) But CARB’s claim falls flat. First, as noted above, the Proposed Amendments are *not* sufficiently similar to the incremental incentive program envisioned in the SIP. And second, CARB previously conceded and committed in that SIP that regulation-specific EAs would be necessary and so “*will be provided.*” (Draft SIP EA, p.3.)

CARB’s other statements only highlight – not refute – the clear need for a separate detailed EA for this rulemaking. For example, CARB acknowledges that its 2016 EA concluded that “there could be potentially significant and unavoidable adverse impacts” to a wide range of environmental issue, including “agriculture and forest resources, short-term air quality, biological resources, and short-term hazards and hazardous materials.” (ISOR, p.85.) CARB also acknowledges that the 2016 EA did not do any sort of deep-dive into any of those anticipated adverse effects because “the potential impacts from development activities cannot be quantified to inform mitigation measures.” (ISOR, p. 86.) Thus, the 2016 EA really amounted to no actual EA at all. CARB’s ISOR for this rulemaking goes on to admit as much:

The indirect adverse impacts from a regulation or plan, such as the 2016 SIP Strategy, are so ill-defined and relatively speculative that it would be nearly impossible to adequately quantify the exact impacts from a regulation for purposes of establishing mitigation. Given this, while the final EA indicated that there may be potential adverse environmental impacts from the 27 measures in the 2016 State SIP Strategy as a whole, it concluded that **the impacts are speculative and cannot be precisely quantified until the scope of the measure is defined by actual proposed regulations.** (ISOR, p.86.) (Emphasis added.)

We are now at the point where we are dealing with an “actual proposed regulation.” Accordingly, by CARB’s own prior analysis, we are now at the point where an actual regulation-specific EA is required. In that regard, we have reached the rulemaking stage where CARB can and must fully evaluate all of the impacts from the dramatically expanded SORE Amendments, including through a detailed quantification of the amount of ZEE batteries that will be required to implement the Amendments, along with a careful quantification of the environmental impacts that will be associated with the increased production, import, use, refurbishment, re-use, recycling and disposal of those batteries. Other impacts requiring more precise quantification relate to the potential need for new facilities to recycle the significantly increased volume of batteries. Tellingly, CARB admits that the 2016 EA did not undertake any of those necessary analyses:

For the SIP Strategy, compliance-response development that could potentially occur is related to battery development (lithium mining, new or expanded battery recycling/disposal facilities) and new or expanded facilities to accommodate new product lines. As explained above, the Final EA could not predict with any accuracy the level of development and associated impacts that could occur when CARB adopts more stringent standards, and creates incentives for adoption of zero-emission technology, eventual transition to ZEE and enhanced enforcement. (ISOR, p. 93.)

The foregoing makes clear – as do CARB’s own prior admissions and assurances – that a separate regulation-specific EA *is required* and that the EA prepared for the 2016 SIP Strategy is not a sufficient substitute. That EA was inherently generic and was not intended to satisfy CARB’s EA-related obligations for this specific and different rulemaking.

In sum, CARB’s efforts to simply wave-off the need to conduct an actual EA are unavailing. CARB’s own prior statements in the 2016 SIP clearly establish that conclusion, and further establish that a fulsome EA is needed before this rulemaking can be considered or voted on by the Board. Without that necessary regulation-specific EA, this rulemaking will be invalid. Consequently, and as expressly acknowledged in the SIP-related EA, “a project-specific environmental analysis” is required in this case.

4. The Proposed Amendments to the SORE Regulations Overstate the Emissions from SORE and the Benefits of the Proposed Amendments

CARB’s estimated SORE population is based on fundamentally flawed and inadequate data from a survey conducted on CARB’s behalf by CSUF to support the update to CARB’s SORE Emissions Inventory and Model. More specifically, CARB contracted with CSUF to conduct a “phone survey” to update the SORE emissions inventory and model in 2017. CARB staff selected a phone survey with the supposed objective of obtaining “real world” data, rather than expanding on CARB’s previously-conducted field study in which equipment usage was actually metered in order to obtain a larger in-use data set.

While CARB staff state that the main goal of the survey was to calculate a more accurate inventory of SORE for emissions modeling (SRIA p. 3), that goal was not achieved due to the manner in which the survey was conducted and used. It is well recognized by researchers, and acknowledged by CSUF staff, that the trade-off in seeking to obtain a higher number of responses through phone surveys is a significant loss in the precision and accuracy of those responses. Indeed, CARB’s contract with CSUF specifically required that CSUF perform a quality assurance/quality control (QA/QC) review of the data generated by the phone survey (Task 9), but, contrary to that provision, no QA/QC was performed and no data was flagged or screened-out in the report issued by CSUF. In addition, even without excluding any data, the CSUF Survey Report acknowledges that there were not enough responses in some equipment categories (e.g. commercial non-handheld equipment) to constitute a representative sample, so surrogates were used to scale-up populations and subjective “weighting adjustments were made.” (See p. 557 of the CSUF Survey.) However, even using those concededly arbitrary techniques, the sample size for various categories was still so small that the data was deemed unreliable.

In addition, and again contrary both to the terms of the contract between CSUF and CARB (Task 12) and to standard research protocols, no interim data reviews were performed nor were any interim reports issued in order to identify potential issues with the data-collection and analysis efforts prior to the final report's completion. The absence of such analyses makes it very difficult if not impossible to assess or validate the underlying data and the assumptions and conclusions drawn from those data. In that regard, the entire survey could have been undermined if a serious issue had been identified through a proper QA/QC process, which was not conducted in this case. Notwithstanding all of those breaches of the basic and necessary QA/QC process, the CSUF Survey and Report nonetheless are the basis for CARB's underlying 2020 SORE Inventory and Model. The repeated breaches of the terms of the contract with CSUF, and the related disregard of standard research protocols, undermine the foundation of CARB's entire rulemaking.

After multiple requests over an unnecessarily extended period of time, CARB staff provided the raw data for the CSUF Survey and Report to the Outdoor Power Equipment Institute (OPEI) and EMA for review. OPEI and EMA contracted with Air Improvement Resources (AIR) to assist with the review. During this third-party expert review AIR discovered that CSUF did not perform any QA/QC of the data summarized in their report - - the same data that CARB subsequently relied on for the Draft 2020 SORE Emissions Inventory and Model. The basic conclusion from AIR's Report, a copy of which is attached as **Exhibit "A,"** is that "[C]ARB's small engine survey was flawed, leading to a significant overstatement of the small engine inventory."

OPEI and EMA met with CARB staff on a number of occasions to explain AIR's analysis and concerns with the CSUF Survey, and to highlight the impact of the survey's failure to screen-out suspect and "outlier" data, which had resulted in a substantial overestimation of the California SORE population and hours of use, and had led to a significant overestimation of the SORE emissions inventory as a whole. A detailed discussion of the inherent problems with the underlying data is included in OPEI's Comments on the Draft 2020 SORE Inventory and Model, dated June 30, 2020 (incorporated by reference herein).

While CARB staff made some minor adjustments to the final 2020 SORE Emissions Inventory and Model in response to the OPEI and EMA comments, an analysis of the non-handheld equipment segment performed by AIR still shows that the non-road emissions inventory continues to be significantly overstated. In particular, AIR's analysis reveals that the Final 2020 SORE Emission Inventory and Model still overstates the non-handheld SORE equipment population once standard QA/QC protocols are applied to the underlying survey data. (See Exhibit "A.")

The AIR Report also identifies concerns with other assumptions used by CARB Staff in the Final 2020 SORE Emissions Inventory and Model. AIR notes that both the exhaust and evaporative emission factors for the non-handheld engine segment are overly pessimistic. AIR also highlights the manner in which CARB staff overestimated engine "on-times" for SORE. However, the most significant concerns relate to the assumptions CARB used for the evaporative emission factors. Specifically, CARB's generator running losses are based on an ATL study conducted in 2002–2003 in which only two generators were tested – a 1995 generator and a 2002 generator. No additional testing was done in that study despite CARB's intervening adoption of more stringent evaporative emission control regulations in 2006–2013, and the additional subsequent amendment of those tightened regulations in 2016. That has resulted in a significant overstatement of running losses in the SORE Emissions Inventory and Model over the useful life of the SORE at issue. In

addition, the assumption for diurnal losses for lawnmowers is skewed by the inclusion in the emissions model of a 1973 lawnmower and a 1989 lawnmower, both of which are described as “liquid leakers.” Including those outliers is simply unreasonable and not a reflection of the “actual” emissions from this product category. If CARB’s assumptions are corrected, as they should be, the non-handheld emissions inventory for ROG + NO_x is further reduced by 5 tpd, or nearly 15%. (See AIR Report, p. 10.)

CARB’s 2020 SORE Emissions Inventory and Model also do not account for a reduced turnover (or “scrappage”) rate, or for the loss of potential emissions reductions (or “leakage”) due to increased out-of-state purchases, which will occur due to the increased product costs in California that will result from the Proposed SORE Amendments. Those foreseeable market response are described in the NERA/Trinity “Cost-Effectiveness Report,” a copy of which is attached hereto as **Exhibit “B,”** as follows:

Facing higher equipment prices [due to the SORE regulations], some California consumers will change their behavior, either retaining existing equipment rather than buying new equipment (termed the “scrappage effect” because this behavior reduces scrappage rates for existing equipment), or buying the new equipment in a state without the higher prices (termed the “leakage effect” because emissions “leak out” to uncovered sources rather than being reduced on net).

Since they are using their equipment longer (and there is therefore less scrappage of old equipment), these emissions from the existing equipment offset emissions reductions that would otherwise arise from new lower emissions standards and reduced levels of equipment sales due to higher prices in California.

The leakage effect likewise results from the increases in new equipment prices in California, with some customers substituting a new equipment purchase in California with a purchase outside California (e.g., Nevada). Non-California purchases due to the leakage effect mean there are no emission reductions arising from these purchases despite the more stringent California standards for new equipment.

(See Exhibit “B,” pp. 10-11.)

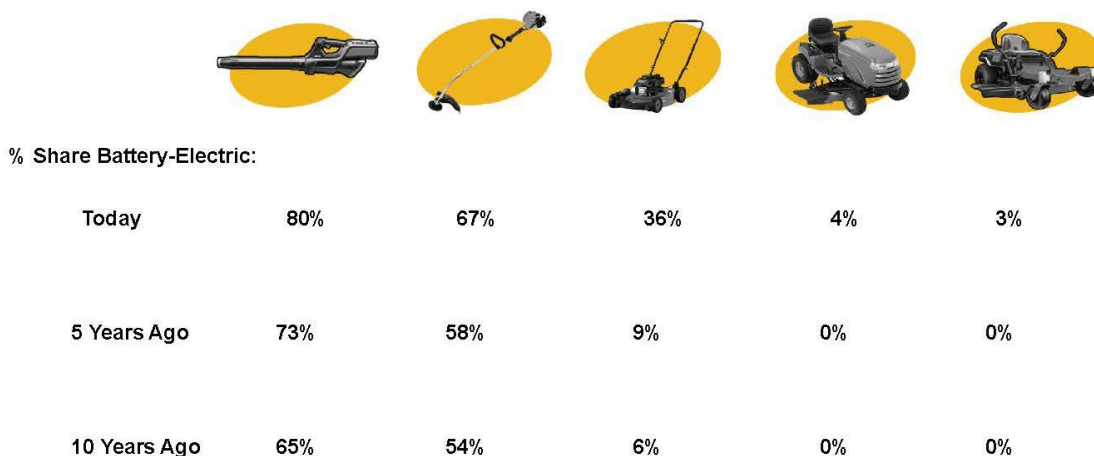
Tellingly, CARB did not take any of those reasonably anticipated market responses into account in assessing the supposed merits of this rulemaking. Accordingly, given the foregoing, it is clear that the non-handheld SORE emissions inventory that CARB has estimated is substantially overstated, and that the projected emissions benefits of the Proposed Amendments are substantially overstated as well and will not be achieved.

CARB staff are also inconsistent in their use of ZEE market-penetration estimates depending on the point they wish to put forth. On the one hand, the ISOR includes numerous statements regarding the growing market penetration of ZEE products in the SORE segment as evidence for a feasible rapid transition to ZEE products - - a transition that has already taken place in for multiple products in the SORE segment, and which will continue, without *any* regulation. And yet, staff also have taken the position that additional regulation is required in order to force

the transition of the market to ZEE. CARB cannot have it both ways. In that regard, the 2020 SORE Emission Inventory and Model are overly conservative in their estimates of SORE-product ZEE penetration rates based on current market data. The AIR Report provides a more realistic analysis of the anticipated emissions inventory reductions that will occur without any additional regulatory action.

Manufacturer-derived data show the actual market penetration rates for ZEE in the residential SORE market segment, on the one hand, and in the commercial non-handheld market segment, on the other. Those data - - depicted in the graphic below - - show that while the ZEE market-penetration rate is already reaching up to 80% in the handheld marketplace, without any regulatory mandate, the current feasibility and “utility” issues that apply to the uptake of ZEE in the commercial non-handheld segment have limited ZEE penetration rates in that market to just 3% to 4%.

Market Share and Adoption Trends



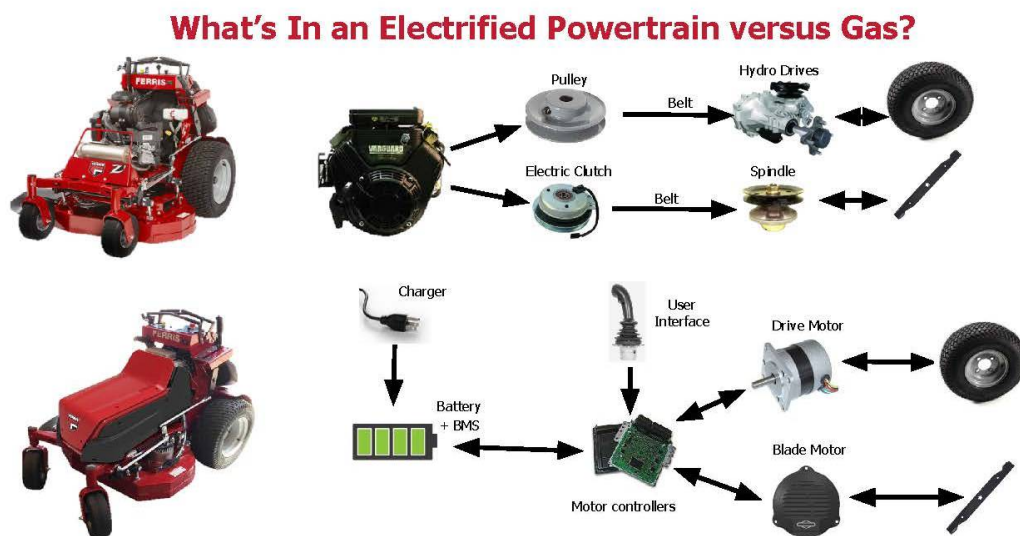
The “fix” to the dramatically different market-penetration rates at issue, however, is not across-the-board ZEE mandates, but rather providing the necessary time for commercial non-handheld products to achieve the necessary improvements in ZE technology (including delivered-power and run-times), utility and price-differentials. That necessary time is 6-8 years, depending on the non-handheld product lines at issue (e.g., zero-turn commercial mowers), not just the one year of lead time that CARB would allow under its ill-conceived ZEE mandates. Simply stated, near-term mandates will not bridge the gap in the uptake of ZEE that exists between residential and commercial SORE. Market forces and resultant product improvements over a reasonable

timeframe (6-8 years) will do that without the need for ill-advised and ill-suited regulatory intervention.²

5. The Proposed Amendments to the SORE Regulations are not Technologically Feasible

CARB's ISOR sets forth CARB's assessment of the technical feasibility of the Proposed SORE Amendments. As detailed below, the rapid ZEE transition that CARB staff is mandating under the Proposed Amendments is infeasible, particularly for the non-handheld market segment, without significant innovation and development in battery and energy storage technology, and fails to provide adequate leadtime for the technology transition from spark-ignition engines to zero-emission battery-power in a non-integrated industry that includes well over a hundred different applications. Transitioning each of those many product applications and platforms will require separate development, design and testing, which means that a wholesale transition of all SORE to ZEE simply cannot be accomplished on the timeline that CARB staff have laid out.

Transitioning a SSI-powered piece of equipment to ZEE is not a simple process. As depicted below, all elements of the product's powertrain need to be replaced and reconfigured:

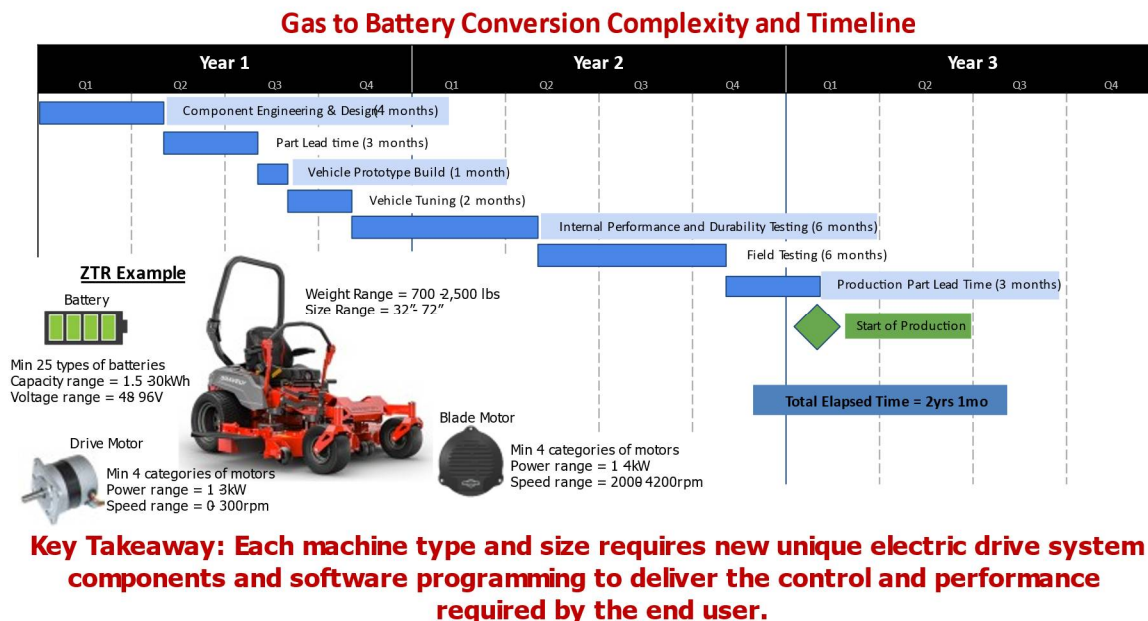


Key Takeaway: There is more to a full electric ZTR than just the battery, and components are just beginning to hit performance levels needed to fully serve the Commercial ZT market.

(Exhibit C, p. 1.)

In light of the foregoing, the actual timeline for transitioning a particular product line from an SSI-powered model to a ZEE model, while also ensuring that the product continues to perform in accordance with user expectations, is more than two years *per product line*, as depicted below:

² The slide included above is taken from a presentation (at p. 6) that an EMA-member OEM has prepared to explain the complexities and near-term infeasibility of transitioning the entire SORE market to ZEE by 2024. That presentation is attached thereto (and incorporated by reference herein) as **Exhibit "C."**



(Exhibit C, p. 4.)

While a given manufacturer may be able to implement the SSI-to-ZEE transition for more than one product line at a time, a reasonable timeline for converting **all** of a manufacturers' covered product lines to ZEE is 6-8 years, not the one full model year that CARB proposes to provide. That unreasonable (and unlawful) lead time is simply and utterly infeasible.

In that regard, CARB has not made any demonstration proving that ZEE are both available and capable of performing equivalently to the SSI engine-powered equipment currently on the market. As previously noted, CARB staff even admitted as much, stating that "the comparison is not comprehensive and does not demonstrate that SORE equipment and ZEE have identical performance" (Staff Report p. 13).

The following graphics, taken from pages 2, 5 and 7 of Exhibit "C," illustrate the key operative issues that will need to be overcome - - over the ensuing 6-8 years - - before commercial non-handheld SORE will be able to achieve ZEE penetration rates similar to residential SORE. Those key issues include the facts that commercial SORE require an order-of-magnitude more battery power than residential SORE products, have fundamentally different use cases and operational requirements, and fundamentally different price premiums.

How Much Battery Do These Products Need?



Leaf Blower

Residential = .36 kWh - 1.6 kWh
Commercial = 7.2 kWh - 17.2 kWh



Zero Turn Mower

Residential = 1.5 - 6 kWh
Commercial = 10 - 20 kWh



Walk Behind Mower

Residential = 5.6 kWh
Commercial = N/A



String Trimmer

Residential = 1.6 kWh
Commercial = 7.2 kWh - 17.2 kWh



Tractor

Residential = 1.5 - 6 kWh
Commercial = N/A

Key Takeaway: Amount of battery power needed varies by application, within application and is dependent upon multiple variables

Residential and Commercial Use Cases



	Residential	Commercial	Residential	Commercial	Residential	Commercial
Frequency of Usage	2 Xs per month	Daily	1 X per week	Daily	1 X per week	Daily
Length of Usage / Use	20 min.	4 hours	48 min.	4.2 hours	54 min.	5.8 hours
Replacement Cycle	~5 years	~6 months	~7 years	~1 year	~10 years	~3 years

Key Takeaway: Residential users operate equipment on a less frequent basis than commercial, which means longer replacement cycles and more available time to charge batteries compared to those operating equipment on a daily basis.

Sources: UNR's 2020 Study of Commercial Lawn Mowers and Grounds Maintenance Equipment, Iron Iron Battery Equipment Usage by Landscapers, Handheld Market Profile of Commercial Users, Power Pulse/CMT, Backyard Buzz, Infohub EFI Data

Electric ZTR Capital Investment Premium

Commercial ZTRs



Gravely ProTurn EV
Retail Price = \$39,000*
(battery ~ 18% of retail price)



Gravely ProTurn 100 Gas
Retail Price = \$9,823
(engine ~ 7% of retail price)

Residential ZTRs



Cub Cadet Ultima 42in
Retail Price = \$4,999
(battery ~ 27% of retail price)



Cub Cadet Ultima ZT1 42in
Retail Price = \$2,999
(engine ~ 20% of retail price)

Key Takeaway: The initial cost premium for electric is severe, especially for commercial.

*Includes 2 extra batteries to achieve avg 5.8hr run time needed for commercial operators

CARB's feasibility assessment for the Proposed SORE Amendments, in essence, skips over the foregoing key factors, and instead purports to rely on a *market review* of just nine (9) SORE equipment categories, only four (4) of which are non-handheld products. No actual testing of any products based on any performance metrics was performed, however, nor were the SSI and ZEE products compared based on the applicable *user performance criteria*. (See SRIA Baseline Information, pp 11-15.) As further purported support for the alleged feasibility of the Amendments at issue, staff simply point to a CARB-sponsored "ZEE Roadshow," which focused almost exclusively on handheld equipment and walk-behind mowers, and which does not include any quantified data, but rather only anecdotal remarks solicited by CARB staff after the so-called "roadshow." CARB attempts to portray those anecdotal remarks as support for the "wide acceptance" of ZEE product.

Contrary to CARB's purported "research," there is a broad power spectrum currently filled by SSI-powered products for which there currently is, nor will there be by MY2024, a ZEE alternative that can deliver consistent, reliable, durable performance over the time and under the conditions in which the equipment is typically used. Attached is a list of the wide variety of equipment that currently utilize small spark-ignition engines. That list, and the related schematic of the non-integrated SORE industry distribution system, clearly demonstrate the breadth of the SORE market that CARB seek to convert to ZEE in less than two-years' time. (See Industry Product/Application List, and Distribution System, attached as **Exhibit "D."**)

A "Utility Analysis" that Trinity prepared for EMA (a copy of which is attached as **"Exhibit E"**) describes in detail the manner in which CARB's SRIA fails to provide an "apples to apples" comparison between SSI and ZEE SORE. For example, CARB staff state that "ZEE equipment available today have many of the same characteristics as their SORE counterparts. Self-propelled lawn mowers with the same cutting width and adjustable deck heights as many SORE lawn mowers are available as ZEE. Riding mowers with the same cutting width and speed range as many SORE riding mowers are also available as ZEE." (Staff Report ES-7, pp. 13-21) However, those cited "characteristics" are *not the actual performance criteria* that residential consumers look

for based on CARB’s own survey data, which actual criteria include *cost, power, and time to re-fuel/recharge*. Nor are the “characteristics” used by CARB staff to evaluate professional/commercial equipment the performance criteria that professional/commercial consumers actually look for, which are, again based on CARB’s own survey data, *performance, run-time, and cost*. In many cases, a comparable ZEE product (based on the factors which actually motivate purchase decisions) *does not currently exist*, much less is it available at a reasonable cost. CARB’s rebuttal to this fact is simply an aspirational statement that “even though the adoption rates for ZEE among professional landscapers are lower than for residential users, there is substantial evidence that all new small off-road equipment can be zero emission.” (Staff Report p. ES-7). But CARB presents no such “substantial evidence” in the ISOR for this rulemaking because there is none.

A graphic summarizing the actual utility issues that professional landscapers face in assessing when it may be feasible and cost-effective to purchase commercial ZEE equipment - - factors that CARB largely overlooks - - is set forth below:

Commercial Users Need Some Assurances Before Switching to Battery

<p>Landscaper interest in a battery-powered ZTR due to:</p> <ul style="list-style-type: none"> • No gas saves money & eliminates a cause of downtime • Less required maintenance should save money & downtime over the life of the mower • The assumption that a battery -powered ZTR will have the same run time & power output as a gas -powered model - if the run time is less than a full day, assume is “rapid charging” or swapping batteries in field is possible 	<p>Landscaper skepticism exists around:</p> <ul style="list-style-type: none"> • <u>Price</u> - expect a battery -powered ZTR to be more expensive, but not exponentially so • <u>Promises</u> - new technology so need to be able to trust OEMs / dealers to be up front. Will promised run time hold in the “real world?” • <u>Durability</u> - how will the technology age under the conditions commercial equipment is subjected to? Battery -powered handheld equipment begins to lose power & run time over time - will mowers do the same?
<p>Concerns can be overcome by:</p> <ul style="list-style-type: none"> • <u>Explaining the investment</u> - how long will it last? What is the ROI - both over the life of the mower and in a typical season? • <u>Proving it</u> - provide dealers and / or influential cutters a way to show that the claims being made about battery ZTRs hold in the “real world.” • <u>Include extra batteries</u> - insurance against downtime, the possibility that run time isn’t as long as promised 	<p>Less of a concern:</p> <ul style="list-style-type: none"> • <u>Charging</u> -if charging is similar to handhelds, charging seems straightforward. A way to contain cords in the shop and / or charge an entire trailer would be helpful.
<p>Key Takeaway: Given the investment of battery powered equipment, understanding the ROI and successful use cases to establish credibility in battery will be important</p>	

Sources: Ride Electrification Research, CommercialEndUsers (August 2021)

(Exhibit C, p. 9.)

CARB’s feasibility assessment also fails to account adequately for the upfront costs of acquiring ZEE (which are substantial as depicted above), and again fail to apply the actual performance criteria to identify comparable equipment. For an example of the “analysis” provided by CARB staff, one can review the discussion regarding professional pressure washers. CARB’s discussion of power washers (see SRIA, at pp 44-45) completely dismisses the relevant performance-criteria differences between ZEE and SORE-powered power washers, and simply assumes that residential and professional products are interchangeable. CARB’s analysis then goes on to make broad conjectures about what professional users will do in the absence of SSI-powered products – when only corded power washers powered by portable generators are available – and then concludes that over time professional users simply will choose not to own those ZEE power

washers, but will choose to rent them instead, so there will be a reduction in the aggregate purchase costs for this equipment population.

CARB's conjecture fails to account for the underlying basic infeasibility of transitioning residential power washers to ZEE due to the price and non-availability of corded low-pressure/low-flow ZEE pressure washers. Indeed, CARB's baseless conjecture about power washers is belied by CARB's own conclusions regarding the market's likely inability to accommodate residential ZEE snow-throwers due to the same type of product limitations that apply to pressure washers. (See SRIA, p. 43.) The Proposed Amendments also fail to account for what is acknowledged in the SRIA – that there are simply no battery-electric power washers currently in the market - a gap in the market similar to that in the portable generator market, which CARB acknowledged and provided for by including interim standards and additional lead time for the transition of portable generators to ZEE.

All of those shortcomings between what commercial ZEE can do currently and what the users of commercial non-handheld products need those products to do – what amounts to a fundamental “utility” gap – are fully detailed in the Trinity “Utility Analysis.” (See Exhibit “E.”) CARB's “analyses” do nothing to account for or bridge that gap.

In the absence of data, CARB staff simply jump to the conclusion that because battery technology exists for some specific products, manufacturers will be able to flip a switch and “just-like-that” convert **all** spark-ignition powertrain engines and the equipment they power into battery-powered products - - two completely different powertrain technologies, as depicted previously - - and will be able to complete that transition in less than 2 years. But as shown above in the graphic that compares the different powertrain componentry at issue, that is not even remotely feasible. It is even more infeasible under the current COVID-impacted market conditions, which include widespread component-part shortages, and significant global supply-chain disruptions.

CARB staff also significantly underestimate both the initial cost of acquisition and the total cost of ownership (“TCO”) of ZEE. By way of example, and as discussed more fully in the OPEI Comments on the Proposed Amendments, CARB staff's assessments of TCO significantly underestimate the cost and number of batteries required, the number of chargers required, and the number of replacement batteries required given the equipment useful life at issue - - e.g., 300-500 cycles/charges over a 6-year useful life for a walk-behind mower; and 650 cycles/charges over a 6-year useful life for a riding mower. CARB's failure to account for those issues in a reasonable manner is significant, since batteries can be the most expensive components of ZEE. In addition, professional users may need to install an extra 100-amp circuit to support the required recharging, and there may be additional handling and storage requirements given the fire hazards of lithium ion batteries and the number of batteries used. And, of course, there are disposal costs associated with the spent batteries that are not accounted for in CARB's TCO assessment. Those additional costs all increase the TCO calculus and negatively impact the already lengthy payback periods for non-handheld ZEE product. (SRIA pp. 66–68.) OPEI's analysis using the CSUF data shows the upfront costs of acquisition to be approximately *twice* that of the CARB estimate, and *three times* more than CARB's estimated operational costs.

Ninety-nine percent (99%) of landscapers are small business. They primarily use lawn and garden chainsaws, lawn mowers, leaf blowers, string trimmers and hedge trimmers. (SRIA, p. 67.) Significantly, the average income for these small landscaping businesses is \$32,000, below the

poverty level for a family of four. Thus, the significant cost impacts of the Proposed Amendments are real and will be imposed on real businesses – most of which are minority-owned -- that are simply unable to absorb the resultant costs. The SRIA also posits that some professional users who purchase certain types of ZEE equipment instead of SSI-powered SORE could experience cost-savings within a product lifetime equivalent to the median equipment age in the CSUF Survey at 2023 prices. However, for most other equipment types, all of which is powered by non-handheld engines, cost savings could only occur if the equipment is kept longer than its useful life. Examples of these other equipment types include professional corded power washers and ZEE riding mowers. (SRIA p. 66.)

CARB also asserts that ZEE generally will have a longer lifetime than equipment powered by small spark-ignition engines. But that is based on a review of limited warranty periods for select products, which again fails as an “apples to apples” comparison, since it mixes product and component warranties and, fails to utilize publicly available data showing that (as noted above) battery life is typically 300–500 cycles (charges) for the types of batteries used in small products like walk behind mowers, and 650 cycles (charges) for batteries used in larger products like riding mowers. (See Staff Report pp. 19-21.) CARB staff do concede that “there may be a cost to comply” for manufacturers, but then minimize the impacts by concluding that those costs will simply be passed on to consumers (SRIA p. 37) without accounting for any such costs in CARB’s modeling of TCO. CARB staff also admit that the assumed on-going cost savings of ZEE vs. gas are dependent upon the relative prices of electricity vs. gasoline, two commodities which have experienced significant price fluctuations in recent years. (SRIA p. 51.)

Just as significant, and as already explained, CARB cannot demonstrate that manufacturers will have sufficient lead time to incorporate into their product development and manufacturing plans the changes required to meet the wide-ranging MY2024 ZEE mandates or the MY2024 through MY2027 standards for portable generators. Indeed, by the time the Proposed Amendments will become final in 2022, after OAL approval, manufacturers will have only one (1) full year of lead time to try to meet the MY2024 requirements. That amount of lead time is clearly inadequate, and, as noted, is directly contrary to the controlling provisions of the federal Clean Air Act, which will preclude a preemption waiver for the Proposed Amendments, and which will render the 2024 MY standards and requirements invalid and unenforceable as a matter of law.

6. The Proposed Amendments to the SORE Regulations are Cost-Prohibitive

CARB’s Cost Assessment is completely inadequate and is not supported by the relevant technology assessments or data. Consequently, CARB’s Cost Assessment is wholly insufficient to support this proposed major rulemaking.

CARB assumes that there are existing ZEE engines and equipment currently on the market in California, and that no significant R&D costs or manufacturing changes will need to be made for the wholesale transition of SORE to ZEE by MY2024. That assumption is simply incorrect, as detailed above, and is wrongly premised on CARB’s flawed comparison of existing ZEE product with currently available SSI powered-product and, in the case of portable generators, on the certification data for just two (2) products, one of which is actually a non-representative *marine* generator.

CARB also incorrectly assumes that manufacturers will “spread costs” and not exit the California market by using emission credits to maintain available products until the credit banks are depleted and ZEE are adequately phased-in. (See SRIA pp. 21 and 44.) That aspirational assumption, however, does not account for: (i) the differences in the exhaust and evaporative emission credit banks that are held by each manufacturer in a non-integrated industry; (ii) how – and by which entity – SORE products are actually certified for sale in California; and (iii) the fact that SORE manufacturers that utilize the component certification process do not generate any evaporative emission credits. Indeed, some EMA members do not have sufficient credits to support **any** sales of non-ZEE after MY2024. Other members estimate they may be able to continue California sales for just 6 months to one year after MY2024. CARB’s proposed changes to add trading to the existing averaging and banking program do not close this gap.

EMA supports the comments that the Portable Generator Manufacturers Association (PGMA) previously submitted in response to the CARB Workshops on the SORE Amendments. As noted in those comments, a significant flaw in the SRIA analysis of the portable generator market (SRIA, at pp. 43–44) is the fact that a marine generator is used as a surrogate for a professional grade portable generator. Those are two mechanically different products, designed to different federal standards based on the environments in which they are used (i.e., marine vs. land), and their disparate costs reflect those differences. In addition, the SRIA assumes that credits can be used to maintain currently-priced product for approximately 6% of the generator market from MY2024 to MY2027, thereby spreading out the increased costs. That assumption is simply incorrect given the non-integrated nature of the non-handheld market, and the widespread use of the design certification process under which no evaporative emission credits are generated. The assumption also fails to take into account which manufacturers have credits, the type of credits they have, and how the credits can actually be used by manufacturers and the proposed revisions to the averaging, banking and trading program cannot address the shortfall.

CARB asserts that small businesses will benefit from an assumed increase in the durability and useful life of ZEE, including for portable generators. But professional/commercial products are already certified to 500/1000 hours, so the increased durability claim by CARB staff is dubious at best. Moreover, no data support CARB’s claim that ZEE batteries can be used in several products within a manufacturer’s family, off-setting cost/additional purchases. That may be true for certain *residential* users, but it completely overlooks the fact that business and professional users will likely use multiple pieces of equipment at the same time, so a battery would still be needed for each unit. That claim also overstates the interchangeability of batteries in ZEE products. Generally, interchangeability is limited to a single piece of equipment from a manufacturer’s “family” of products, and in some applications, such as riding mowers, the equipment must be plugged into an outlet like an electric car in order to be re-charged. CARB also cites no data in support of its suppositions that ZEE maintenance is less intensive and required less frequently, and that ZEE are more durable and need less backup equipment and spare parts.

CARB attempts to buttress its fundamentally unreasonable cost assessment by claiming that ZEE purchasers would “experience savings” resulting from longer life and fewer repairs. As noted, those TCO assumptions are not supported by representative data, but rather reflect CARB staff’s cherry-picking market data such as warranty periods for select products and components, and then extrapolating that product-specific information to a wide array of products across residential and commercial products and product categories. CARB’s assertions are, therefore,

incorrect and completely undercut by CARB's failure to compare "apples to apples." (Id.) (See Trinity "Utility Analysis," Exhibit "E.")

On the benefits side of the cost-benefit calculus, CARB's postulated health benefits analysis relies on an EPA quantification of the health risks associated with exposures to PM – the same quantification methodology that CARB has attempted to use as support for CARB's ACT and Low Carbon Fuel Standards.

The economic value associated with reduced premature mortality is the principal monetized benefit of the Proposed Amendments. The first step in assessing those aggregate benefits is estimating the total tons of ROG and NO_x (and secondary PM_{2.5}) that will be reduced due to the proposed regulations. As discussed above, however, CARB's estimates in that regard are incorrect due to the significant overestimation of emissions reductions from the Proposed Amendments. That has resulted in a similar significant overstatement of the putative public health benefits.

Another unreasonable aspect of CARB's cost-benefit assessment methodology is that it relies on emissions-component failure rates associated with components certified to the evaporative regulations that were revised in 2016 and implemented in MY2020, and on CSUF survey data related to engine maintenance, and then "extrapolates those rates" in the emissions inventory to justify additional evaporative emission reductions. CARB testing performed on MY2020 and MY2021 certified evaporative components shows all tested components to be in compliance. Thus, CARB's extrapolation rationale is not a reasonable methodology given the significant differences between the SORE models tested previously in connection with the revisions to the evaporative standards in 2016, and the current SORE models that are certified to current standards. Nor does it recognize that the cited emission "failures" are almost wholly attributable to shed-tested portable generators manufactured by non-US entities. And, as previously discussed, the failure to properly QA/QC the CSUF survey data makes those data unreliable. CARB's assertions based on those data are simply not reasonable.

When reality-based assumptions are used, the Proposed Amendments to the SORE Regulations more likely will have negative emissions-inventory impacts. (See Exhibits "A" and "B.") Those likely negative impacts amount to an additional factor supporting the comparative cost-effectiveness of EMA's alternative proposal, as discussed below.

Independent experts at NERA and Trinity have conducted a comprehensive cost-benefit study regarding the Proposed SORE Amendments focusing on engines that power non-handheld equipment. (See attached Exhibit "B.") The NERA/Trinity Report is an economic analysis based on two types of economic analyses: one that ignores market-price effects, and one factors-in market-price effects. Market price effects include the impacts of cost, scrappage and leakage, which will increase emissions and off-set expected reductions. The NERA/Trinity Report compares three different widely ranging alternatives. In contrast, CARB's alternative analysis only includes potential alternatives that still mandate a broad-based unrealistic transition to ZEE.

As explained in Exhibit "B," the Proposed Amendments are cost-prohibitive when compared to the alternatives analyzed by NERA/Trinity, and when compared to the benchmark cost-effectiveness guidelines provided under the Carl Moyer Program, which are \$30,000/ton, and \$100,000/ton for zero-emission projects. As detailed in the NERA/Trinity Report, and as discussed

more fully below, when market-price effects are taken into account, the Proposed Amendments actually have a *negative incremental cost-effectiveness* when compared against more reasonable regulatory alternatives, and have a specific incremental cost factor that exceeds \$304,000/ton. In comparison, EMA's alternative proposal would achieve greater lifetime emissions when market effects are taken into account, at a fraction of the cost (*i.e.*, 62% emission reductions from the baseline at an incremental cost of approximately \$7000/ton).

7. EMA Has Proposed a More Cost-Effective Regulatory Alternative

EMA has proposed a more cost-effective alternative to CARB's cost-prohibitive and infeasible SORE Amendments. EMA's alternative proposal is inherently more reasonable because it recognizes the fact that ZEE products will not be available over the nearer-term for a wide variety of non-handheld products, and so should not be mandated across-the-board. Thus, and unlike CARB's Proposed SORE Amendments, EMA's alternative "Tier IV" proposal is both realistic and implementable. EMA's proposal is also California-specific and tailored to address the unique air quality concerns in California that are distinct from the rest of the United States.

Both AIR and NERA/Trinity have assessed the relative efficacy of EMA's proposal as compared with the Proposed SORE Amendments. The AIR comparison includes a partial inclusion of the "leakage" that will result from CARB's SORE Amendments, but does not factor-in the decreased "scrappage" that also is likely to occur. The NERA/Trinity comparative analysis includes both the reasonable anticipated "scrappage" *and* "leakage" impacts. As explained below, AIR's analysis reveals that even when leakage and scrappage are not fully accounted for, EMA's proposal is largely equivalent to the Proposed Amendments at a fraction of the cost. The NERA/Trinity analysis demonstrates that when leakage *and* scrappage impacts are both factored-in, EMA's proposal will be *more effective* than the Proposed SORE Amendments, both in terms of emission reductions and costs.

Under EMA's alternative proposal, emission standards for ROG + NO_x would be set at 6 g/kw-hr for Class 1 engines starting with the 2025 model year, and 3 g/kw-hr for Class 2 and > 825 cc engines starting with the 2026 model year. The durability period for Class 1 engines would be 500 hours, and for Class 2 and > 825 cc engines the durability period would be 1000 hours. Those proposed alternative exhaust emission standards match CARB's proposed standards for generators for model years 2024-2027. EMA's proposal also includes a zero-emissions standard for residential lawnmowers starting in model year 2025, and a special category for "fixed mount" generators – generators that are intended for installation in a vehicle, vessel or other similar mobile application for the purpose of providing energy for functions other than propulsion, and that are integrated into the vehicle's mechanical and electrical systems -- which would be subject to the same exhaust standards and durability periods as Class 1, Class 2 and > 825 cc engines.

a. AIR's comparative analysis

AIR used CARB's SORE 2020 model emissions to estimate the benefits of the EMA proposal in comparison with CARB's Proposed SORE Amendments, with some modifications. First, AIR modified CARB's estimated running-loss emissions for generators and diurnal and resting-loss emissions for lawnmowers (and for other equipment types that utilize those estimates of evaporative emissions) to reflect more up-to-date emission factors, since CARB's analysis used non-representative data from a 1995 and a 2022 model engine. Next, AIR used updated annual-

use estimates to evaluate both the CARB and EMA proposals. For the EMA proposal, exhaust and evaporative emissions for residential lawnmowers were set to zero starting with model year 2025. Exhaust emissions for all other non-handheld equipment were set to the same emissions estimated by CARB for generators during the 2024-2027 time period. (See Exhibit “A.”)

The ROG + NO_x emission inventories resulting from the EMA proposal in comparison to the CARB proposal are shown in Figure 6 below (reproduced from AIR’s Report). This inventory analysis uses the updated AIR annual-use estimates. AIR found that EMA’s proposal would reduce ROG + NO_x emissions from non- preempted, non-handheld equipment to about 11 tpd in 2045.

Figure 7 (also reproduced from AIR’s Report) shows the comparative emission reductions if reasonably anticipated “leakage” impacts are taken into account. More specifically, Figure 7 factors-in the impact of assuming that 50% of commercial landscapers’ new SORE purchases and 10% of residential SORE purchases will be made out-of-state in response to CARB’s ZEE mandates for SORE, starting in 2024. Significantly, Figure 7 does not include the impact from slower fleet turnover (reduced “scrappage”), which is another expected outcome from CARB’s proposal, and which will further reduce the putative benefits of that proposal. As reflected in Figure 7, EMA’s alternative proposal would *largely match* CARB’s proposal with respect to anticipated ROG + NO_x reductions, but would do so at a fraction of the cost and without the large market dislocations and disruptions that CARB’s Proposed Amendments will cause.

Figure 6

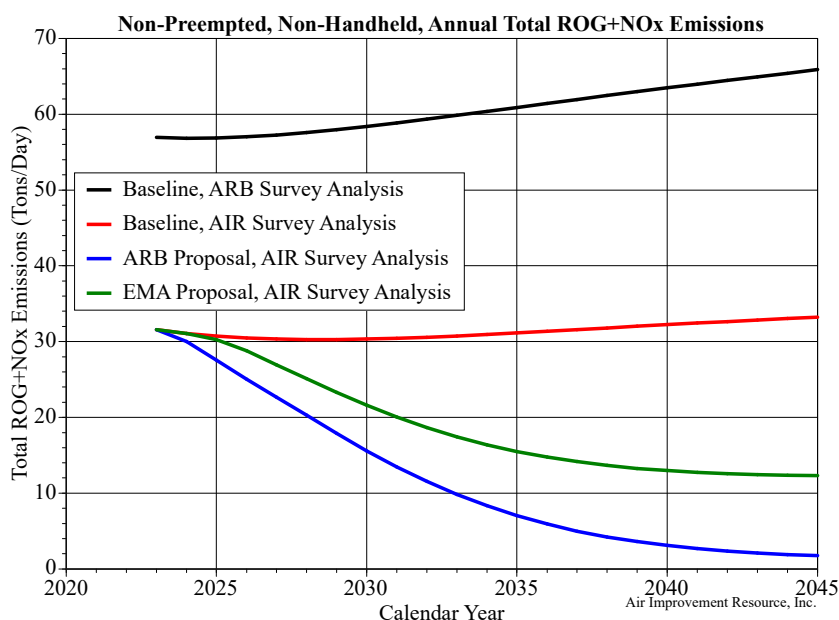
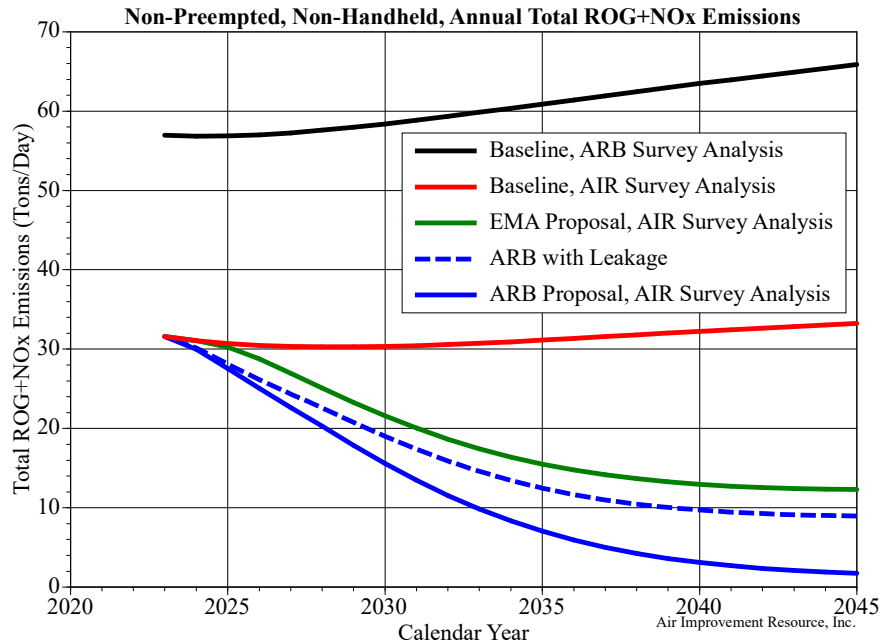


Figure 7



b. NERA/Trinity’s comparative analysis

The NERA/Trinity comparative analysis included the reasonably anticipated leakage *and* scrappage impacts that likely would result from the implementation of the Proposed SORE Amendments. (See Exhibit “B.”) NERA/Trinity found that the likely emission increases associated with the increased leakage and reduced scrappage rates that would result from the Proposed Amendments would “more than offset the emission reductions expected from the ZEE standards for new equipment resulting in the CARB staff ZEE Proposal achieving *fewer* emission reductions than would occur if the other [EMA] proposal were adopted instead.” (Exhibit ‘B,’ p. ES-1.) The more specific findings from the NERA/Trinity analysis include the following:

- (i) The EMA proposal will achieve a 62% reduction of emissions from the current baseline at an average cost of approximately \$7,000 per ton.
- (ii) CARB’s proposal, if the market impacts of leakage and scrappage are *excluded*, could achieve an additional 33% more emission reductions than the EMA proposal, but at an incremental cost of \$304,100 per additional ton, which is more than 43 times as expensive as the EMA proposal.
- (iii) When reasonably anticipated increased leakage and reduced scrappage impacts are *included*, the EMA proposal would reduce emissions by 60% from the current baseline, while the CARB proposal would only reduce emissions by 49% from the current baseline – a *smaller* net reduction than EMA’s proposal.

- (iv) Since CARB's proposal would yield *fewer* emission reductions than EMA's proposal when reasonably anticipated market impacts are more fully accounted for, CARB's proposal would result in *negative incremental cost-effectiveness*. (See Exhibit "B," pp. ES-2 through ES-4, ES-6, 16-17, 20-23, and 26.)

Consequently, it is clear that EMA's proposal represents a more reasonable and cost-effective regulatory alternative, and is one that the Board should direct staff to consider in this case. It also establishes that CARB's Proposed SORE Amendments are inherently unreasonable.

8. Other Elements of the Proposed Amendments are Unreasonable and Inconsistent with EPA's Regulations

Despite CARB's stated intent in the ISOR that the Proposed Amendments will harmonize the California regulations with the corollary federal regulations, there are numerous instances in which the Proposed Amendments *diverge* from the current applicable federal regulations. Those key differences are detailed in Exhibit "F." Some of the differences are due to CARB staff simply not using the current federal regulations as the "starting point" of the Proposed Amendments. Some are due to CARB staff simply failing to be thorough in the review of the applicable federal regulations, or omitting references to relevant federal regulations contained in 40 CFR Parts 1054, 1065 and 1068. Indeed, CARB staff have completely overlooked and omitted any of the necessary references to Part 1068. All of this will create fundamental inconsistencies between the Proposed Amendments and the controlling federal regulations, including as to what constitutes a prohibited act.

In that regard, it appears that CARB staff have not fully incorporated all of the recent "Technical Amendments" that EPA finalized on June 29, 2021. (See 86 FR 34308-34590, June 29, 2021.) More specifically, there are numerous proposed regulatory changes that CARB delineates in Appendices A-G to the ISOR for this rulemaking that need to be revised in order to make those proposed changes consistent with the controlling federal regulations. Those required changes are detailed in the Exhibit "F," which is a compendium of EMA's detailed review of, comments on, and recommended revisions to the proposed regulatory language contained in the multiple Appendices (A-G) to CARB's ISOR. Among the revisions that are needed to ensure that CARB's Proposed Amendments are aligned with the relevant EPA regulations, including EPA's recent Technical Amendments, are the following:

CARB's proposed modification of the definition of "engine" is no longer harmonized with the corollary federal regulation. The proposed amendment is internally inconsistent, overly broad and vague, such that it will be difficult, if not impossible, for manufacturers to be able to determine when an emissions label needs to be applied, and in some cases it may be physically impossible to permanently apply a label (e.g. to an aluminum block if no plastic components are included). In addition, the proposed definition blurs the distinction between new engines and service parts, potentially making it impossible for manufacturers to provide service and replacement parts for existing products, contrary to federal law.

CARB's proposed modification to the required emission labels elevates form over substance. It will require manufacturers to have two separate labels, one for EPA and one for CARB, with no justification for that added burden.

CARB's proposed modification to the current warranty statement would prohibit manufacturers from declining warranty coverage where an owner has failed to perform the maintenance specified in the Operator's Manual. That warranty disqualifier and disclaimer is currently incorporated into the certification of SORE products. Eliminating that well-established and long-accepted disclaimer, in effect, constitutes an increase in the stringency of the standards and is inconsistent with EPA's regulations.

CARB should delete the proposed requirement that manufacturers include an Air Index Label on products, since CARB has not conducted the hearing required under the current regulations to demonstrate that the labeling is an effective means of communicating information to consumers.

EMA is recommending additional revisions to the proposed ABT program to improve clarity and to facilitate the use of credits generated from zero-emission products.

CARB's proposed regulatory changes would eliminate the ability of manufacturers to utilize component-based certification, a critical certification pathway in a non-integrated industry where engine manufacturers sell engines to hundreds of original equipment manufacturers, distributors and dealers, that in turn may utilize different components for their fuel systems based on the performance requirements and design limitations of specific SORE applications and platforms. A shed test, as CARB proposes, will require duplicative testing and significantly lengthen the certification timeline and ultimately result in manufacturers leaving the California market due to the added cost and complexity.

CARB proposes to modify the tether requirements. However, the modifications actually will create a larger problem than what CARB is allegedly trying to resolve. In the end, this amounts to a phantom issue created by CARB staff in the testing of products.

CARB proposes to eliminate the availability of the evaporative emission variance procedure, allegedly due to the creation of "inequality" among manufacturers. However, CARB fails to acknowledge the underlying conditions for which the variance procedure was developed – component development leadtime and supply chain delays. Those conditions not only continue to exist today, but have gotten worse due to the multiple COVID-related disruptions. In addition, CARB has only granted a variance twice since the provision was adopted, and then only after an extended hearing process. CARB staff are, in effect, throwing the baby out with the bathwater, rather than simply addressing any alleged inequities in the

variance procedure.

CARB proposes to revise the coupon sealing procedures for gas tanks as part of the elimination of the component-based certification process. As discussed above, the non-integrated nature of the industry makes the continuing availability of this certification process both critically important and absolutely necessary.

CARB proposes to modify the pressure testing procedure for gas tanks, which is not warranted based on more recent test data. In addition, the revisions create gaps in the procedure and do not address the issue stemming from CARB staff's differing and inconsistent interpretation and application of the requirements, which has resulted in differing and inconsistent instructions to manufacturers to modify their certification applications.

As noted above, CARB's proposed revisions to ISOR Appendices F and G are not based on EPA's most recent updates to 40 CFR Parts 1054, 1065 and 1068, including the recent Technical Amendments. The divergence is so extreme that in some instances it will be impossible for manufacturers to use a single engine or piece of equipment to demonstrate compliance, which amounts to a violation of section 209 of the Clean Air Act. For example, the DF procedure (section 1054.245) proposed by CARB would create an inconsistency such that a manufacturer may be compliant under one regulation but not the other. And again, CARB is proposing changes to the labeling provisions, which elevate form over substance, resulting in the need for the dual labeling of product.

CARB's proposed revisions in Appendices F and G also create inconsistencies even within the CARB regulations by deleting the bonding requirements in the Appendices.

CARB's proposed amendments (Appendices E, F and G) are over-reaching in that they require manufacturers to submit test results for tests not intended to be used for certification purposes, and also call for the submission of information that is likely to include proprietary information from component manufacturers that is not available to engine and equipment manufacturers.

As noted above, and in addition to the foregoing issues, Exhibit "F" to these comments contains EMA's detailed recommendations for how the regulatory text set forth in ISOR Appendices A-F needs to be revised to comport with Parts 1054, 1065 and 1068 of EPA's regulations. The additional revisions that will need to be made to incorporate EPA's recent changes to Part 1064 are detailed in EPA's Technical Amendments. (See 86 FR 34308-34590.)

CARB also is proposing to convert the current SORE regulations into a strict liability program by revising the test procedures to require the testing of only a single engine/piece of equipment to determine compliance, rather than the 5 under the current regulations, all under the

guise of “clarification.” Under CARB’s Proposed Amendments, a single engine or equipment failure would be sufficient to support a finding of “nonconformity” or “noncompliance,” and thus sufficient for CARB to compel an engine or equipment family recall. That is substantially different from the federal regulations and directly contradicts CARB’s rationale for other amendments, which is to *harmonize* with the federal regulations.

CARB’s unilateral move to create a strict liability SORE program — with recall liability for any “failed” testing — is contrary to the foundational principals of the SORE audit and recall programs, and will result in an unfair and unlawful divergence between the federal program and the revised program that CARB seeks to implement. CARB’s unilateral imposition of new and unwarranted compliance risks and liabilities is yet another aspect of CARB’s Proposed Amendments that likely will fracture the market for SORE products, with several manufacturers being forced to exit California. Accordingly, CARB needs to modify the Proposed Amendments as discussed above.

9. CARB’s Environmental Analysis Does Not Meet CARB’s CEQA Obligations

As detailed previously, CARB’s Environmental Analysis (“EA”) (ISOR, Section VII) is fundamentally deficient and fails to satisfy CARB’s obligations under the California Environmental Quality Act (CEQA). In submitting the Proposed SORE Amendments for adoption, CARB seeks to rely on the EA that was prepared several years ago in connection with CARB’s 2016 State SIP Strategy document, which included, among 26 other potential mitigation strategies, a preliminary analysis of potential amendments to the SORE Regulations. (ISOR, p. VII-1.) That is wholly inadequate in this case and will result in an invalid rulemaking.

In support of not preparing an actual EA for this rulemaking, CARB states that, “while the Proposed Amendments fill in more detail with respect to specifying the more stringent emissions standards and eventual emission standards of zero, the addition detail does not change the potential compliance responses identified in the Final EA and associated impacts and mitigation measures from potential compliance-response development projects.” (Staff Report, p. ES-8.) Staff’s determination in that regard is plainly wrong. The full suite of the Proposed SORE Amendments has changed and expanded significantly since 2016. In addition, CARB staff have significantly changed the emission reduction goals for the SORE category from those stated in the 2016 SIP. Thus, and as detailed more thoroughly above, CARB’s claim that nothing has really changed from the SIP concept that CARB referenced in 2016 is simply not correct.

Moreover, CARB admits that it has done *nothing* to assess the significant reduction in SORE turnover rates or the increased “leakage” ramifications that will certainly result from the Proposed SORE Amendments as of the 2024 MY. Nor has CARB made any assessment of the high likelihood that CARB’s regulations will result in an absence of new compliant ZEE SORE in California starting in MY2024, and that, instead, SORE product users will simply keep their older equipment longer and will buy their needed new products out-of-state, all of which will have potential adverse impacts on California’s air quality and economy going forward. Thus, CARB’s

unilateral determination that it need not prepare any updated EA for this “Proposed Amendments to the SORE” rulemaking is without merit.³

In that regard, the emission standards of the Proposed Amendments are substantially different from, and are phased-in differently than, the standards originally assumed and assessed in the 2016 SIP Strategy. Instead of incentivized pilot programs for ZEEs as envisioned under the 2016 SIP Strategy, the Proposed Amendments are calling for an across-the-board near-term conversion of almost all SORE to ZEE by 2024. In addition, the currently proposed test procedure changes are entirely different as well, since the proposed elimination of the component certification process – a major regulatory change – was not even contemplated let alone evaluated when the EA for the 2016 SIP strategy was prepared. And further, the SIP Strategy EA failed to assess in any way the likely significant pre-buy/no-buy and out-of-state-buy response from off-road engine and equipment purchasers that the adoption of the Proposed Amendments to the SORE Regulations will cause. CARB’s failure to address the factors listed above renders its attempted use of the 2016 SIP-related EA for this rulemaking wholly inadequate under CEQA, as further detailed above.

10. Conclusions

CARB’s Proposed Amendments to the SORE Regulations are cost-prohibitive, infeasible, unenforceable and invalid. The cost implications, and the related pre-buy/no-buy response to the proposed requirements, will be highly disruptive to the users of SORE products – consumers, local government, and small businesses – and potentially to California’s economy. The net result could be an absence of new SORE products in California starting in 2024. Consequently, CARB should pause and fundamentally rethink the Proposed SORE Amendments, and give strong consideration to the EMA proposed Tier IV alternative, which provides cleaner products and potentially greater emission reductions at a much lower cost to California consumers.

Respectfully Submitted,

TRUCK AND ENGINE
MANUFACTURERS ASSOCIATION

³ CARB confirms that the Proposed Amendments to the SORE Regulations will impact small businesses (Notice, p. 24), but also fails to conduct the necessary economic analyses of those impacts. That too is a violation of CARB’s rulemaking obligations.