COMMENTS OF THE INDUSTRIAL TRUCK ASSOCIATION

CALIFORNIA AIR RESOURCES BOARD

PROPOSED ZERO-EMISSION FORKLIFT REGULATION

45-DAY COMMENTS DUE DECEMBER 26, 2023

INTRODUCTION

 The Industrial Truck Association (“ITA”) respectfully submits these comments on the above-referenced Zero-Emission Forklift (“ZEF”) Regulation (“Proposed Regulation”) developed by the California Air Resources Board (“CARB”). ITA is the national trade association representing the interests of manufacturers of powered industrial trucks, most of which are forklifts. ITA Regular Members manufacture forklifts and ITA Associate Members manufacture components and accessories for forklifts. The forklifts manufactured by ITA members represent the great majority of the forklifts sold in North America, including in California.

ITA’s membership, taken as a group, manufactures electric forklifts as well as spark-ignition and compression-ignition internal-combustion forklifts. Moreover, almost every ITA member or one of its subsidiaries or affiliates manufactures both electric forklifts and internal-combustion forklifts. ITA does not favor one technology over another, but rather supports the use of the appropriate forklift for the end user’s application considering all relevant factors, including the goal of reducing emissions.

Forklifts are integral to the U.S. economy, enhancing productivity in material handling and logistics, manufacturing, retail sales, construction, agriculture, and transportation. At the outset of the pandemic, pursuant to Governor Newsome’s Executive Order N-33-20, the essential workforce was defined to include those workers “supporting or providing services that enable logistics operations for essential sectors, wholesale and retail sale, including warehousing, cooling, storing, packaging, and distributing products for wholesale or retail sale or use.” Forklifts of all types are critical to these operations and workers need the appropriate forklifts to perform them. Regulations limiting the availability of internal-combustion forklifts, whose designs have evolved to correspond to the space constraints and material-handling demands of the industry sectors that use them, must leave adequate lead time to develop electric replacements. In these comments, ITA offers some suggestions to improve the Proposed Regulation to accomplish CARB’s air-quality aims in legally permissible ways without causing unnecessary disruption or harm to California businesses.

CARB HAS NOT ADEQUATELY CONSIDERED PERFORMANCE STANDARDS

 The Initial Statement of Reasons (“ISOR”) states, “Government Code section 11346.2(b)(4)(A) requires that when CARB proposes a regulation that would mandate the use of specific technologies or equipment, or prescribe specific actions or procedures, it must consider performance standards as an alternative.” ISOR, p. 220. In maintaining that it complies with this requirement, CARB suggests that the Proposed Regulation is not prescriptive but that, even if it is prescriptive, it is necessarily so. ITA cannot agree on either count.

 First, the heart of the Proposed Regulation is an abrupt prohibition on the acquisition of new Large Spark-Ignition (“LSI”) forklifts having a lifting capacity of 12,000 pounds or less after January 1, 2026 (with limited permission for rental agencies to acquire Class 5 LSI forklifts[[1]](#footnote-1) for another three years), combined with the mandatory phase-out of almost all LSI forklifts on a prescribed timetable. A prohibition/phase-out mandate is the epitome of a prescriptive regulation. While CARB states that the Proposed Regulation would not preclude the use of any technology, CARB acknowledges that only two technologies—battery-electric and fuel-cell electric—exist to replace LSI forklifts. And since fuel cells represent only 10% of the zero-emission forklift population (ISOR, p. 31), the large majority of users will have no option other than to replace their phased-out LSI forklifts with battery-electric forklifts. CARB’s suggestion (ISOR, p. 220) that regulated entities could “choose not to replace [their forklifts] at all”—simply stop using forklifts in their businesses—only highlights just how prescriptive the Proposed Regulation is. The ISOR should have acknowledged this fact.

 Because the Proposed Regulation “would mandate the use of specific technologies or equipment or prescribe specific actions or procedures,” CARB must consider “the imposition of performance standards . . . as an alternative.” Government Code section 11346.2(b)(4)(A). But while CARB concludes that a performance approach would be less effective, it has not identified, much less analyzed, an actual performance approach. At the outset of the regulatory process, ITA and other stakeholders urged CARB to consider a performance approach based on a regulation that already exists, namely, the Large Spark-Ignition Engine Fleet Requirements Regulation (“LSI Fleet Regulation”), which CARB discusses in the Regulatory Background section and elsewhere in the ISOR. As CARB explains, the LSI Fleet Regulation included the option of using Zero-Emission equipment and it has reduced NOx and hydrocarbons. ISOR, p. 27.

 Notwithstanding Government Code section 11346.2(b)(4)(A) and the suggestion of stakeholders, CARB has chosen not to evaluate whether a fleet-average approach for LSI forklifts could be used to attain emissions reductions commensurate with those claimed for the Proposed Regulation. Whether implemented by amending the existing LSI Fleet Regulation or drafting a new regulation, the approach that ITA and others recommended rests on the idea that regulated entities should be allowed to determine for themselves when to retire and when to acquire forklifts, so long as they meet declining fleet averages that yield the required emissions reductions by specified dates. Providing this flexibility could avoid many hardships without sacrificing emission-reduction goals. Basing a fleet-average regulation on engine horsepower, which is directly correlated to emissions and is simple to ascertain, would further increase flexibility and reduce unnecessary disruption of essential operations.

 CARB states, “The Proposed Regulation would provide flexibility that could encourage innovation by allowing fleets to determine their compliance path based on their business model or operational needs.” ISOR, p. 220. This apparently refers again to fleets’ limited ability to choose battery-electric or fuel-cell electric, but this is the only sense in which fleets can determine their own compliance path. The Proposed Regulation rigidly prescribes the dates after which new forklifts cannot be acquired and the dates by which the specified model years must be removed from the fleet. A fleet-average approach would prescribe neither but would be equally conducive to encouraging innovation.

CARB also states that “Less prescriptive measures would allow, by omission, additional flexibilities on technology, valuation, fleet mixing, and assurance measures that would not achieve the same magnitude of emissions reductions.” ISOR, p. 220. ITA agrees that a fleet-average regulation would provide more flexibility but sees no inherent reason that the same emissions reductions cannot be achieved with appropriate fleet averages. A fleet-average regulation can achieve more, less, or equal emissions reductions compared to a prescriptive regulation, depending on the specific requirements of each. From ITA’s perspective, CARB’s opposition to a performance-based regulation seems to be based more on an objection to Government Code section 11346.2(b)(4)(A) itself than on an actual analysis.

CARB staff stated during the regulatory development process that a fleet-average regulation would pose enforcement challenges--the ISOR now mentions “assurance measures”--but this objection has not been explained. CARB is already enforcing the recently amended LSI Fleet Regulation and the In-Use Off-Road Diesel Fueled Fleets Regulation, which “bans older tier diesel-fueled equipment, and which requires emissions from fleets with diesel forklifts to be reduced dramatically over time.” ISOR, p. 7. By contrast, while enforcement measures are already in place for these fleet-average regulations, the Proposed Regulation, whose many definitions, exemptions, extensions, and reporting requirements take up most of the regulatory text, will require 17 permanent staff positions. ISOR, p. 175. Under these circumstances, it does not appear that additional flexibility would come at the expense of enforcement.

The Proposed Regulation is prescriptive, and CARB has not genuinely considered obvious alternative performance approaches. ITA therefore believes that the CARB has not complied with Government Code section 11346.2(b)(4)(A).

CLASS 4 LSI FORKLIFTS GREATER THAN 12,000 POUNDS CAPACITY

 The ISOR states (ISOR, p. 110) that the scope of the regulation under consideration as of April 2023 had been limited to forklifts having no greater than 12,000 pounds capacity, whereas the Proposed Regulation applies to all Class 4 LSI forklifts regardless of capacity. ITA received notice—informally— of this major expansion of the scope only in August of this year following our email inquiry asking CARB staff about any changes. Official notice of the change came only with the release of the 45-day notice. This last-minute expansion of the Proposed Regulation’s requirements, after nearly three years of stakeholder discussions, threatens to eliminate a distinct spark-ignited forklift category for which there currently is no viable electric replacement.

 This is not the first time the goalposts have moved in this regulatory proceeding. CARB’s presentation for the first public workshop on October 7, 2020, just over three years ago, contemplated an initial capacity limit of 8,000 pounds and below for near-term requirements with delayed requirements for larger forklifts “[c]ontingent upon zero-emission availability.” By the time of the August 17, 2021 workgroup meeting, CARB had expanded the regulation’s scope to capture forklifts having capacities 12,000 pounds and below. Now, CARB proposes to remove even the 12,000-pound limit for Class LSI 4 forklifts. The question is whether the facts justify this latest change.

 CARB explains the situation as follows (ISOR, p. 110):

At the beginning of the regulatory development process, staff evaluated the availability of ZEFs [Zero Emission Forklifts] and found that there were few ZE options commercially available with a lift capacity greater than 12,000 pounds. Therefore, staff limited the scope of the regulatory concept to only those forklifts with a lift capacity of up to 12,000 pounds. However, a more recent survey of available ZEFs has shown that several manufacturers currently offer Class-IV-equivalent ZEF with a lift capacity of more than 12,000 pounds.

It would be useful to know whether CARB believes its original evaluation was incomplete or instead believes that the capabilities of available forklifts have expanded significantly since the beginning of the regulatory development process. The ISOR does not address this. More importantly, because the record does not examine the unique design and performance attributes of these larger Class 4 forklifts, it cannot support the conclusion that the market offers any Class-4-equivalent ZEF.

As to CARB’s more recent survey, which is in the record (ISOR, p. 32, fn. 48), staff states, “a recent online search and manufacturer survey conducted by staff of ZEF offerings identified almost 400 models, more than 130 of which were models with a lift capacity greater than 12,000 pounds.” The earlier evaluation that CARB mentions is not in the rulemaking record. ITA is confident that the same online search and manufacturer survey conducted three years ago, at the outset of the regulatory process, would have produced essentially these same models. It appears therefore that the change is not in the technological capabilities of electric forklifts in the last three years, but in CARB’s unexplained assessment of which electric forklifts above 12,000 pounds capacity might be suitable replacements for Class 4 forklifts. The ISOR’s treatment of this issue is conclusory, without analysis.

CARB characterizes the relevant LSI forklift classes as follows: “Class IV forklifts typically use smooth solid tires, called cushion tires, and are designed to be used on smooth, paved surfaces. A Class IV forklift is what is commonly considered a standard warehouse forklift. Class V forklifts typically use taller tires that can be pneumatic (air-filled, foamfilled, or solid), with a tread designed for use on uneven surfaces. A Class V forklift is typically used outdoors.” ISOR, p. 6. Based on this distinction, it is not useful to know that there are 130 models of electric forklifts with a lift capacity greater than 12,000 pounds. The relevant question is how many of these 130 models have cushion tires, which is the only way that Class 4 forklifts are distinguished from Class 5 forklifts. Electric forklifts with capacities greater than 12,000 pounds and pneumatic tires are potential substitutes for Class 5 forklifts, not Class 4 forklifts.

 ITA examined CARB’s recent survey of available ZEFs, which is entitled “CARB, Available Zero-Emission Forklift Models, Version 1.1, September 2023.” ISOR, p. 32, fn. 48. This is a spreadsheet providing information showing the manufacturer, model number, lift capacity, tire type, voltage, and load center for 390 electric-forklift models. Of these 390 models, fewer than 20 models are shown as combining a capacity of greater than 12,000 pounds with cushion tires:

1. 10 such models are manufactured by one company, ranging in capacity from 15,000 pounds to 40,000 pounds;
2. 5 such models are shown as manufactured by a second company, ranging in capacity from 20,000 to 40,000 pounds, but ITA has learned these models are no longer manufactured by the company, having been manufactured for a short time in partnership with a smaller company specializing in unique explosion-proof forklifts; and
3. A few such models may be manufactured by a third company, which primarily manufactures large Class 1 pneumatic forklifts but appears to offer a cushion-tire option on a limited number of models.

Thus, while the ISOR leaves the impression that there are 130 electric models available to replace Class 4 forklifts with greater than 12,000 pounds capacity, this is off by a factor of 10 or more. Whatever the differences between CARB’s initial analysis and the more recent survey, the recent survey itself refutes the idea that the market provides ample replacements for Class 4 LSI forklifts with capacities greater than 12,000 pounds.

 In fact, when it comes to large Class 4 warehouse forklifts, there may be no electric replacements at all. As discussed with CARB staff, certain well-known applications, including paper handling and transporting steel and other primary metals, require a forklift having a capacity generally in the range of 8,000-15,500 pounds but with a compact profile or “footprint.” These forklifts need to handle relatively heavy loads, such as paper rolls or coils of steel, while retaining their ability to maneuver in confined spaces, such as rail cars or congested manufacturing plants. Major forklift manufacturers offer a Class 4 LSI forklift to fill this need. Following are excerpts from manufacturers’ websites that describe the specialized features and uses of these forklifts:

1. Toyota Class 4 capacity 8,000-15,500 pounds: “Toyota’s Large IC Cushion Forklift is a durable high lift capacity forklift used primarily indoors and in specialty applications such as retail, lumber yards, heavy-duty manufacturing, shipping and freight, and various warehouse applications”. “This forklift is capable of navigating 13- and 14-foot aisles while providing nearly 20 feet of lift.”
2. Caterpillar Class 4, capacity 7,000-15,500 pounds: “**Short Turn Radius** – Short turn radius (STR) models have extra-heavy, lead-filled counterweights allowing for greater maneuverability and rearward visibility in confined areas.”
3. Mitsubishi Class 4, capacity 7,000-15,500 pounds: “**Short-Turning Radius**– A shorter turning radius means operators can confidently turn in tight areas while helping to reduce damage to your facility and load.”; “Options and packages like the short turning radius and paper handling package will optimize the truck systems to suit your application.”
4. Hangcha Class 4, capacity 13,500-15,500 pounds: “Designed for the North American market, the XF Series LPG Cushion Tire Forklift from Hangcha Group is built to meet the needs of warehouses, distribution centers, and manufacturing facilities.”
5. Unicarriers Class 4, capacity 10,000-15,500 pounds: “[O]ur low profile counterweight design allows for a more compact turning radius.”
6. Hyster Class 4, capacity 13,500 pounds-15,500 pounds: “A versatile cushion tire lift truck designed for indoor use, this forklift is suited for applications such as primary metals, stone, clay, glass and concrete products and industrial and commercial machinery.”
7. Yale Class 4, capacity 13,500-15,500 pounds: “Ideal forklift for indoor heavy duty applications, the GC135-155VX series provides the durability and versatility you need to get the job done, best suited for the paper, steel, machinery and fabricated metal industries.”

As shown, there are at least 7 manufacturers of Class 4 LSI forklifts that are designed for these heavy-duty/confined-space applications. But there are no forklift manufacturers, with one possible exception, that manufacture an electric forklift corresponding to these Class 4 models.[[2]](#footnote-2) If CARB eliminates these Class 4 models, end users in these important industries will have no options. Some of the Class 4 forklift models (sometimes called “paper roll specials” or “box car specials”) that fit this application niche requiring relatively high lift capacity and maneuverability in confined spaces have capacities slightly below or precisely at 12,000 pounds capacity. Therefore, CARB’s earlier proposal to eliminate Class 4 LSI forklifts having capacities of 12,000 pounds or less would already have reduced end users’ choice of models significantly, requiring them to purchase Class 4 forklifts at the 13,500-15,500 pounds end of this range. CARB’s latest proposal would remove even this limited option.

Beyond the need to maximize lifting capacity while maintaining maneuverability, forklifts in the paper, metal and manufacturing industries face multi-shift, high-throughput requirements that demand continuous high performance exceeding the capabilities of today’s battery-electric forklifts. As explained in the ISOR at pp. 29-30,

A flooded lead-acid battery pack that is used in a forklift for an eight-hour shift generally requires eight hours to charge and an additional eight hours to cool down following a charge before it can be used again. As such, lead-acid batteries can typically be used for only one full work shift per day. To work around this limitation, multiple-shift operations have historically employed the use of two or three lead-acid battery packs per forklift and a battery-swapping strategy. This type of arrangement requires a dedicated area for charging and storing battery packs, which takes away from square footage the facility could otherwise use, and additional resources to manage, maintain, and swap battery packs as necessary.

This explanation is accurate for typical electric forklift applications, but heavier, more intense operations will deplete the battery sooner, perhaps in less than one-half of an 8-hour shift. This can more than double the forklift downtime, reducing productivity to unacceptable levels and requiring more charging capacity and floor space.

 The ISOR contains dozens of references to lithium-ion technology, noting correctly that lithium-ion batteries have some advantages over lead-acid batteries: they can be charged more quickly, they have higher energy density, they require less maintenance, and they have longer useful lives. See, e.g. ISOR, p. 9. But lithium-ion technology is not a panacea. When it comes to forklifts that require balancing a relatively small footprint, sufficient power for capacities exceeding 12,000 pounds, and enough energy to maintain performance for a full shift, the fact that lithium-ion batteries may come closer in some respects than lead-acid batteries is academic because neither battery technology is adequate. Sit-down counterbalanced forklifts require a counterweight to offset the load that the front end of the forklift must handle—the higher the capacity, the heavier the required counterweight. Spark-ignited forklifts, by using an extremely dense block of (typically) cast iron as the counterweight, minimize the space taken up by the counterweight, i.e., minimize the footprint of the forklift. For forklifts with lead-acid batteries, the battery weight itself acts as the counterweight. However, the battery is not nearly as dense (compact) as a cast iron counterweight, so the dimensions of the battery exceed the dimensions of the cast iron counterweight and the forklift’s footprint is thereby larger. Lithium-ion batteries change the calculus somewhat because they have greater energy density by both volume and by weight than lead-acid batteries. This permits reducing the volume of the battery itself, but also means that additional counterweighting is required and that the footprint increases. Weight distribution and other engineering considerations come into play, but the bottom line is that there is no lithium-ion or lead-acid battery solution that matches the combined attributes of a spark-ignited forklift having a relatively small propane tank as the energy source and a cast-iron counterweight to offset the load.

 The problems are not limited to the additional space taken up by large battery compartments. Even if the electric forklift battery is fully charged, there are significant differences in the performance of internal combustion and electric forklifts in terms of travel speed and lift/lower speeds, especially at the higher capacities. In one example previously shared with CARB, a comparison between a company’s 15,000-pound capacity electric forklift and its 15,000-pound capacity internal combustion forklift showed that the internal combustion unit’s travel speed was 2.6 times faster, its lifting speed while loaded was 2 times faster, and its lowering speed while unloaded was 1.7 times faster. The comparisons of travel and lift/lower speeds for the only other manufacturer that offered both electric and internal combustion forklifts with 15,000 pounds capacity were very similar, with huge differences in favor of the internal combustion forklift. Thus, in addition to the footprint problem and the running-time problem, electric forklifts over 12,000 pounds capacity are not substitutes for Class 4 LSI forklifts because of these performance differences.

 Product literature from manufacturers of large cushion-tired electric forklifts, including ITA members, naturally emphasizes their capabilities and advantages. But any conclusion that these forklifts are realistically an available commercial option to satisfy the market demand for Class 4 LSI forklifts with capacities greater than 12,000 pounds is unwarranted. ITA’s statistical reporting program, in which members report (among other things) retail shipments of various categories of forklifts by class, capacity, and geography, reveals that ITA-member shipments of cushion-tired electric forklifts with a capacity exceeding 12,000 pounds in California from January of 2022 to the end of November 2023 were almost nonexistent.[[3]](#footnote-3) The absence of demand shows more clearly than any other evidence that those electric units have not been deemed an adequate substitute for the hundreds of Class 4 LSI forklifts above 12,000 pounds capacity shipped by ITA members in that same period.[[4]](#footnote-4)

 Electric forklifts at lower capacities are, of course, pervasive in many indoor facilities. CARB states as follows under the heading Technological Feasibility (ISOR, p. 29):

Today, about half of the forklift population in California uses ZE technology largely due to advantages that the technology can provide, such as reduced indoor air pollution and lower operating costs, and because many forklift applications have duty cycles that are well-suited for its use. ZEFs are common in the logistics industry, but growth in other industries and applications has been relatively slow. Staff believes ZEFs today are capable of serving as a direct replacement for the forklifts required to be phased out by the Proposed Regulation.

While ITA agrees that the issue is technological feasibility, there is a difference between small-to-medium capacity electric forklifts, which have proven themselves in many applications, and large-capacity electric forklifts with cushion tires, for which there has been almost no market acceptance because of current technology constraints. CARB attributes this difference broadly to “perceptions about performance and other factors,” ISOR, p. 29, but the differences in footprint/maneuverability and performance/productivity when it comes to forklifts greater than 12,000 pounds capacity are real. Bridging those differences, which amounts to designing and developing a new type of forklift, presents technological challenges with an uncertain outcome.

With time, ITA forklift manufacturers presumably can design a battery-powered forklift with a smaller footprint, but advances in battery technology, to make them simultaneously smaller and able to deliver adequate power for a full shift, may be the greater challenge. In short, existing technology does not permit electric forklifts to replace Class 4 LSI forklifts with greater than 12,000 pounds capacity and it is unclear how long it will take to close the gap. Under these circumstances, CARB’s recent decision to target Class 4 LSI forklifts above 12,000 pounds capacity threatens to deprive important California industries of the equipment they need. The last-minute expansion of the Proposed Regulation’s scope, at the end of a 3-year regulatory process, exacerbates matters by shortening the lead time for the necessary development work.

ITA appreciates that the Proposed Regulation provides a more lenient phase-out schedule for Class 4 forklifts greater than 12,000 pounds capacity than for those with capacities 12,000 pounds or less. But this longer phase-out schedule will not address the problems of fleet operators whose higher-capacity Class 4 LSI forklifts are nearing the end of their useful lives, which are likely shortened in many cases because these forklifts are typically used in intensive multi-shift operations. By the time of the CARB public hearing in mid-2024, less than 18 months will remain before the prohibition on acquiring new LSI forklifts takes effect. But designing and producing a new category of forklift—a higher-capacity electric that can truly replace a higher-capacity Class 4—will take much longer.

The question is what options affected parties will have if they can no longer acquire the higher-capacity Class 4 LSI forklift they have been using and have no viable electric substitute. Beyond extending the life of the Class 4 unit as long as possible, which will not reduce emissions, some operations may try to use Class 5 forklifts above 12,000 pounds capacity, again with no emissions benefit. Others may have no reasonable options. In any case, real necessity arising from the absence of an adequate electric substitute, not false perceptions about performance or cost considerations[[5]](#footnote-5), would drive their decisions.

Based on ITA data, a very limited quantity of Class 4 LSI forklifts of greater than 12,000 pounds capacity would be affected each year if CARB were to reinstitute its recently changed treatment of Class 4 units.[[6]](#footnote-6) As discussed above, it is unclear whether any emissions benefit would flow from phasing out these units before electric substitutes are available, so the loss to those who need the higher-capacity Class 4 LSI forklifts would come with little or no gain. Moreover, CARB’s electrification goals and incentive programs are well known, creating a strong impetus for the development of larger-capacity electric forklifts to replace both Class 4 and Class 5. As CARB states, “As more fleets convert to ZEFs due to the Proposed Regulation, forklift manufacturers may invest in maintaining or even expanding their zero-emission product lines. Such investments could contribute to break-through technologies and lead to even broader acceptance of ZE technologies in other off-road vehicle applications.” ISOR, p. 32. Reversing the recent expansion of the regulatory scope will not slow this inevitable trend.

ITA requests that CARB allow the purchase of higher-capacity Class 4 LSI forklifts until manufacturers of forklifts and batteries for forklifts have had time to make the investments necessary to realize the break-through technologies that will be needed to create a viable electric substitute. While reinstituting the scope that had been contemplated until recently this year would be the most straightforward way to meet the need, there may be other approaches, like the treatment of later-model-year Class 5 LSI forklifts, that would address the situation as well.

NEW MODEL YEAR 2025 FORKLIFTS

The Proposed Regulation, at § 3005(a), prohibits manufacturers from selling forklifts that do not meet a zero-emission standard after January 1, 2026 for Class 4 LSI forklifts and after January 1, 2029 for Class 5 LSI forklifts having capacities up to 12,000 pounds. Likewise, footnote 7 of the proposed change to the emissions standards, 13 CCR §2443, sets forth the same sales prohibitions. These provisions, by targeting the sale date rather than the manufacture date of regulated engines and equipment, depart from the long-standing approach to LSI emissions regulations by both CARB and US EPA. The result is to distort the ordering, manufacturing, and delivery cadence for forklifts at a time when the industry is already coping with extreme delays caused by supply-chain bottlenecks resulting from the pandemic. Therefore, at least for the near-term deadline of January 1, 2026, ITA requests that CARB return to the traditional approach by permitting manufacturers to sell emissions-compliant LSI forklifts manufactured in 2025. If CARB has any concern about “stockpiling” of LSI forklifts, which is unlikely to be an issue under current conditions, CARB can easily address that concern with regulatory language.

The Proposed Regulation defines “Model Year,” referring to the forklift model year, in § 3001 (a): “‘Model Year’ or ‘MY’ means the Forklift engine manufacturer’s annual production period, which includes January 1 of a calendar year or, if the manufacturer has no annual production period, the calendar year.” For all ITA members, the 2025 forklift MY will be calendar year 2025 because in each case their engine manufacturer’s annual production period has been defined to begin on January 1 and to end on December 31. These engine production periods are driven by CARB’s emission standards for LSI engines, from which the Proposed Regulation’s definition of “Model Year” is taken. See 13 CCR 2431(a)(24).

 Unlike the Proposed Regulation, however, CARB’s existing and previous LSI emissions standards do not dictate the date by which a compliant engine must be sold. If an engine is certified to the applicable emissions standard, which is tied to the engine’s model year, the engine may be sold at any time in the future and a forklift containing the engine may be sold at any time in the future. In other words, so long as an engine meets the standards that applied at the time it was manufactured, CARB does not interfere with the complex planning process or the many commercial arrangements that determine when the engine or equipment will reach the end user.

That process is long and full of uncertainties, typically requiring the following steps: end-use customers evaluate their anticipated needs and place orders with dealers; dealers place orders with manufacturers; manufacturers (in the U.S. and abroad) prioritize the orders and produce the requested forklifts under production schedules that take into account the constraints of myriad supply-chain partners; manufacturers contract with third-party shippers to deliver the ordered forklifts to dealers or other destinations; and dealers eventually deliver the ordered forklifts to the businesses that need them. Each of these steps entails several sub-steps and the likelihood of interruptions: customers cancel or modify orders, suppliers go out of business or experience delays, manufacturing plants undergo shutdowns, shippers fail to meet timetables, customs requirements change, etc. The probability of unexpected delays at any point in the process makes it impossible to state with certainty how much time will elapse from the customer first contacting the dealer to the customer receiving the forklift.

When traditional engine emissions regulations are set to change at an upcoming effective date, equipment manufacturers who plan to use engines meeting the existing standards must adjust their buying process to ensure that they acquire those engines while supplies last, but they can then manufacture and sell the forklifts using those engines pursuant to normal business practices. When emissions regulations apply to the manufacture date of the equipment rather than just the engine, the entire equipment manufacturing process must be completed before the effective date, requiring significantly more scheduling adjustments by the manufacturer. Still, the regulations would not impact the distribution process--the timing of sales and deliveries would depend on only business considerations. But the Proposed Regulation, by proscribing sales of non-ZEF forklifts after a certain date, is maximally disruptive[[7]](#footnote-7) and a sharp departure from previous LSI emissions standards.

CARB staff has acknowledged in discussions with ITA that the Proposed Regulation disturbs the normal production and delivery practices affecting MY 2025 forklifts by prohibiting delivery of those forklifts after January 1, 2026 but has stated that affected parties—manufacturers, dealers and fleet operators—can adjust by accelerating their schedules. This position severely underappreciates the complexity of the process described above, but also the extraordinary conditions that affect the current market.

 Whereas historically forklift purchasers have placed their orders 6-8 months before the desired delivery date, today’s forklift market sees lead times ranging from 12 to 24 months.[[8]](#footnote-8) As stated in the ISOR, p. 204, “[B]ased on stakeholder feedback, manufacturer supply chain delays are responsible for current forklift delivery delays of an additional one to one-and-a-half years, relative to pre-pandemic delivery timelines.” Assuming that the Board approves the regulation in mid-2024 and the Office of Administrative Law approves it soon thereafter, less than 18 months will remain between legal adoption of the regulation and the January 1, 2026 effective date. For some stakeholders, even those who have been following the rulemaking process, this would mean a sharp compression of current lead times. For those forklift purchasers who are not aware of the new regulation, much less conversant with its details and its implications for the ordering process, the situation will be even more dire.[[9]](#footnote-9)

 For all these reasons, ITA believes that the final regulation should be based, as the other LSI emissions regulations have been, on the date of manufacture and not the date of sale (referring in this case to the forklift rather than the engine). Emissions regulations based on the date of manufacture contemplate that some percentage of the products manufactured legally in a given model year/calendar year will be delivered to the end user in the first part of the next calendar year. CARB should accept that normal practice, at least as to the January 1, 2026 deadline for Class 4 forklifts, in order to avoid significant dislocation of business operations. In the alternative, although removing restrictions on the date of sale would be the best approach, CARB could address the problem by specifying a later date certain by which MY 2025 forklifts must be sold. For example, CARB could insert into the final regulation an allowance permitting MY 2025 forklifts to be delivered through calendar year 2026 but not thereafter. Either approach would provide needed relief with negligible cost to the Proposed Regulation’s long-term emissions benefits.

ACQUIRING NEW DIESEL FORKLIFTS

 The first sentence of §3011(a) of the Proposed Regulation states, “Starting January 1, 2026, a Fleet Operator or Rental Agency shall not acquire or operate a Diesel Forklift as a replacement for a Class IV LSI Forklift of any Rated Capacity or a Class V LSI Forklift of a Rated Capacity up to 12,000 pounds that has been phased out of the Fleet, or for which a Low-Use LSI Forklift Exemption has been sought by the Fleet Operator in accordance with Section 3007(a)(1).” Since this language applies to any “Diesel Forklift,” it would apply to new diesel forklifts, and it would apply to forklifts of any horsepower. In ITA’s view, this prohibition against purchasing new diesel forklifts, if they are smaller than 175 horsepower, would violate the preemption provisions of the federal Clean Air Act.

 42 U.S.C.§7543 (e)(1) reads, in pertinent part, as follows:

(e)Nonroad engines or vehicles

(1) Prohibition on certain State standards

No [State](https://www.law.cornell.edu/definitions/uscode.php?width=840&height=800&iframe=true&def_id=42-USC-80204913-1186899451&term_occur=999&term_src=title:42:chapter:85:subchapter:II:part:A:section:7543) or any political subdivision thereof shall adopt or attempt to enforce any standard or other requirement *relating to the control of emissions* from either of the following new nonroad engines or nonroad vehicles subject to regulation under this chapter—

1. New engines which are used in construction equipment or vehicles or used in farm equipment or vehicles and which are smaller than 175 horsepower.

(Italics added.)

The CARB webpage headed “List to Determine Preempt Offroad Applications” states: “The 1990 amendments to the federal Clean Air Act preempt California control of emissions from new farm and construction equipment under 175 horsepower. Emissions from these new engines are beyond CARB's authority to regulate. The U.S. EPA has sole authority to establish emission standards for these preempt engines used in new farm and construction equipment under 175 horsepower.” (<https://ww2.arb.ca.gov/list-determine-preempt-road-applications>).

The webpage then provides 2 lists. The first list covers “[e]quipment types with engines less than 25 horsepower,” which is not relevant to the analysis. The second list begins as follows:

Equipment types with engines 25 horsepower or greater are presumed to be construction or farm equipment, with the exception of the equipment types listed below, which have been determined not to be construction or farm equipment.

* Aircraft Ground Power
* Baggage Handling
* Forklifts that are neither rough terrain nor powered by diesel engines . . .

Since only forklifts that are not rough terrain or powered by diesel engines have been determined not to be construction or farm equipment, forklifts with engines 25 horsepower or greater that are powered by diesel engines are presumed to be preempted construction or farm equipment, so long as they are “new” and are under 175 horsepower.

 Therefore, the only remaining preemption question is whether §3011(a)’s prohibition against acquiring or operating a diesel forklift to replace a phased-out LSI forklift is a “requirement relating to the control of emissions.” If so, CARB cannot apply it to new diesel forklifts under 175 horsepower. According to the ISOR, p. 66, “The overarching purpose of the Proposed Regulation is to reduce harmful emissions from forklifts by accelerating the transition to ZEFs throughout the state to reduce emissions of NOx, fine PM, other criteria pollutants, TACs, and GHG.” According to Appendix E’s Purpose and Rationale for Each Regulatory Provision, p. 104, the specific rationale for §3011(a) (and related provisions) is as follows:

These subsections help prevent the replacement of Class IV LSI forklifts of any rated capacity and Class V LSI forklifts of a rated capacity of up to 12,000 pounds with diesel forklifts once the fleet begins to phase out said LSI forklifts. While staff believes such replacements would be unlikely because of the flexibilities the Proposed Regulation would provide and operational considerations, such as indoor air quality, it is possible that some fleets could choose diesel forklifts over zero-emission forklifts. To the extent those replacements occur, the emission benefits of the Proposed Regulation would be reduced. Therefore, staff is proposing this restriction to prevent such replacements.

Given this record, it seems obvious that the prohibition on replacing LSI forklifts with diesel forklifts is a “requirement relating to emissions.” As applied to new diesel forklifts under 175 horsepower, it is preempted. CARB can cure this problem by clarifying that §3011(a) does not apply to new diesel forklifts under 175 horsepower.[[10]](#footnote-10)

MANUFACTURER PRODUCTION AND SALES REPORTING

 Under §3005(b) of the Proposed Regulation, manufacturers would be required to submit annual production and sales reports under §3009(k), which requires reporting, for LSI forklifts for the previous calendar year, entity information under §3009(b)(1); forklift information under §3009(b)(2); and the total number of LSI forklifts sold in California or produced for California sale. ITA believes that CARB does not need to receive from manufacturers the forklift information specified under §3009(b)(2) that is available from other sources and that CARB should instead require only that forklift manufacturers maintain their records for transmittal to CARB upon request. This approach would ensure that CARB has access to any manufacturer information that it may need, but without imposing an unnecessary burden on manufacturers to affirmatively submit redundant information every year.

 CARB explains the rationale for §3009(k) as follows (Appendix E, p. 102):

Forklift information and the total number of LSI forklifts sold in California or produced for California sale would be necessary to verify compliance with the Proposed Regulation as well as monitor the sales volume of Class V LSI forklifts with a rated capacity greater than 12,000 pounds, which would not be subject to the proposed phase-out requirements. The information on Class V LSI forklifts with a rated capacity greater than 12,000 pounds, in particular, may be used to inform future zero-emission regulations.

 Under the Proposed Regulation, forklift manufacturers can sell or produce for sale only Class 5 LSI forklifts after January 1, 2026. For the period January 1, 2026 through December 31, 2028, these forklifts will be divided into two categories: Class 5 forklifts with capacities of 12,000 pounds and under and Class 5 forklifts with capacities over 12,000 pounds. After December 31, 2028, manufacturers will sell only Class 5 forklifts in the latter category.

For both categories of Class 5 forklifts, the information that CARB is seeking from manufacturers under §3009(b)(2) will already be available from dealers pursuant to §3003(c), which requires dealers to “collect and maintain information and documentation of each sale or lease of an LSI Forklift for a minimum of five years following the transaction.” This information must include the model year, model, manufacturer, rated capacity, and serial number of the forklift. Although the list does not include engine information, which is included in “forklift information” under §3009(b)(2), the engine information will be readily available from the same dealer records (or could be added to §3003(c)). When it comes to enforcement, the California dealers’ sales and lease records will be more relevant than the out-of-state manufacturers’ shipment records because the dealers are closest to the point of ultimate sale and the actual use of any forklift about which CARB enforcement personnel may need to inquire. If there is any reason that the dealer’s records do not yield some information that the manufacturer may possess, which seems unlikely, CARB can then contact the manufacturer for that information.

For heavy Class 5 LSI forklifts, which CARB emphasizes in its Purpose and the Rationale discussion, the Proposed Regulation contains another reporting provision, §3009(h), which requires fleets to submit both Initial and Annual Reports that cover each heavy Class 5 forklift, including the same “forklift information” being sought from manufacturers.[[11]](#footnote-11) In fact, the fleet submissions compared to the manufacturer submissions would be substantially more informative because they include the forklift’s “[p]rimary location operating address,” which the manufacturer is unlikely to know in many cases. For the most part, however, the information from the manufacturer would be duplicative. In the occasional instance where CARB may need to confirm something through the manufacturer’s sales records for heavy Class 5 forklifts, those records will be available, but there is no reason to require their submission every year.

Thus, whether the rationale is enforcement or evaluating the presence of heavy Class 5 LSI forklifts for purposes of future rulemaking, CARB will gain no additional benefit by requiring forklift manufacturers to submit detailed information for every forklift they produce for California. It is reasonable to require manufacturers to provide entity information under §3009(k)(1) so that CARB will have all relevant contact information. Manufacturers can also inform CARB of the total number of LSI forklifts sold or produced for sale in California for the previous year under §3009(k)(3), to assist in various CARB analyses. As for the detailed forklift information in §3009(k)(2), the Proposed Regulation should require that manufacturers retain the information in case CARB requests it but should not require that it be submitted annually.

CONCLUSION

ITA appreciates CARB’s consideration of these comments. Any questions or requests for additional information should be directed to:

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1. ITA uses English numbers rather than Roman numerals to designate forklift classes in these comments. (Contrary to the ISOR, p. 5, the forklift classification system predates OSHA, who adopted it from ITA.) [↑](#footnote-ref-1)
2. A non-ITA member listed on CARB’s ZEF spreadsheet appears to manufacture one 13,000-pound capacity electric model and one 15,000-pound capacity electric model that may be available with optional cushion tires. Even if so, whether either of these models could replace Class 4 LSI forklifts considering their dimensions and maneuverability would require further evaluation, including a detailed comparison of length, width, height, and turning radius specifications. There is no indication that CARB has evaluated these factors or that these electric models did not exist at the outset of the rulemaking process, when CARB concluded that “that there were few ZE options commercially available with a lift capacity greater than 12,000 pounds.” ISOR, p. 110. [↑](#footnote-ref-2)
3. ITA offered to discuss sharing this information on a confidential basis with CARB staff and remains willing to do so. [↑](#footnote-ref-3)
4. ITA believes that its members’ shipments represent approximately 90% of the North America market for forklifts. With one possible exception (see fn. 2), every manufacturer shown on CARB’s spreadsheet as offering an electric cushion-tired forklift exceeding 12,000 pounds capacity is an ITA member. [↑](#footnote-ref-4)
5. Nevertheless, cost considerations are always relevant. CARB estimates that the higher-capacity Class 4 forklift costs $153,975, whereas the equivalent-capacity battery electric with a lead-acid battery costs $256,701, 67% more, and the equivalent-capacity battery electric with a lithium-ion battery costs $330,229, 214% more. ISOR, p. 128. CARB’s data show that the purchase-price premium for lead-acid battery electric forklifts and the additional premium for lithium-ion batteries are highest, by a considerable margin, for these larger-capacity electric units. [↑](#footnote-ref-5)
6. CARB states that “Class IV forklifts greater than 12,000 pounds lift capacity account for approximately 1.3 percent of the forklifts that would be impacted by the Proposed Regulation.” ISOR, p. 127. If there are 95,000 affected forklifts altogether, ISOR, p. 91, this would mean 1,235 forklifts constitute the affected heavy Class 4 population, with a subset of these retired and replaced each year. ITA has specific data on its members’ annual California shipments of Class 4 Forklifts over 12,000 pounds capacity. [↑](#footnote-ref-6)
7. In fact, the manufacturer sale cut-off of January 1, 2026 under the Proposed Regulation is not the actual deadline for manufacturers because the fleet-operator requirements in §3002 prohibit the fleet operator from acquiring or taking possession of the forklift after that same date. If a forklift is to be delivered to the fleet operator before January 1, 2026, it must be manufactured substantially before then to provide the time needed for distribution. [↑](#footnote-ref-7)
8. The most obvious reason is pandemic-related supply and demand distortions. Factory shutdowns and reductions in the workforce and the unavailability of components or extreme delays in their delivery decimated the supply side while customers were ordering greater volumes in anticipation of these shortages. The result was a huge backlog of orders and an unprecedented lengthening of lead time. [↑](#footnote-ref-8)
9. It would be neither factually accurate nor legally sufficient to say that the regulatory process itself provides adequate notice of the ultimate regulatory requirements. Prudent businesses should not speculate by assuming that a regulatory proposal will become law without alteration; therefore, lead times cannot begin to run until a regulation is final. [↑](#footnote-ref-9)
10. ITA realizes that the Proposed Regulation does not prohibit the acquisition of all new diesel forklifts, only those that are deemed to be a replacement for an LSI forklift. It is only new diesel forklifts which are deemed to be replacements that raise the preemption issue. [↑](#footnote-ref-10)
11. If CARB agrees with ITA concerning Class 4 LSI forklifts having capacities greater than 12,000 pounds, reporting for those forklifts might be added to §3009(h). [↑](#footnote-ref-11)