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*Sent via electronic submittal*

Dear Mr. Roderick and Mr. Chen,

On behalf of the undersigned organizations, we submit this comment letter regarding the revised regulatory concept for the California Air Resources Board’s proposed Zero-Emission Forklifts Rulemaking. Many of these organizations are members or allies of Trade, Health, and Environment (THE) Impact Project coalition which includes people working to improve air quality and life expectancy in California, especially in neighborhoods disproportionately impacted by the goods movement industry. As organizations dedicated to advancing community-driven solutions to reduce freight pollution, we urge CARB to advance a swift transition to zero-emission warehouse operations, which is critical to reducing the adverse health impacts imposed on Californians by the freight industry. CARB must prioritize community health and safety by strengthening the draft rule through the following recommendations:

- Develop a more ambitious phase-out schedule to ensure internal combustion forklifts are transitioned to zero-emission technology by 2035.
- Limit further compliance extensions to incentivize turnover of internal combustion forklifts to zero-emission by 2035 in accordance with Governor Newsom’s Executive Order.
- Prohibit the purchasing of used affected forklifts prior to phaseout.

**I. Large Spark-Ignition (LSI) forklifts disproportionately harm warehouse-adjacent communities and people living near freight corridors.**

California continues to face an air quality crisis, and communities living near freight corridors and warehouses are most impacted by poor air quality in the state. Currently, California’s airsheds—the

South Coast Air Basin and the San Joaquin Valley Air Pollution Control District—suffer from some of the highest levels of ozone and PM2.5 levels in the country.<sup>1</sup> Mobile sources are a staggering proportion of California’s total pollution, and this extreme pollution burden only continues to grow. Yet, as other sources are moving towards zero-emissions, internal combustion off-road equipment including forklifts remain in operation despite the growing number of zero-emission models entering the market.<sup>2</sup> Internal combustion equipment threatens air quality and undermines public health. It is well documented that emissions from petroleum and fossil-fueled equipment worsen air pollution and exacerbate negative climate impacts.<sup>3</sup>

According to CARB calculations, of the approximately 95,000 forklifts affected by the Forklifts Regulation, the majority are operated in warehouses in areas zoned for “industrial use... where land is cheap.”<sup>4</sup> A national “legacy of discriminatory land use policies at all levels of government means that many people living nearby [industrial uses] are Black or Hispanic”<sup>5</sup> and disproportionately burdened by cumulative impacts. As a result, communities of color are exposed to much higher levels of pollution.

According to CalEnviroScreen4.0, a state index that measures pollution burden and vulnerability, the Carson/Wilmington area is 90 percent Hispanic and carries a pollution burden score of over 90 percent, meaning it has a higher pollution burden than 90 percent of the census tracts in California. This area is bordered by the Ports of Long Beach and Los Angeles (San Pedro Bay Port Complex). This port complex accounts for about 40 percent of the waterborne cargo that enters the country.<sup>6</sup> Approximately 70 percent of these cargo containers are transported out of the ports on trucks.<sup>7</sup> Roughly 3,624,000 truck trips were made from the ports in 2021 to warehouses in the Inland Empire with an estimated “179 million truck miles for imported containers leaving the ports in 2021.”<sup>8</sup> Most ocean-going vessels and vehicles transporting this cargo run on toxic diesel engines.<sup>9</sup> Accordingly, residents and their children in the Carson/Wilmington region live with high rates of cancer, miscarriages, frequent nosebleeds, headaches, rashes, and respiratory issues, especially asthma.<sup>10</sup> The harms faced by residents in Carson/Wilmington are representative of the harms experienced by other minority communities across the state. These extreme pollution levels are only compounded by facilities where LSI forklifts operate, including warehouses and distribution centers.

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<sup>1</sup> Cresencio Rodriguez-Delgado, California has some of the worst air quality in the country. The problem is rooted in the San Joaquin Valley, PBS <https://www.pbs.org/newshour/nation/california-has-some-of-the-worst-air-quality-in-the-country-the-problem-is-rooted-in-the-san-joaquin-valley> (Jun. 16, 2022).

<sup>2</sup> According to CALSTART, “[z]ero-emission equipment has already significantly infiltrated the U.S. forklift market... the market continued to shift even more in favor of the battery-electric option.” Jessie Lund (CALSTART) et al., Technology and Market Assessment of Zero-Emission Off-Road Equipment, [https://calstart.org/wp-content/uploads/2022/10/off\\_road\\_report\\_october\\_2022.pdf](https://calstart.org/wp-content/uploads/2022/10/off_road_report_october_2022.pdf), p. 25 (October 2022).

<sup>3</sup> ISOR 4-5.

<sup>4</sup> Kaveh Waddell, When Amazon Expands, These Communities Pay the Price, Consumer Reports, <https://www.consumerreports.org/cars/corporate-accountability/when-amazon-expands-these-communities-pay-the-price-a2554249208/> (Dec. 9, 2021).

<sup>5</sup> *Id.*

<sup>6</sup> Port of L.A., San Pedro Bay Ports Announce New Measures to Speed Cargo Throughput, [San Pedro Bay Ports Announce New Measures to Speed Cargo Throughput | References | Port of Los Angeles](#) (Sep. 17, 2021).

<sup>7</sup> Daniel Flaming et al., Economic Roundtable, Someone Else’s Ocean, p. 46 (Jun. 2022).

<sup>8</sup> *Id.*

<sup>9</sup> Tony Barboza, Los Angeles Times, Port ships are becoming L.A.’s biggest polluters. Will California force a cleanup? <https://www.latimes.com/california/story/2020-01-03/port-ships-are-becoming-la-worst-polluters-regulators-plug-in> (Jan. 2020).

<sup>10</sup> Amy Mall & Sujatha Bergen, Life Alongside Oil Infrastructure in Wilmington, CA, [Life Alongside Oil Infrastructure in Wilmington, CA \(nrdc.org\)](#), NRDC Expert Blog (Oct 25, 2021).

Neighborhoods across the Inland Empire are plagued by warehouses and the polluting vehicles and equipment attracted to these facilities. Since the 1980s, the number of warehouses in the Inland Empire has doubled every decade to meet the demand of increasing cargo volumes from the San Pedro Bay Ports.<sup>11</sup> There are over 32,000 warehouse facilities in the South Coast Air Basin, and more than 3,300 warehouses larger than 100,000 square feet. In the Inland Empire alone, warehouses account for more than a billion square feet and cover almost 37 contiguous square miles.<sup>12</sup> Emissions from LSI forklifts operating at warehouses combined with fumes from diesel-fueled trucks is a deadly mix. Beyond increasing negative health impacts in neighborhoods, pollution from LSI forklifts also harms the health of workers operating this equipment daily. CARB must develop a strong Zero-Emission Forklifts Rule that will protect community health, worker safety, and facilitate a rapid transition to zero-emission forklifts. Replacing LSI forklifts with healthier and more efficient zero-emission models is a low-hanging fruit.

## **II. We support expanding the scope of the Zero-Emission Forklifts Rule to include forklifts with a rated capacity greater than 12,000 pounds.**

THE Impact Project coalition and its allies would like to thank CARB for expanding scope of the Proposed Regulation to include Class IV forklifts with a lift capacity greater than 12,000 pounds. This change is sensible given the availability of this technology. In addition, we would like to thank CARB for recognizing that a wide range of battery-electric forklifts are already commercially available and in use. Approximately 90 models of ZE forklifts with a rated capacity of over 12,000 pounds are eligible for funding through CARB's Clean Off-Road Equipment (CORE) Voucher Incentive Project.<sup>13</sup> And we applaud CARB for funding approximately 40 forklifts with a rated capacity of over 12,000 pounds through this program.

From 2026 through 2038, CARB's proposed ZE Forklifts Rule is slated to reduce statewide emissions from forklifts by approximately 18,700 tons of NOx, 2,100 tons of PM2.5. These emission reductions would prevent 544 premature deaths, 132 hospitalizations for heart and lung disease, 469 emergency department visits, and 42 cases of lung cancer incidence. However, CARB can still create an even stronger proposal and bring additional emission reductions to communities. The proposed rule is an opportunity to accelerate the transition to zero-emissions at warehouses and other facilities across the state and provide relief to environmental justice communities.

## **III. CARB must strengthen the ZE Forklifts regulation to protect public health.**

Although we appreciate that CARB is pursuing this important regulation to transition California's forklifts to zero-emissions, the proposed 2038 phaseout timeline does not comport with the air quality crisis we are experiencing in the State. As previously mentioned, many forklifts covered under this regulation are used in warehouses and industrial operations, with 26 percent of affected LSI forklifts in the retail and wholesale sector, and 17 percent in manufacturing.<sup>14</sup> As discussed in section II, warehouse-adjacent communities and communities living near freight corridors experience disproportionate pollution burdens because of the highly polluting equipment operating nearby, including LSI forklifts. We continue to see a boom in warehousing throughout California, particularly in regions such as the Inland Empire, and a strong Zero-Emission Forklifts rule is essential to reducing health harms for impacted communities.

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<sup>11</sup> Justin Ho, *In California's Inland Empire, the warehousing industry's growth comes with consequences*, MARKETPLACE, Apr. 19, 2023, <https://www.marketplace.org/2023/04/19/california-inland-empire-warehousing-industry-growth/>.

<sup>12</sup> Susan A. Phillips, *Op-Ed: We mapped the warehouse takeover of the Inland Empire. The results are overwhelming*, L.A. TIMES, May 1, 2022, <https://www.latimes.com/opinion/story/2022-05-01/inland-empire-warehouse-growth-map-environment>.

<sup>13</sup> [https://ww2.arb.ca.gov/sites/default/files/2023-03/ZEF%20Workshop%20Presentation%2003222023%20\(3\).pdf](https://ww2.arb.ca.gov/sites/default/files/2023-03/ZEF%20Workshop%20Presentation%2003222023%20(3).pdf).

<sup>14</sup> ISOR, 121.

CARB identified the need for a Zero-Emissions Forklift regulation in 2015, as part of its strategy to move the state towards a sustainable freight transport system, and projected implementation of such a regulation in 2020.<sup>15</sup> The regulation has been delayed significantly and fails to meet the moment, particularly for an industry that is primed for electrification. Three years ago, Governor Newsom issued an Executive Order calling for California to transition to 100 percent zero-emission off-road vehicles and equipment by 2035.<sup>16</sup> The proposal does not even meet this goal.

We ask that CARB align the proposal with Executive Order N-79-20 and require the phaseout of LSI forklifts by 2035. This rule applies to a sector where zero-emission technology is commercially available and has been widely used in many applications for decades. CARB's Initial Statement of Reasons notes that there are almost 400 models commercially available now.<sup>17</sup> Class I electric forklifts with pneumatic tires can replace Class V internal combustion outdoor forklifts, and models with up to 20,000 lbs. capacity are available.<sup>18</sup>

Technology is also rapidly evolving and making electrification of forklifts even more viable. Specifically, innovations in battery technology are likely to shift the market towards lithium-ion forklifts and adoption of this technology is projected to increase rapidly over the next five years. CALSTART estimates that 75 percent of forklifts sold in the United States in 2029 will be battery-electric, with over half of these zero-emission forklifts being powered by lithium-ion batteries.<sup>19</sup> Global market share of lithium forklifts is expected to exceed 50 percent in 2030, and several European countries and China may achieve over 50 percent lithium forklifts by 2025.<sup>20</sup> Lithium battery technology has significant benefits, including increased efficiency, quick recharge time, zero maintenance, and longer battery lifecycle.<sup>21</sup> Manufacturers are producing electric forklifts for heavy-duty applications,<sup>22</sup> and large-capacity lithium-ion battery-powered forklifts are currently operating at ports in California with greater load requirements than forklifts covered under this rule.<sup>23</sup> And as CARB acknowledges in its Initial Statement of Reasons, there are clear benefits to electrifying forklifts, including less maintenance and lower running costs. With the use of electric forklifts, forklift operators and warehouse employees are also exposed to less emissions, fumes, and noise.<sup>24</sup>

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<sup>15</sup> California Air Resources Board, Sustainable Freight Pathways to Zero and Near-Zero Emissions, 5 (Apr, 2015), <https://ww2.arb.ca.gov/sites/default/files/2020-09/Sustainable%20Freight%20Pathways%20to%20Zero%20and%20Near-Zero%20Emissions%20Discussion%20Document.pdf>.

<sup>16</sup> Exec. Order N-79-20, <https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf>.

<sup>17</sup> ISOR, 8, 32.

<sup>18</sup> Electric Power Research Institute, Electric Forklifts (Apr. 2015), [https://ww2.arb.ca.gov/sites/default/files/2020-08/eprl\\_2015\\_e\\_forklift.pdf](https://ww2.arb.ca.gov/sites/default/files/2020-08/eprl_2015_e_forklift.pdf).

<sup>19</sup> Jacob Whitson, *Electrification of forklifts continues to show rapid growth*, American Journal of Transportation (Mar. 6, 2023), <https://www.ajot.com/insights/full/ai-electrification-of-forklifts-continues-to-show-rapid-growth>.

<sup>20</sup> Modern Materials Handling, *Forklift market to be 50% bigger by 2032*, *Interact Analysis forecasts* (Dec. 8, 2023), [https://www.mmh.com/article/forklift\\_market\\_to\\_be\\_50\\_bigger\\_by\\_2032\\_interact\\_analysis\\_forecasts](https://www.mmh.com/article/forklift_market_to_be_50_bigger_by_2032_interact_analysis_forecasts).

<sup>21</sup> Dimitris Panagiotou, *The Future of Forklifts is Lithium-Ion Powered*, Supply & Demand Chain Executive (Jul. 19, 2021), <https://www.sdexec.com/warehousing/article/21509242/systems-sunlight-the-future-of-forklifts-is-lithiumion-powered>.

<sup>22</sup> Yale 4-wheel electric forklift trucks, <https://www.yale.com/en-us/north-america/4-wheel-electric-forklift-trucks/erp155-190vnl-na/> (as of Dec. 14, 2024).

<sup>23</sup> American Journal of Transportation, *First and largest fleet of high-capacity zero-emission forklifts now in full operation at SSA Marine in the Port of West Sacramento and Port of Stockton* (May 2, 2023), <https://www.ajot.com/news/first-and-largest-fleet-of-high-capacity-zero-emission-forklifts-now-in-full-operation-at-ssa-marine-in-the-port-of-west-sacramento-and-port-of-stockton>.

<sup>24</sup> Benjamin Troussart, *Five major benefits of electric forklifts*, Toyota Material Handling, <https://blog.toyota-forklifts.eu/5-benefits-of-electric-forklifts> (last accessed Dec. 11, 2023).

An earlier phaseout date would result in important health benefits throughout the State and is technologically feasible. CARB's analysis of Alternative 1, which would phase out Class IV and V forklifts by 2032, demonstrates that a more aggressive timeline would result in significant emission reductions – an additional 39 percent of NOx benefits and 38 percent more PM2.5 benefits, compared to the proposal.<sup>25</sup> The increased emission reductions would prevent 736 premature deaths statewide, with 583 of lives saved in the South Coast Air Basin,<sup>26</sup> a region that has seen exponential growth in warehousing over the past several decades. These additional benefits are valued at \$10.2 billion, 36 percent higher than the \$7.5 billion in benefits of the proposed regulation.<sup>27</sup> The health benefits still far exceed the cost of Alternative 1, with an estimated cumulative net cost of \$5 billion between 2026 and 2043.<sup>28</sup> While CARB has rejected Alternative 1 as too burdensome for fleets,<sup>29</sup> a 2035 deadline would provide an additional three years for fleets to transition to electrification, and a longer time horizon for advancements in lithium battery-powered forklifts to be developed and manufactured. Considering the enormous public health benefits that could be realized with an earlier phaseout date, we urge CARB to strengthen the proposed ZE Forklifts Regulation and mandate phaseout of LSI forklifts by 2035.

The proposed rule should also not permit the sale of used LSI forklifts, as this contradicts the stated purpose of this regulation: to enable California to move towards 100% zero-emission forklifts. The current proposal lacks ambition in only requiring phaseout by 2038 for a sector where the technology is already proven and in use. The 2038 deadline is eight years beyond the 2030 goal that the San Pedro Bay Ports and Port of San Diego have set to transition Cargo Handling Equipment to 100% zero emissions. Significant flexibility is already built into the rule, with exemptions accounting for any delays in infrastructure and technical infeasibility, and as previously noted, fleets can take advantage of numerous funding and incentive programs, such as CARB's Clean Off-Road Equipment Voucher Incentive Project (CORE) and Carl Moyer Program.<sup>30</sup>

#### **IV. Conclusion**

We appreciate CARB's hard work on the ZE Forklifts Regulation. In order to address the air quality challenges in California, we need to transition every segment of our transportation sector to zero-emissions. This regulation is an important step in that direction, but we urge CARB to adopt a more ambitious proposal that will bring us to 100 percent zero-emission forklifts by 2035. Thank you for your consideration of our comments.

Sincerely,

Alison Hahm  
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Regina Hsu  
Earthjustice

Yassi Kavezade  
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<sup>25</sup> ISOR, 191.

<sup>26</sup> *Id.* at 196.

<sup>27</sup> *Id.* at 195.

<sup>28</sup> *Id.* at 200.

<sup>29</sup> *Id.* at 203.

<sup>30</sup> *Id.* at 55-60.

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