

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Second Draft Staff Report

Proposed Rule 2305 – Warehouse Indirect Source Rule - Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program and Proposed Rule 316 – Fees for Rule 2305

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CHAPTER 1: BACKGROUND

INTRODUCTION

AIR QUALITY MANAGEMENT PLAN

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EMISSIONS INVENTORY OF PR 2305 WAREHOUSES

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INTRODUCTION

Proposed Rule (PR) 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program and PR 316 – Fees for Rule 2305 would apply to operators and owners of existing and new warehouses with floor space greater than or equal to 100,000 square feet within a single building. These warehouses are used to receive, store, and serve as a distribution point for goods. The majority of emissions associated with warehouses are from on-road vehicles such as trucks that deliver goods, and off-road vehicles such as cargo handling equipment. PR 2305 would require warehouses subject to the rule to annually take actions that either reduce emissions regionally and locally or that facilitate emission reductions.

More specifically, PR 2305 requires warehouse operators of warehouses subject to PR 2305 to earn a certain number of points each year from emission-reducing activities or payment of a mitigation fee. This program would work similarly to the LEED system by the United States Green Building Council in that actions are assigned a specified level of points based on a menu.¹ For PR 2305, the amount of points every warehouse operator must earn annually depends upon the number of truck trips to their warehouse.² Second, an operator may choose to apply to implement a site-specific custom plan that incorporates actions that are not on the menu, plan approval is required prior to being able to earn points. Custom plans could include onsite and offsite measures within the control of the operator that can be demonstrated to reduce emissions of NO_x and/or diesel PM. Third, an operator may choose to pay a mitigation fee to South Coast AQMD. The funds generated from the mitigation fee will be used to provide financial incentives for truck owners to purchase NZE or ZE trucks, or for the installation of fueling and charging infrastructure, with priority given for projects in the communities near warehouses that paid the fee. In addition, warehouse operators and owners would also have reporting and recordkeeping requirements. Finally, warehouse operators would pay fees as established by PR 316 to reimburse South Coast AQMD for administrative costs associated with ensuring compliance with PR 2305.

There are many factors that go into determining the stringency of proposed rules. For PR 2305, the draft stringency recommended here considered the following points: the need for emission reductions, the significance of emissions associated with the warehousing industry, the potential emissions reductions from PR 2305 when considering other measures, and the impact to industry. The analysis included in this Draft Staff Report and in the accompanying Draft Environmental Assessment (CEQA analysis) and Draft Socioeconomic Impact Assessment describe the information used to develop the proposed rule approach.

AIR QUALITY MANAGEMENT PLAN

The South Coast Air Quality Management District (South Coast AQMD) is the regional air quality regulatory agency for all of Orange County, and large portions of Los Angeles, Riverside, and San Bernardino counties. It is responsible for developing and enforcing air pollution control rules and regulations and implementing strategies to meet attainment standards for the South Coast Air Basin (SCAB) and the Riverside County portions of both the Salton Sea Air Basin (SSAB) and the

¹ There are two important distinctions between LEED and PR 2305. First, the point values between the two systems are completely separate and do not relate to each other. Second, PR 2305 requires annual compliance whereas LEED typically is accomplished on a one-time basis during building construction/design or during renovation.

² Point values consider regional and local emission reductions and cost, but warehouse operators do not need to calculate these values. See Chapter 2 for additional detail.

Mojave Desert Air Basin (MDAB). The federal Clean Air Act (CAA) requires the submission of State Implementation Plans (SIP) for nonattainment areas that do not meet the federal National Ambient Air Quality Standards (NAAQS). Additionally, the California Clean Air Act (CCAA) imposes further requirements on meeting state ambient air quality standards for criteria pollutants. South Coast AQMD's jurisdiction is currently classified as being in extreme nonattainment status for the federal NAAQS ozone standards, and serious nonattainment for the federal fine Particulate Matter (PM 2.5) standards.

Per the California Health and Safety Code, the South Coast AQMD is required to adopt an Air Quality Management Plan (AQMP) to demonstrate compliance with both federal and state ambient air quality standards for South Coast AQMD's jurisdiction.³ The AQMP is a blueprint for meeting federal and state air quality standards, which include the NAAQS for the South Coast AQMD jurisdiction. On March 3, 2017, South Coast AQMD's Governing Board adopted the 2016 AQMP.⁴ Based on analysis in the 2016 AQMP, in order to attain the 8-hour ozone standards by the NAAQS deadlines, the total SCAB emissions of NO_x must be reduced to approximately 141 tons per day in 2023 and 96 tons per day in 2031. This represents an additional 45% reduction in NO_x beyond baseline 2023 levels, and an additional 55% NO_x reduction beyond baseline 2031 levels. As seen in Figure 1, approximately 80% of NO_x emissions in 2023 and 2031 will be from mobile sources. The control strategy in the 2016 AQMP includes many stationary and mobile source measures that will be carried out by the South Coast AQMD and the California Air Resources Board (CARB) (Figure 2). To attain the federal ozone and PM 2.5 NAAQS, the 2016 AQMP relies on reducing regional NO_x emissions as a primary strategy (NO_x is a precursor to the formation of both ozone and PM 2.5), but also includes measures to reduce directly emitted PM 2.5.

CARB is committed to achieving emission reductions with its state Mobile Source Strategy (MSS) in the State Implementation Plan (SIP). However, the majority of these emission reductions come from measures titled as "Further Deployment of Cleaner Technologies" (Further Deployment Measures), which were not fully defined. The Further Deployment Measures are expected to reduce 108 tons per day of NO_x emissions beyond baseline by 2023 and 88 tons per day beyond baseline by 2031.

³ Health and Safety Code Section 40460(a)

⁴ South Coast AQMD, Final 2016 Air Quality Management Plan, March 2017. <https://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/final-2016-aqmp>

Figure 1: South Coast Air Basin Baseline NOx Emissions and Reductions Needed to Achieve Federal 8-Hour Ozone NAAQS

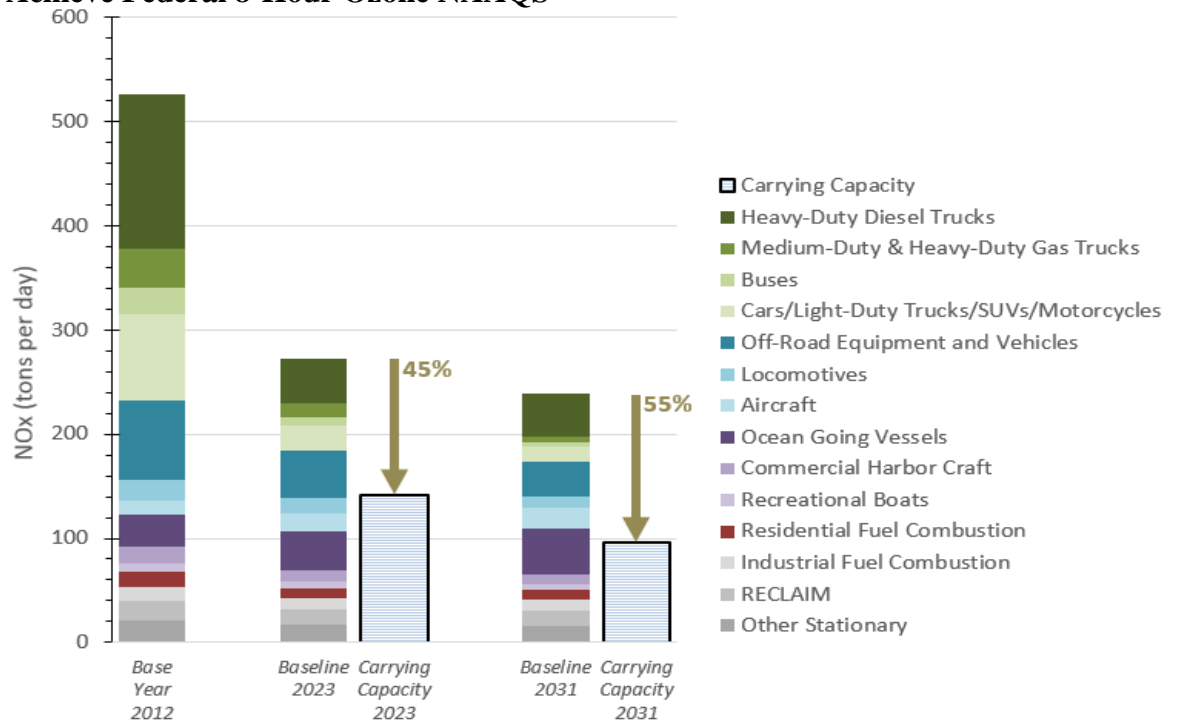
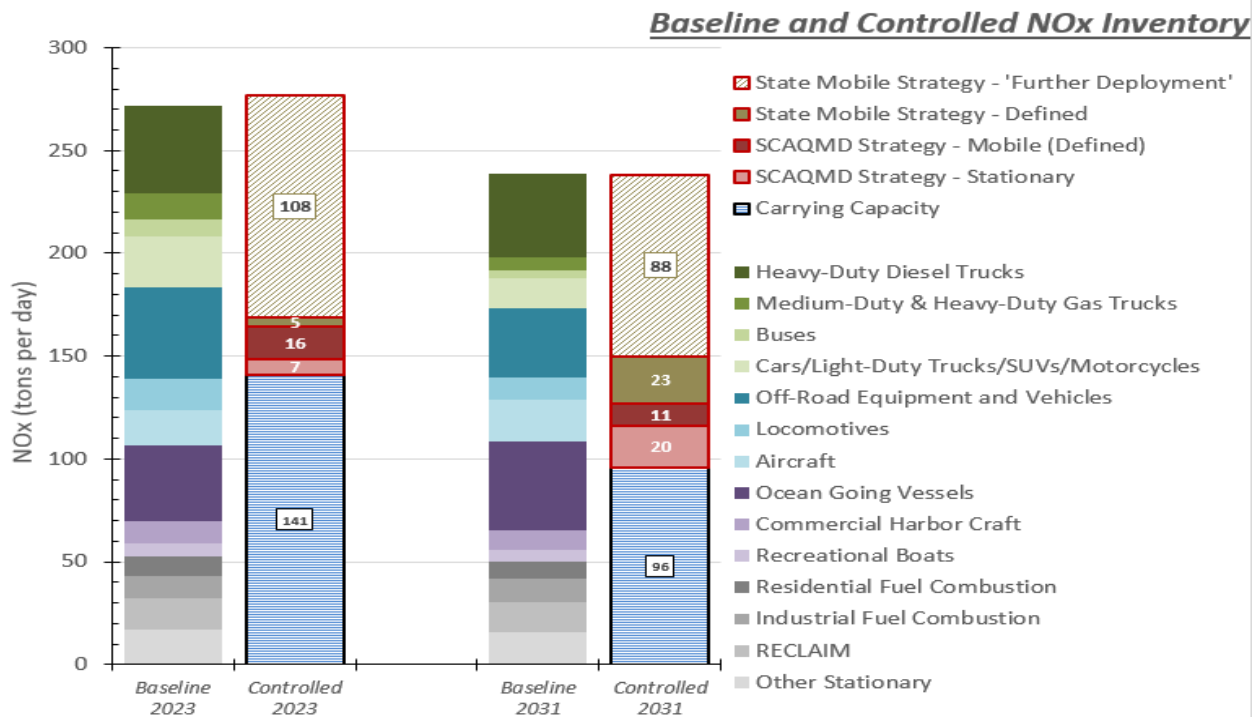


Figure 2: NOx Control Strategy in the 2016 AQMP



RULEMAKING BACKGROUND

Implementation of the Further Deployment Measures described above is based on a combination of incentive funding and development of new regulations. In the 2016 AQMP, the South Coast AQMD committed to assist CARB and U.S. EPA in developing the Further Deployment Measures, including through the development of local Facility Based Mobile Source Measures (FBMSMs). One of the FBMSMs includes MOB-03 – Emissions Reductions at Warehouse Distribution Centers.

The 2016 AQMP described a year-long process for staff to evaluate potential emissions reduction strategies for the FBMSMs and report back to the Governing Board on the most promising approach. South Coast AQMD staff convened a working group to explore potential voluntary and regulatory approaches for warehouses,⁵ consistent with what was outlined in the 2016 AQMP for control measure MOB-03. After considering the results of that year-long process, in May 2018, the Governing Board directed staff to initiate rulemaking for a warehouse Indirect Source Rule (ISR),⁶ namely Proposed Rule (PR) 2305 and PR 316.

Other South Coast AQMD Air Quality Plans

The South Coast AQMD Governing Board has approved several other plans since adoption of the AQMP that would also benefit from adoption of PR 2305 and PR 316. These include the Contingency Measure Plan for the 1997 8-hour Ozone Standard⁷, and multiple Community Emission Reduction Plans (CERPs) prepared pursuant to Assembly Bill (AB) 617.

The Contingency Measure Plan describes the measures that must be implemented to meet the 2023 attainment deadline for the federal ozone standard. This plan lays out in greater detail many of the strategies included in the 2016 AQMP, in particular for the Further Deployment Measures. With the approval of this plan, the South Coast AQMD Governing Board committed to achieving between 14.4 and 16.4 tons per day of NO_x reductions by 2023.⁸

Assembly Bill (AB) 617 is a program established to address the disproportionate burden of air pollution on environmental justice communities, by providing funding and enabling selected communities to shape the actions to reduce emissions. In December 2018, CARB approved the South Coast AQMD Year 1 admission of the communities of San Bernardino/Muscoy, East Los Angeles/Boyle Heights/West Commerce, and Wilmington/Carson/West Long Beach into the AB 617 Program. These AB 617 Year 1 communities established Community Steering Committees (CSCs) to work on the development of CERPs to serve as a road map on how to address each respective community's air quality concerns, and in September 2019, the South Coast AQMD Governing Board adopted the AB 617 CERPs. All three of the South Coast AQMD Year 1 AB 617 communities requested that a warehouse ISR be developed due to their concerns regarding air

⁵ Presentation materials from this process are available here: <http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/facility-based-mobile-source-measures/fbmsm-mtngs>

⁶ <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2018/2018-may4-032.pdf>
<http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2018/2018-jun1-001.pdf>

⁷ <http://www.aqmd.gov/docs/default-source/planning/1997-ozone-contingency-measure-plan/1997-8-hour-ozone-draft-contingency-measure-plan---120619.pdf>

⁸ <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2019/2019-dec6-028.pdf>

pollution impacts from trucks and diesel PM.⁹ Similar to the Year 1 AB 617 communities, the Year 2 AB 617 community of South East Los Angeles also included in their CERP a request for continued development of the warehouse ISR to reduce emissions in their community.¹⁰

State Goals

Several state goals have focused on the need to accelerate the adoption of lower emission technologies, in particular Zero Emissions (ZE) vehicles. Two notable examples include CARB's Draft Mobile Source Strategy (MSS)¹¹ and a recent executive order from the governor.¹²

CARB's Draft MSS is an integrated planning effort designed to meet state goals for criteria pollutants, greenhouse gases, and toxics. One of the key conclusions from this analysis is that a significant portion of the existing mobile source fleet (trucks, cars, off-road equipment, etc.) will need to convert to ZE technologies quickly to meet multiple state goals, including attainment of federal air quality standards. While some strategies like the recently adopted Advanced Clean Trucks (ACT) regulation¹³ have been more clearly defined in the Draft MSS and through CARB rulemaking efforts, other strategies are still undefined and rely on unspecified "accelerated turnover" to ZE technologies, including for emissions sources associated with warehouses, such as trucks and cargo handling equipment. Further, in September 2020, the governor of California signed an executive order directing state agencies to pursue ZE goals for mobile sources. This includes a goal of a 100% ZE truck fleet by 2045, a 100% ZE drayage truck fleet (trucks that visit ports and railyards) by 2035, and 100% ZE off-road equipment operations by 2035. Although this goal sets out potential targets, it does not include any enforceable mechanism and funding programs and regulations (such as PR 2305) that are needed to achieve the targets.

Public Process

Since the South Coast AQMD Governing Board voted to initiate rulemaking in May 2018, staff has held 12 working group meetings, presented five updates to the Mobile Source Committee and two updates to the full South Coast AQMD Governing Board. Written materials include the Preliminary Draft Staff Report, this Draft Staff Report, three drafts of PR 2305 and two drafts of PR 316, and three draft technical reports on the WAIRE Menu. Dates for each of these activities is listed in Table 1.

⁹ <http://www.aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/san-bernardino/cerp/carb-submittal/final-cerp.pdf>

<http://www.aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/east-la/cerp/carb-submittal/final-cerp.pdf>

<http://www.aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/wilmington/cerp/final-cerp-wcwl.pdf>

¹⁰ <http://www.aqmd.gov/docs/default-source/ab-617-ab-134/steering-committees/southeast-los-angeles/draft-cerp-5b-trucks.pdf>

¹¹ <https://ww2.arb.ca.gov/resources/documents/2020-mobile-source-strategy>

¹² <https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-text.pdf>

¹³ <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks>

Table 1: Dates of Key Public Process Activities Prior to Release of Draft Staff Report

Activity	Dates
Working Group Meetings	Aug. 1, 2018; Aug. 23, 2018; Oct. 24, 2018; Mar. 22, 2019; Aug. 23, 2019; Sept. 19, 2019; Nov. 13, 2019; Dec. 10, 2019; Mar. 3, 2020; Oct. 9, 2020; Oct. 30, 2020; Dec. 17, 2020
Public Workshop & Community Meeting	Feb. 16, 2021, Feb. 17, 2021
Mobile Source Committee Updates	Nov. 16, 2018; Feb. 15, 2019; Sept. 20, 2019; Jan. 24, 2020; Feb. 19, 2021
Governing Board Updates	Sept. 7, 2018; Mar. 1, 2019
Draft WAIRE Menu Technical Document and Calculator	Mar. 3, 2020 ; Jan. 15, 2021
Draft Rule Language	Nov. 10, 2019; Oct. 9 2020; Jan. 15, 2021
CEQA Notice of Preparation	Nov. 13, 2020
CEQA Draft Environmental Assessment	Jan. 20, 2021

The following potential options for reducing emissions from warehouses were discussed in the Warehouse ISR Working Group:

- Facility Caps: Allow emissions at each warehouse distribution center to be capped so each warehouse distribution center would have the flexibility to individually determine how to reduce emissions.
- Local Government Measures: Local governments may decide to tailor emission reduction strategies to address local needs (e.g., through their land use authority).
- Clean Fleets Crediting/Banking Program: Allow clean fleets to generate credits that would be managed through a bank while requiring ISR facilities to regularly purchase and apply the credits to offset emissions from individual warehouse distribution centers.
- Voluntary Fleet Certification Program: Allow fleet owners to certify their fleets are cleaner than what would otherwise be required by CARB regulations while requiring facilities to use a prescribed amount of certified fleets.
- Best Management Practices (BMPs):- Allow facilities to choose from an assortment of BMPs such as utilizing ZE or NZE equipment on site, and/or installing ZE/NZE fueling and charging infrastructure, or solar energy storage.
- Mitigation Fees:- Allow facilities to pay mitigation fees if other options are not chosen and apply collected funds to subsidize the purchase and use of ZE/NZE equipment or the installation of fueling/charging infrastructure.

Of these options, only the Best Management Practices (now the WAIRE Menu and Custom WAIRE Plan option) and the Mitigation Fee options have been carried forward to PR 2305. These options were found to be the least administratively burdensome for facilities and South Coast AQMD compliance staff and ensured that emission reductions would be focused in the communities near warehouses. The menu-based approach is similar to other rules that allow multiple options of compliance, such as South Coast AQMD Rule 2202 - On-Road Motor Vehicle

Mitigation Options¹⁴ that focuses on reducing emissions from employee commutes, Rule 403 – Fugitive Dust¹⁵ that focuses on reducing particulate matter emissions from activities like earth moving. Both rules allow multiple options to comply with overall requirements in each rule. PR 2305 will also include a points-based system that is similar to programs widely used in South Coast AQMD’s jurisdiction for development projects including LEED for green building design,¹⁶ and San Bernardino’s Greenhouse Gas Reduction Plan¹⁷. Both programs assign points based on actions taken from a menu, and assign a rating based on the total number of points earned. PR 2305 will take a similar approach to these successful programs (and additionally includes many menu items that can be used in LEED and San Bernardino’s GHG Reduction Plan). PR 2305 and PR 316 are described in greater detail in Chapter 2.

EMISSIONS INVENTORY OF PR 2305 WAREHOUSES

The sources of emissions associated with warehouses include the trucks that deliver goods to and from the facilities, yard trucks located at warehouses that move trailers, transport refrigeration units (TRUs) located on trucks and trailers that keep cargo, like food, cold, and the passenger vehicles for warehouse employees. Additional emissions sources can include onsite stationary equipment (e.g., diesel backup generators or manufacturing equipment), and emissions from power plants that provide electricity for the warehouse – though these sources have not been included in the baseline emissions inventory. Most of these vehicles are diesel powered, except for passenger vehicles which are typically gasoline powered.

The emissions inventory established in the 2016 AQMP provides a platform from which to develop a baseline inventory for the universe of warehouses that would be subject to PR 2305 and PR 316. However, there are several developments that have occurred since the approval of the 2016 AQMP. First, the on-road mobile emissions inventory developed by CARB that was used in the 2016 AQMP is EMFAC 2014. However, a newer version of that model has since been approved by U.S. EPA (EMFAC 2017) with updated emission rates. Second, the CARB Board has approved two key regulations that will affect trucks that travel to warehouses called the Advanced Clean Trucks regulation¹⁸ and the Low NOx Omnibus regulation.¹⁹ Finally, CARB and U.S. EPA are continuing to develop additional regulations, but many are too speculative to consider at their current level of development. One future regulation, the Heavy-Duty Inspection and Maintenance (I/M) regulation,²⁰ is considered here as there is statutory direction for CARB to develop and adopt it²¹ and the regulation has been developed sufficiently to provide a preliminary quantification of the impact. The emissions data from these more recent regulations are included either in the META tool that CARB developed to support their Draft Mobile Source Strategy, and/or within the documentation that CARB has prepared for each regulation. The key data parameters and the associated data sources are listed in Table 2 below.

¹⁴ <http://www.aqmd.gov/docs/default-source/rule-book/reg-xxii/rule-2202.pdf>

¹⁵ <http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf>

¹⁶ <https://www.usgbc.org/leed>

¹⁷ <http://www.sbcounty.gov/Uploads/lus/GreenhouseGas/FinalGHGUpdate.pdf>

¹⁸ Ibid.

¹⁹ <https://ww2.arb.ca.gov/our-work/programs/heavy-duty-low-nox>

²⁰ <https://ww2.arb.ca.gov/our-work/programs/heavy-duty-inspection-and-maintenance-program>

²¹ Senate Bill 210, http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201920200SB210

Table 2: Key Data Sources Used for PR 2305 Emissions Inventory

Parameter	Data Sources	Data Availability
Warehouse Populations and Square Footage ²²	CoStar, Dun & Bradstreet, InfoUSA, Leonard's Guide, Google Earth	www.costar.com www.dnb.com , www.dataaxleusa.com , www.leonardsguide.com , www.google.com/earth
Truck Emission Rates	EMFAC 2017, CARB META Tool	https://arb.ca.gov/emfac/2017/ , ww2.arb.ca.gov/resources/documents/2020-mobile-source-strategy
Truck and Car Trip Rates	Institute of Transportation Engineers, 2016. <i>High-Cube Warehouse Vehicle Trip Generation Analysis</i>	www.ite.org/pub/?id=a3e6679a%2De3a8%2Dbf38%2D7f29%2D2961becdd498
Truck and Car Trip Lengths	SCAG 2016 Regional Transportation Plan	https://scag.ca.gov/resources-prior-plans
TRU Populations and Emissions Rates	CARB TRU rulemaking analysis	https://ww2.arb.ca.gov/our-work/programs/transport-refrigeration-unit/tru-meetings-workshops
Yard Truck Populations	Power Systems Research	www.powersys.com
Yard Truck Emission Rates	CARB Carl Moyer Guidelines, CARB Low NOx Omnibus rulemaking analysis	https://ww2.arb.ca.gov/guidelines-carl-moyer , https://ww2.arb.ca.gov/rulemaking/2020/hdomnibuslownox

The NO_x and diesel PM baseline emissions in the South Coast AQMD associated with warehouses in key milestone years is shown in Table 3 below. As seen in this table, heavy duty trucks are the largest source of emissions, comprising more than 90% of the total PR 2305 inventory.

Table 3: PR 2305 Warehouse NO_x and Diesel PM Emissions²³ (tons per day)

Emission Source	2019		2023		2031	
	NO _x	DPM	NO _x	DPM	NO _x	DPM
Heavy Duty Trucks	41.67	0.67	20.20	0.14	16.81	0.12
Passenger Vehicles	1.14	0.02	0.70	0.02	0.39	0.01
TRUs	1.82	0.08	1.64	0.07	1.61	0.06
Yard Trucks	0.09	0.003	0.09	0.003	0.08	0.003
<i>Total</i>	<i>44.72</i>	<i>0.774</i>	<i>22.61</i>	<i>0.23</i>	<i>18.89</i>	<i>0.192</i>

²² Additional details regarding the universe of PR 2305 warehouses is described in Chapter 3 and Appendix A.

²³ Baseline emissions estimates for 2023 and 2031 are lower than previous estimates. The primary difference here is how CARB's Heavy Duty I&M regulations is included. Previous drafts included Heavy Duty I&M in the emission reductions, but not in the baseline inventory.

AIR QUALITY NEED

There are six key reasons why PR 2305 and PR 316 are needed. First and foremost, the SCAB region continues to experience ozone and fine particulate matter levels that exceed federal air quality standards. This poor air quality is among the worst, if not the worst in the nation.²⁴ Attaining the air quality standards yields monetized health benefits that are estimated to be about \$173 billion.²⁵ NO_x is the primary pollutant that needs to be reduced to meet federal air quality standards, and mobile sources associated with goods movement make up about 52% of all NO_x emissions in the SCAB.²⁶ Trucks are the largest source of NO_x emissions in the air basin and also for the emissions associated with warehouses. Any diesel PM reductions brought about by PR 2305 and PR 316 will also help meet federal air quality standards for fine PM. PR 2305 and PR 316 would reduce emissions from the goods movement sector by requiring warehouse operators to take actions to reduce emissions directly or through facilitating emissions reductions.

Second, existing regulations are not sufficient to meet either the 2023 or 2031 attainment dates. Even newly proposed regulations from CARB and U.S. EPA (as shown in CARB's Draft MSS) will not be able to meet these air quality standards on their own, and additional actions are needed. No single regulation could achieve federal air quality standards on its own, including PR 2305 and PR 316. However, these proposed rules are designed to contribute their own additional emissions reductions and enhance emission reductions from other programs, and are part of the collection of actions needed to meet air quality standards.

Third, the 2016 AQMP estimated that at least \$1 billion per year in incentive funding to clean up vehicle and engine fleets would be needed – absent any further regulations – to meet the 2023 and 2031 attainment dates. Although incentive funding has increased, reaching between about \$100 to \$200 million per year over the past few years,²⁷ it has not reached a level sufficient to turn over enough vehicles to meet air quality standards. Many incentive programs are oversubscribed,²⁸ with demand far exceeding funding availability. However, some programs are undersubscribed.²⁹ PR 2305 and PR 316 are designed to work with existing and future incentive programs, and can help encourage greater levels of incentive funding and encourage applicants to apply for funding. The regulatory requirements in PR 2305 and PR 316 are expected to increase industry's interest in incentive programs in order to reduce the cost of compliance. This can help ensure that all incentive funds are spent and can potentially spread incentives to a broader segment of industry if more recipients sign up for funding. Finally, much of the incentive funding that South Coast AQMD distributes is allocated annually as part of the state legislature's budgetary process. A regulatory requirement may increase the request for funding from the legislature by many stakeholders, which has the potential to further increase the amount of funding available and reducing the cost of compliance to industry.

²⁴ <https://www.stateoftheair.org/assets/SOTA-2020.pdf>

²⁵ http://www.aqmd.gov/docs/default-source/clean-air-plans/socioeconomic-analysis/final/sociofinal_030817.pdf

²⁶ https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial_goods-movement.pdf?1606001690

²⁷ <http://www.aqmd.gov/docs/default-source/planning/1997-ozone-contingency-measure-plan/1997-8-hour-ozone-draft-contingency-measure-plan---120619.pdf>

²⁸ <http://www.aqmd.gov/docs/default-source/Agendas/Technology/technology-committee-agenda-12-18-20.pdf#page=6>

²⁹ <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2020/2020-dec4-005.pdf>

A fourth air quality need for PR 2305 and PR 316 is to support statewide efforts to increase the number of ZE vehicles. There are many actions occurring across state government to increase the use of ZE vehicles to satisfy many goals, including meeting federal and state air quality standards, reducing toxics and greenhouse gas emissions, encouraging manufacturing of ZE vehicles in the state, reducing the dependence on fossil fuels and the related impacts from extracting and producing these fuels, etc.³⁰ The South Coast AQMD is uniquely positioned to contribute to this effort with its authority to regulate indirect sources. PR 2305 and PR 316 provide a mechanism to require warehouse operators to encourage ZE vehicle use at their facilities as one of many options of compliance.

A fifth air quality need is to ensure that state actions to require cleaner vehicles actually occur in the South Coast AQMD region. The recent ACT and Low NOx Omnibus regulations assume a certain amount of new truck sales every year, and also assume that the activity of those newer, cleaner trucks will occur consistent with past behavior as demonstrated in EMFAC. However, the nature of those two regulations ensures that lower emissions occur only *if* trucks are sold. It does not require any certain number of trucks to be sold, or to operate within the South Coast AQMD.³¹ Similarly, the upcoming TRU regulation is expected to have requirements for newly manufactured trailer TRUs to meet lower PM standards, yet will not mandate that fleets purchase them, nor will it direct sales in certain parts of the state.³²

For comparison, CARB mandates a certain percentage of light duty vehicle sales to be zero emission vehicles (ZEVs) or plug-in hybrid electric vehicles (PHEVs)³³ as part of its Advanced Clean Cars (ACC) regulation.³⁴ CARB has reported that all vehicle manufacturers subject to ACC are in compliance as of 2019.³⁵ However, the distribution of ZEVs and PHEVs throughout the state does not coincide with the areas with highest air pollution. Figure 3 shows county-level median Air Quality Index (AQI)³⁶ compared with the percent of the light duty vehicle population that is ZEV or PHEV³⁷. This figure shows that three of the four counties in the South Coast AQMD jurisdiction have the highest AQI in the state, and that ZEVs and PHEVs are not preferentially located in areas with higher AQI.³⁸ PR 2305 and PR 316 would place requirements on warehouse

³⁰ <https://static.business.ca.gov/wp-content/uploads/2019/12/2018-ZEV-Action-Plan-Priorities-Update.pdf>, <https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-text.pdf>, <https://www.ca.gov/archive/gov39/2012/03/23/news17472/index.html>, <https://www.ca.gov/archive/gov39/2018/01/26/governor-brown-takes-action-to-increase-zero-emission-vehicles-fund-new-climate-investments/index.html>, <https://www.ca.gov/archive/gov39/wp-content/uploads/2018/09/9.10.18-Executive-Order.pdf>

³¹ Neither of these regulations impose any requirements on trucks registered out of state. Warehouse operators would have the choice to use ZE or NZE technologies for out of state trucks too.

³² <https://ww2.arb.ca.gov/our-work/programs/transport-refrigeration-unit/new-transport-refrigeration-unit-regulation>

³³ ZEVs and PHEVs have lower tailpipe emissions than their conventional gasoline or diesel counterparts as they can run wholly or at least partially without using an internal combustion engine.

³⁴ <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program>

³⁵ https://ww2.arb.ca.gov/sites/default/files/2020-10/2019_zev_credit_annual_disclosure.pdf

³⁶ Air Quality Index is an indicator of overall air quality and considers all criteria air pollutants measured within a geographic area. Higher values indicate worse air quality.

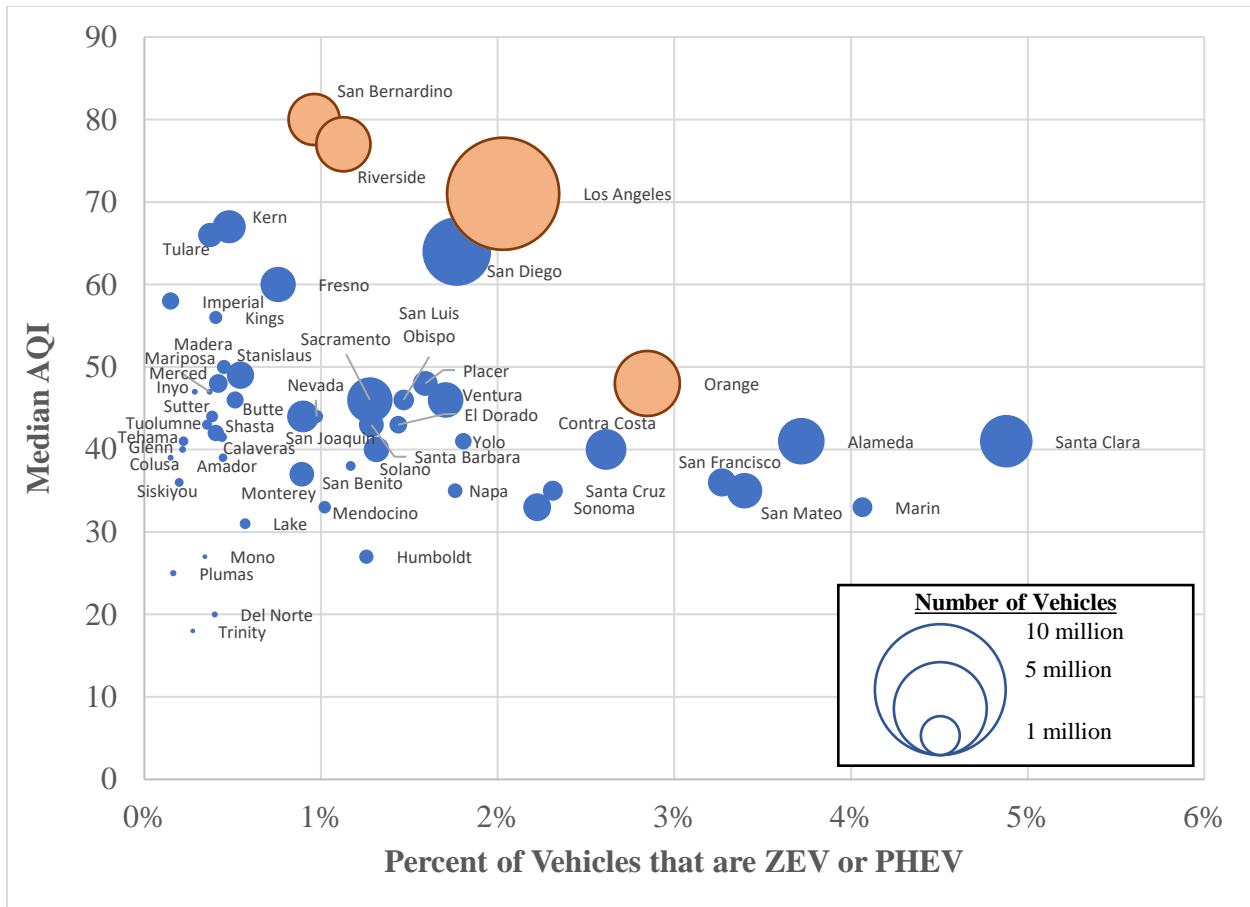
<https://www.epa.gov/outdoor-air-quality-data/air-quality-index-report>

³⁷ <https://www.energy.ca.gov/files/zev-and-infrastructure-stats-data>

³⁸ Of the 59 counties in California, Orange County ranks 6th in ZEV and PHEV share, Los Angeles County ranks 10th, Riverside County ranks 23rd, and San Bernardino County ranks 26th.

operators in South Coast AQMD that will encourage them to ensure that the potential benefits from statewide regulations occur here.

Figure 3: County-Level Median Air Quality Index vs. ZEV & PHEV Percent of Light-Duty Vehicle Population in 2019



Finally, in addition to contributing to regional pollution that exceeds federal and state air quality standards, warehouses are also associated with important localized health effects from air pollution. Communities have repeatedly expressed concern about these impacts, including through the AB 617 process. In particular, diesel fueled vehicles and equipment like on-road trucks, off-road yard trucks, and TRUs emit diesel PM, a pollutant designated as a carcinogen by the state of California.³⁹ Diesel PM contains many pollutants (e.g., benzene, acetaldehyde, etc.) which are also recognized federally as hazardous air pollutants.⁴⁰ As seen in Figure 4 below, an analysis of communities in South Coast AQMD shows that those living within 0.5 miles of a PR 2305 warehouse rank in the 80th percentile according to CalEnviroScreen⁴¹, whereas the average

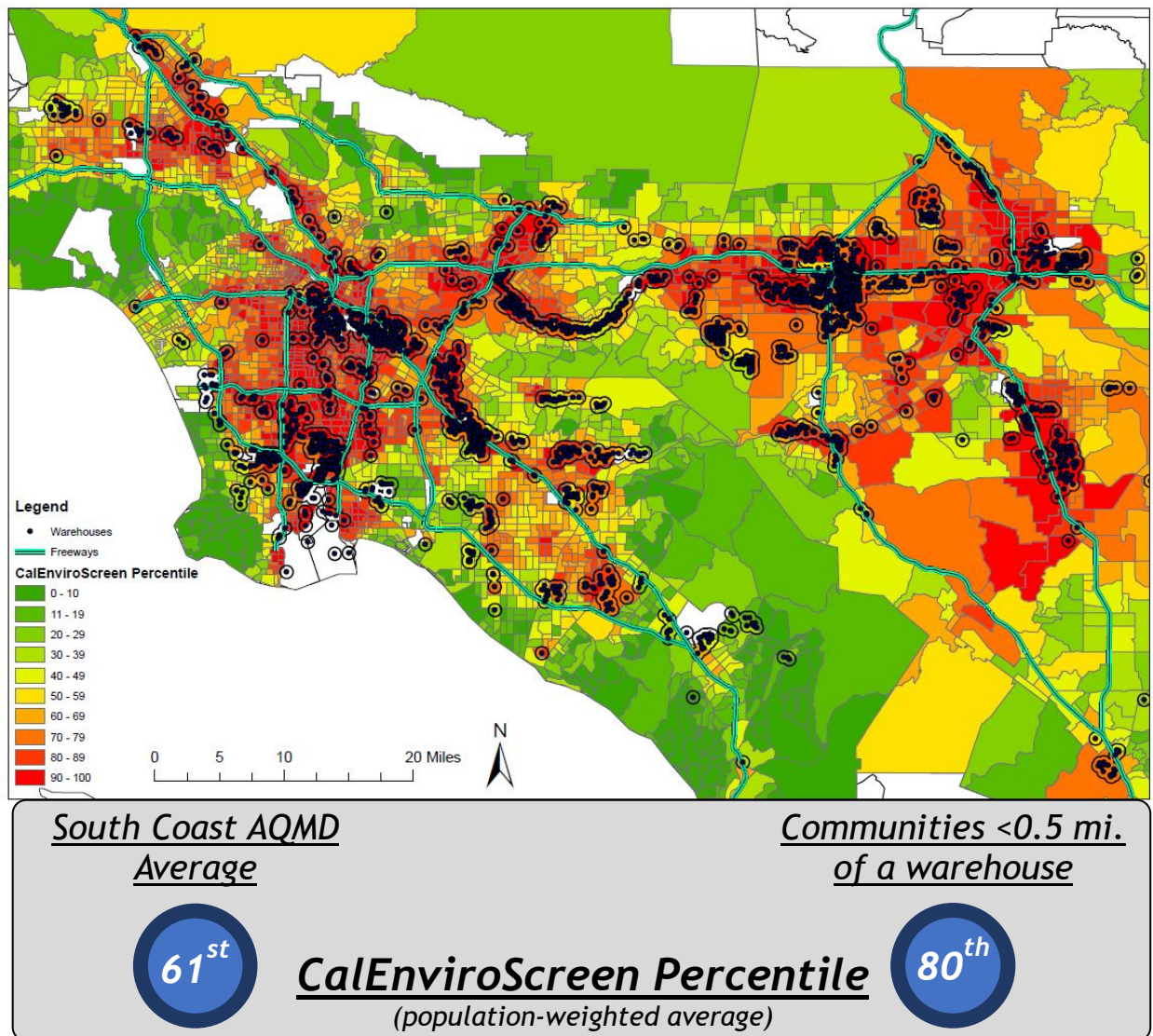
³⁹ <https://ww2.arb.ca.gov/sites/default/files/classic/toxics/dieseltac/finexsum.pdf>

⁴⁰ <https://www.epa.gov/haps/initial-list-hazardous-air-pollutants-modifications>

⁴¹ The state Office of Environmental Health Hazard Assessment (OEHHA) has developed a tool to evaluate the environmental burden on communities throughout the state called CalEnviroScreen

community in South Coast AQMD has much less burden ranking in the 61st percentile. PR 2305 and PR 316 would reduce this local pollution burden by requiring warehouse operators to take actions to reduce emissions and exposures from trucks and other emission sources associated with their facility (e.g., through NZE/ZE truck use, filters, etc.), as well as take actions to facilitate (e.g., ZE infrastructure) and enhance emission reductions from other programs (e.g., incentive programs, CARB regulations, etc.).

Figure 4: Environmental Burden on Communities Near PR 2305 Warehouses as Demonstrated by CalEnviroScreen



(<https://oehha.ca.gov/calenviroscreen>). This tool ranks communities based on their pollution burden (e.g., air pollution levels), as well as community characteristics that can make them more susceptible to impacts from pollution (e.g., socioeconomic status). Communities are given a percentile score (out of 100%) to show how they compare with the rest of the state – higher scores mean they experience higher burden.

LEGAL AUTHORITY

The South Coast AQMD may adopt PR 2305 and PR 316 through the authority to “adopt and enforce rules and regulations to achieve the state and federal ambient air quality standards in all areas affected by emission sources under their jurisdiction...” (Health and Safety Code section 40001; *see also* section 40702.) Generally, CARB has primary authority over emissions from motor vehicles and the South Coast AQMD has primary authority over all sources in the basin, except motor vehicles. (Health and Safety Code section 40000.) However, Health and Safety Code section 40716 recognizes air districts may adopt and implement regulations that control emissions from indirect and areawide sources in order to meet state ambient air quality standards.

The key pollutants of interest for PR 2305 include nitrogen oxides (NO_x, a key precursor pollutant for ozone and fine PM) and diesel PM (a component of fine PM, and a toxic air contaminant). The South Coast AQMD is in nonattainment of the California Ambient Air Quality Standards (CAAQS) for both ozone and fine PM, referred to as PM 2.5. Notably, for ozone, the current 8-Hour CAAQS and the 2015 8-hour NAAQS are at an equivalent level and for PM 2.5, the current annual CAAQS and the 2012 annual NAAQS are also at an equivalent level. As a result, the South Coast AQMD relies on the same measures to meet both federal and state ozone and PM 2.5 standards.

In addition, the Clean Air Act allows a state to include “...as part of an applicable [state] implementation plan, an indirect source review program which the State chooses to adopt and submit as part of its plan.” (Clean Air Act section 110(a)(5)(A)(i); 42 U.S.C. §7410(a)(5)(A)(i).) An indirect source is defined as “...a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution.” (Clean Air Act section 110(a)(5)(C); 42 U.S.C. §7410(a)(5)(C).) Also, the Clean Air Act acknowledges that states and their subdivisions have the right to “adopt or enforce any standard or limitation respecting emissions of air pollutants” and also “any requirement respecting control or abatement of air pollution” so long as it is not less stringent than a federal requirement. (Clean Air Act section 116; 42 U.S.C. § 7416.)

The South Coast AQMD Governing Board approved the 2016 Air Quality Management Plan (2016 AQMP) in March of 2017. The 2016 AQMP was subsequently approved by CARB, included into the State Implementation Plan (SIP), and approved by U.S. EPA in 2019. The 2016 AQMP included MOB-03, a facility-based mobile source control measure to reduce mobile source emissions associated with warehouse distribution centers, which has resulted in PR 2305 and PR 316.

By approving MOB-03 into the 2016 AQMP, the South Coast AQMD and CARB have committed to, and the U.S. EPA has authorized, the development of an indirect source rule to achieve emission reductions from mobile sources attributed to warehouse activities, in order to assist attaining the federal ozone NAAQS in 2023 and 2031. While MOB-03 was adopted as part of the NO_x emissions reduction strategy for ozone, the 2016 AQMP also recognized that the “NO_x strategy will assist in meeting the annual PM 2.5 as “expeditiously as practicable” earlier than the attainment year of 2025.” (2016 AQMP, pg. 4-52.)

Initially, the South Coast AQMD Governing Board authorized a one-year public process to identify if MOB-03 could be achieved through voluntary or regulatory measures, and then ultimately determined, in May of 2018, that staff should pursue a regulatory approach.

A California Attorney General Opinion from 1993 determined that a district could adopt a regulation to,

“...require the developer of an indirect source to submit the plans to the district for review and comment prior to the issuance of a permit for construction by a city or county. A district may also require the owner of an indirect source to adopt reasonable post-construction measures to mitigate particular indirect effects of the facility’s operation.”

The opinion acknowledged a district may adopt a regulation requiring new and existing indirect sources to submit plans to the district to mitigate mobile indirect source emissions from both construction and operations that are attributed to the source. The Clean Air Act does not contain any prohibition on the scope of an Indirect Source Rule adopted by a state, as confirmed by the opinion and Health and Safety Code section 40716, and a state indirect source rule may include reasonable post-construction measures. The opinion further acknowledged that under Health and Safety Code section 42311, the district could adopt a regulation to collect fees to recover the costs associated with the indirect source review program. A similarly worded section, Health and Safety Code section 40522.5, specifically authorizes the South Coast AQMD to collect fees to recover costs associated with regulatory programs for areawide or indirect sources. These are the types of fees contemplated by PR 316.

Implementation of PR 2305 and PR 316 will also meet the requirement for districts in extreme nonattainment to consider all feasible measures that have been implemented in other areas in order to meet state standards. (Health and Safety Code section 40920.5(c).) While the term “feasible” is not defined in the Health and Safety Code, it is defined in another state regulation as “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.” (14 California Code of Regulations section 15364.)

There are several examples of indirect source rules that have already been adopted in California. For example, the San Joaquin Valley Unified Air Pollution Control District adopted Rule 9510, which requires new development projects that meet certain specifications to reduce emissions of PM 10 and NOx. In addition, indirect source programs have been implemented by Mendocino County AQMD, Great Basin Unified APCD, Colusa County APCD, Placer Court APCD, Imperial County APCD, and Shasta County AQMD. As several California air districts have already adopted and implemented indirect source rules, policies, and/or the collection of reduction fees, this type of measure has been shown in a variety of areas to be “feasible.” Furthermore, the authority for air districts to set emission reduction targets from indirect sources was confirmed by the court in *NAHB v. San Joaquin Valley UAPCD* (9th Cir. 2010) 627 F.3d 730.

Health and Safety Code section 40717 further requires districts to “adopt, implement, and enforce transportation control measures for the attainment of state or federal ambient air quality standards....” The section defines transportation control measures as “any strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing motor vehicle emissions.” (Health and Safety Code section 40717 (g).) PR 2305 will encourage facilities to reduce motor vehicle emissions by requiring fewer points from facilities that are able to employ certain transportation control measures, such as fewer truck trips (with additional subsequent reduced vehicle idling).

In addition to the above provisions, the South Coast AQMD may adopt rules or regulations that require “the owner or the operator of any air pollution emission source to take such action as the state board or the district may determine to be reasonable for the determination of the amount of such emission from such source.” (Health and Safety Code section 41511.) Even more specifically, under Health and Safety Code section 40701(g), the South Coast AQMD is authorized to collect information regarding a source, “...except a noncommercial vehicular source, to provide (1) a description of the source, and (2) disclosure of the data necessary to estimate the emissions of pollutants for which ambient air quality standards have been adopted, or their precursor pollutants....” These sections of the Health and Safety Code therefore authorize the South Coast AQMD to require owners and operators of warehouses to provide information that may be used to quantify emissions based on warehouse activity.

Programs reducing emissions of precursors to ozone and PM 2.5 for purposes of achieving and maintaining the NAAQS or CAAQS may also have concurrent benefits in reducing emissions of air toxics. The district may adopt rules to reduce emissions from sources that may affect public health. One of the duties imposed upon the district is the duty to enforce Health and Safety Code section 41700. That section provides:

“Except as otherwise provided in section 41705, no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.”

Accordingly, the South Coast AQMD may adopt regulations to prevent the potential health impacts from toxic air contaminants, including diesel PM, as well as to reduce the emissions of criteria air pollutants. The California Supreme Court has upheld the districts’ authority to regulate air toxic emissions from sources within their jurisdiction. (*Western Oil & Gas Assoc. v. Monterey Bay Unified Air Pollution Control Dist.* (1989) 49 Cal.3d 408.)

CHAPTER 2: SUMMARY OF PROPOSAL

INTRODUCTION

PROPOSED RULE 2305

PROPOSED RULE 316

WAIRE MITIGATION PROGRAM

INTRODUCTION

Proposed Rule (PR) 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program includes the requirements that regulated warehouse owners and operators must follow. These requirements include an obligation for applicable warehouse operators to earn a specified number of WAIRE Points every year using either a menu of options, developing and implementing a custom plan, or paying a mitigation fee. Warehouse operators that over-comply may transfer excess WAIRE Points earned in one year to a subsequent year or may transfer WAIRE Points to another site within their control. If they so choose, warehouse owners may also opt in and earn WAIRE Points and transfer them to an operator at that site. PR 2305 also requires reporting information about facility operations and recordkeeping. PR 316 is the companion rule to PR 2305 and establishes the administrative fees that PR 2305 warehouse owners and operators must pay to support South Coast AQMD compliance activities.

PROPOSED RULE 2305

Purpose – Subdivision (a)

The purpose of the proposed rule is to reduce local and regional emissions of NO_x and PM associated with warehouses in order to assist in meeting state and federal air quality standards. Actions required by PR 2305 can also work together with other regulations, incentive programs, and state policies to enhance their effect (e.g., clean air goals and zero emission vehicle goals). PR 2305 therefore also acts as a facilitating measure to achieve emission reductions from these other efforts. Reductions in NO_x and PM regionally will assist in meeting federal and state air quality standards, and concurrent reductions in diesel PM will also reduce air quality impacts to communities living near warehouses.

The proposed purpose is as follows:

The purpose of this rule is to reduce local and regional emissions of nitrogen oxides and particulate matter, and to facilitate local and regional emission reductions associated with warehouses, in order to assist in meeting state and federal air quality standards for ozone and fine particulate matter.

Applicability- Subdivision (b)

In 2014, there were approximately 32,000 industrial warehouse buildings of any size in the counties of Los Angeles, Orange, Riverside, and San Bernardino counties. PR 2305 will apply only to the largest facilities in South Coast AQMD that have more than 100,000 square feet of indoor space in a single building. Warehouse owners often do not conduct day-to-day operations, and thus PR 2305 applies to both operators and owners of these facilities, however most requirements do not apply to owners unless they opt in (see Requirements discussion below). Some large industrial properties may also have buildings that exceed the 100,000 square foot threshold, but do not conduct any warehousing activities (e.g., they may conduct manufacturing instead). Finally, some facilities may have tenants that change through time. One year may include a tenant operating a facility as a church, and the next year a new tenant may change to a warehouse operator. The applicability of the rule is therefore tied to buildings that *may* be used for warehousing activities, however only limited reporting is required by PR 2305 if warehousing activities are not actually occurring.

The proposed applicability is as follows:

This rule applies to owners and operators of warehouses located in the South Coast Air Quality Management District (South Coast AQMD) jurisdiction with greater than or equal to 100,000 square feet of indoor floor space in a single building.

Definitions – Subdivision (c)

PR 2305 includes definitions of specific terms related to the warehousing industry and mobile source technology. Some definitions are based on existing South Coast AQMD rules and regulations. There are technology terms such as electric charger levels or technology type that have range differences in the industry, but at time of inclusion were based on an existing source. Please refer to PR 2305 subdivision (c) for each specific definition.

Proposed Definitions:

Alternative Energy Generation Equipment	Yard Truck
Alternative-Fueled Vehicle	Zero-Emission (ZE) Truck
Alternative Fueling Station	
Class 2B Truck	
Class 3 Truck	
Class 4 Truck	
Class 5 Truck	
Class 6 Truck	
Class 7 Truck	
Class 8 Truck	
Cold Storage Warehouse	
Compliance Period	
Diesel Particulate Matter (DPM)	
Dwell Time	
Electric Charger	
Fuel Type	
MERV 16	
Near-Zero Emission (NZE) Trucks	
Nitrogen Oxides (NOx)	
Parent Company	
Straight Truck	
Tractor	
Transport Refrigeration Unit	
Truck Class	
Truck Trip	
Vehicle Miles Traveled (VMT)	
Warehouse	
Warehouse Facility	
Warehouse Operator	
Warehouse Facility Owner	
Warehouse Land Owner	
Warehouse Size	
Warehouse Activities	

Alternative Energy Generation Equipment: Some warehouses already operate solar panels that generate electricity. This is expected to be the dominant technology for alternative energy generation equipment at a PR 2305 warehouses. However, other onsite forms of energy generation may be possible (e.g., windmills). This definition only applies to reporting requirements, and warehouse operators will be required to specify which type of technology they operate onsite.

Alternative fueled-vehicles and fueling stations: Alternative fuels means fuels for vehicles besides diesel and gasoline. This is expected to be dominantly natural gas, electricity, and potentially other fuels like hydrogen or propane. Traditionally alternative-fueled vehicles have lower emissions than their gasoline and diesel counterparts. However, any requirements in the rule related to vehicle emissions refer to near-zero emissions or zero-emissions vehicles. These alternative-fuel definitions only apply to reporting requirements for alternative-fueling stations.

Class 2b to 8 trucks: These definitions use common classifications for trucks based on their gross vehicle weight rating.⁴² *Truck class* refers to these classes.

Cold storage warehouse: These warehouses store perishable goods (e.g., food) and typically have higher energy use due to onsite refrigeration, higher daily truck trip generation rates due to the need to move perishable goods quickly, including from trucks that have a transport refrigeration unit.

Compliance period: This is the 12-month period during which warehouse operators (and warehouse facility or land owners who opt in) need to earn WAIRE Points. These WAIRE Points are documented in the Annual WAIRE Report filed within 30 days after the compliance period ends.

Diesel Particulate Matter (DPM): DPM is the particulate matter that is emitted from diesel fueled engines that power trucks and equipment. It a component of fine PM, and also a toxic air contaminant and carcinogen.

Dwell time: This is the period of time that trucks stay parked at a warehouse.

Electric charger: This definition varies in different applications outside PR 2305. For the purposes of PR 2305, an electric charger is a plug that can be used to charge a vehicle independent of whether other plugs are operating, and that can operate at 208 Volts or greater. Some electric charging stations are designed with more than one plug, which can be concurrently attached to vehicles, however they cannot charge vehicles simultaneously. For example, high powered charging stations may not be able to deliver multiple high charges at the same time, but a station operator may not want to dedicate personnel to wait for one plug to finish before plugging in the next vehicle to charge, so multiple plugs may be plugged into vehicles, and sit idle. The station would then automatically cycle to the next plug when the first vehicle finishes charging. For purposes of PR 2305, this station would count as a single electric charger. Alternatively, if multiple plugs were able to operate simultaneously, then each plug would count as an individual electric charger.

⁴² <https://afdc.energy.gov/data/10380>

Fuel type: This refers to the different types of fuels used in vehicles and equipment.

MERV 16: This is equal to a 95% particulate matter efficiency rating for filters used in building heating, ventilation, and air conditioning systems as defined in Standard 52.2 from the American Society of Heating, Refrigerating and Air-Conditioning Engineers. WAIRE Points earned from the WAIRE Menu for filter system installations or filter replacements in residences, schools, daycares, hospitals, or community centers must meet this minimum efficiency level. Filters can reduce indoor exposure to particulate matter.

Near-zero emissions (NZE) trucks: This definition refers to the lowest optional low NO_x standard for truck engines in Title 13, Section 1956.8 of the California Code of Regulations. This level is currently set at 0.02 gram/brake horsepower-hour. CARB is proposing to change this standard to include new test cycles starting in 2024, and additionally lowering the level to as low as 0.01 g/bhp-hr in 2027 as part of its recent Low NO_x Omnibus rulemaking. The PR 2305 definition uses the Section 1956.8 definition, but slightly refines it by pointing to the “lowest non-zero optional NO_x standard applicable at the time of manufacture. This refinement is made to ensure that future lower standards are not applied to existing trucks who qualified for the near-zero definition at the time of manufacture.

Nitrogen oxides (NO_x): The definition in PR 2305 is the same definition that is used in South Coast AQMD Rule 2000.

Parent company: This term refers to the company or entity that owns another company either directly, or through a subsidiary.

Straight truck: This refers to smaller trucks that carry goods on the same chassis as the cab and engine. Typical examples include a box truck or a package delivery truck.

Tractor: This refers to larger Class 7 and 8 trucks that pull a trailer, often called “semis.”

Transport Refrigeration Unit (TRU): TRUs are typically diesel-powered refrigeration units commonly mounted on the front of a trailer near the tractor cab, or on the front of a straight truck just above the cab. The diesel engine providing power for the TRU is smaller than a truck engine, but TRUs commonly idle for long periods at a warehouse in order to keep the goods inside the straight truck or trailer at appropriate temperatures.

Truck trip: A one-way trip from a truck or tractor either from or to a warehouse. A truck entering a warehouse site, and then later leaving would count as two truck trips, and one truck visit.

Vehicle Miles Travelled (VMT): For PR 2305, this term refers to the total annual miles of travel made by trucks or tractors. VMT does not need to be tracked to earn any WAIRE Points from the WAIRE Menu. VMT only needs to be reported by warehouse operators in an Initial Site Information Report if they own a fleet that serves that warehouse.

Warehouse and Warehouse Facility: A warehouse refers to the building used to store goods, while a warehouse facility refers to the entire property that includes a warehouse, as well as the accessory uses such as the truck yard, parking, maintenance facilities, etc.

Warehouse Facility Owner and Warehouse Land Owner: These terms are separately defined because there are rare instances where the owner of the land beneath a warehouse facility is not the same as the owner of the warehouse building. Most parts of PR 2305 do not require anything of warehouse facility or land owners. However, they can opt in to certain parts of the proposed rule (e.g., they can opt in to earn WAIRE Points, and then transfer those to a warehouse operator at that site). In one instance, the Warehouse Operations Notification [see paragraph (d)(7)], there is a requirement of the warehouse facility owner that is not applicable to the warehouse land owner.

Warehouse Operator: Most of PR 2305 is applicable to the warehouse operator. The operator is the entity that has control of day-to-day operations at the site. Some operators will hire companies to take care of day-to-day operations for portions of the site, such as yard operations, or temporary laborers to load or unload trucks and trailers. In this instance, the warehouse operator is the entity that hires these companies or temporary laborers.

Warehouse Size: This term refers to the indoor floor space of a warehouse. A warehouse may have multiple floors, as well as mezzanine areas, used for warehousing activities. For example, a warehouse building may take up 100,000 square feet of ground area, and have 100,000 square feet of floor space on the first floor used for warehousing activity, and 50,000 square feet of floor space on a mezzanine, with 20,000 square feet of the mezzanine used for office space and the remainder used for warehousing activity. The warehouse size in this case would be 130,000 square feet.

Warehousing Activity: Warehousing activity refers to the activities related to the storage and distribution of goods. This can include many activities including sorting, labeling, repackaging, palletizing, applying SKUs, racking, various levels of automation, and other similar activities. There are also many different activities that can occur within the same building that would not be considered warehousing activities, including supporting office administration, manufacturing, vehicle maintenance, or ‘factory’ retail stores that are open to the general public. Standalone retail stores that are open to the general public are also not covered by PR 2305. These non-warehousing activities are not considered warehousing activity.

Yard truck: These trucks can be off-road or on-road vehicles and are used to transport trailers short distances around a warehouse facility, for example from a dock door to parking area. Some yard trucks also shuttle trailers short distances on roads to nearby warehouses.

Zero Emissions (ZE) truck: This term refers to the definition developed by CARB in its recent Advanced Clean Trucks regulation.

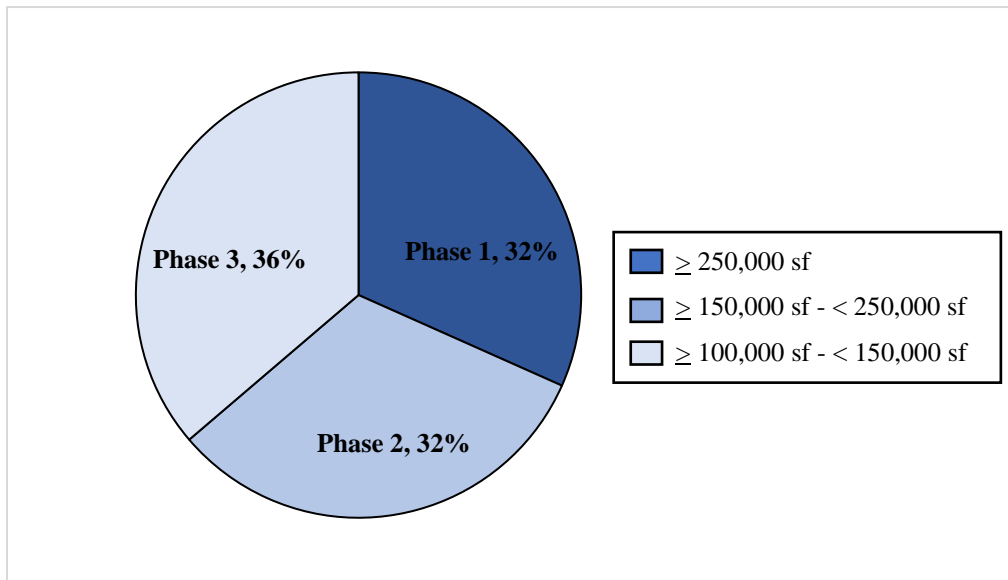
Requirements – Subdivision (d)

Subdivision (d) establishes the key requirements of the Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program. This includes establishing the WAIRE Points system, describing how Points can be earned or transferred, and laying out when specific reports are due.

Paragraph (d)(1)

This paragraph establishes a WAIRE Points Compliance Obligation (WPCO) for warehouse operators. Warehouse operators must earn WAIRE Points to comply with their WPCO by the initial reporting date in Table 1 of PR 2305.⁴³ Table 1 splits the universe of PR 2305 warehouses that are anticipated to earn Points into three phases, approximately one third each as shown in Figure 5 below.

Figure 5: Number of PR 2305 Warehouses Anticipated to Earn Points by Phase



Paragraph (d)(1) also describes a two-step test to determine if an operator needs to earn Points. First, operators in warehouses with greater than or equal to 100,000 sq. ft. of space that may be used for warehousing activities and who use at least 100,000 sq. ft. for warehousing activities are required to earn Points. Second, if an operator only uses a part of the warehouse, they are only required to earn Points if they operate at least 50,000 sq. ft. of that space for warehousing activities.

Paragraph (d)(1) also provides the fundamental calculations to determining the WPCO for each warehouse operator, including Equation 1 below.

$$\text{Equation 1: } WPCO = WATTs \times \text{Stringency} \times \left(\frac{\text{Annual}}{\text{Variable}} \right)$$

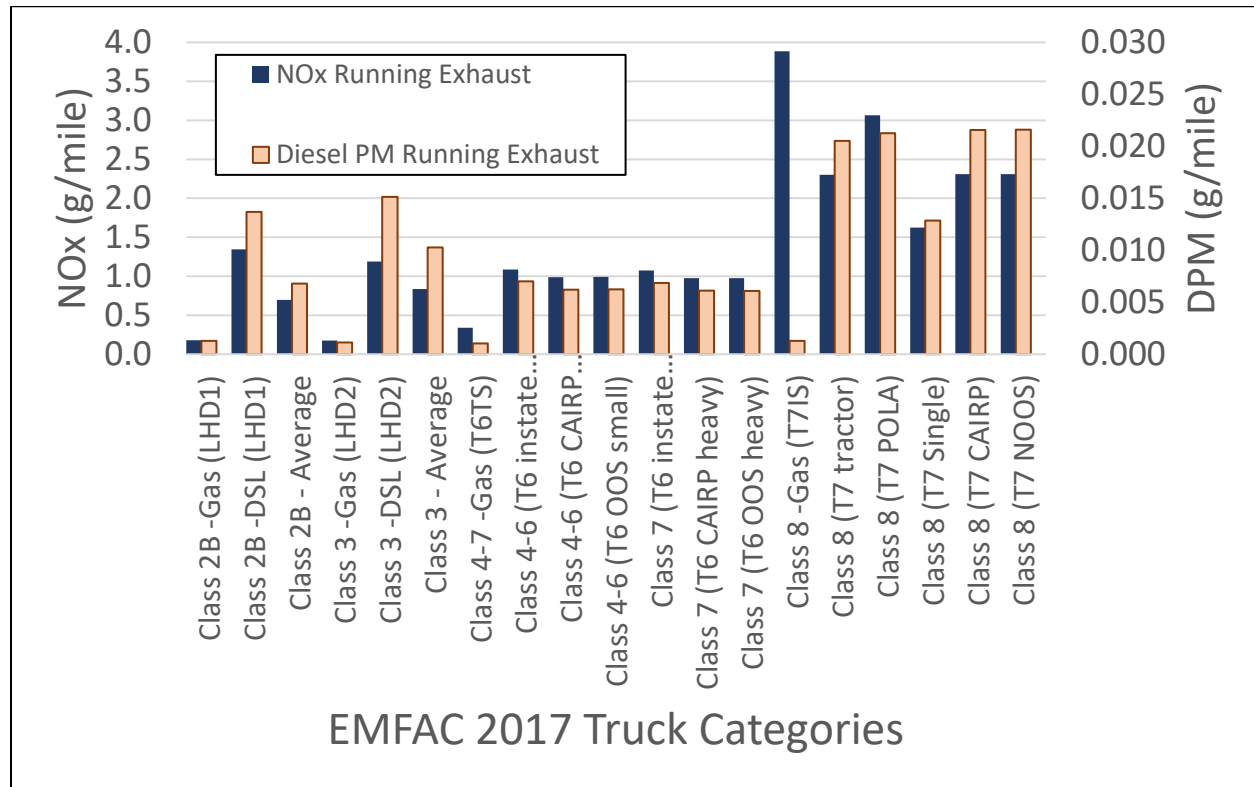
The WATTs parameter (Weighted Annual Truck Trips)⁴⁴ in Equation 1 presents the number of truck trips by truck class associated with a warehouse, and serves as a proxy for overall warehouse activity and emissions. Larger Class 8 trucks carry more goods and have higher emissions and are

⁴³ The most recent draft PR 2305 updates the compliance period to match the calendar year from January 1 through December 31. If PR 2305 is approved in May 2021, then Phase 1 warehouse operators would have more than seven months to prepare for their first compliance period.

⁴⁴ A parameter like emissions or vehicle miles travelled is not used to determine the WPCO in order to reduce the administrative burden on warehouse operators and South Coast AQMD compliance staff. Motor carriers have also expressed concern that they do not want to reveal where or how far they travel to warehouse operators or South Coast AQMD in order to keep their clients private.

thus weighted more heavily than smaller Class 2B to 7 trucks. The value of 2.5 was calculated by comparing the running exhaust emission rates of different truck classes in EMFAC that typically visit warehouses (Figure 6 below) for calendar year 2023 (after CARB’s Truck and Bus rule is fully phased in). The ratio between individual truck classes varies but is approximately 2.5 overall when comparing Class 8 to Class 2B to 7.

Figure 6: NOx and Diesel PM Emission Rates in 2023 for Different Truck Classes



Warehouse operators are required to submit actual truck trip data that is verifiable and representative of their operations to account for the amount of warehouse activity during the compliance period. Truck trip counts can be determined and accounted for by various methods such as warehouse personnel logging truck trips based on once-per month 24-hr long video surveys (one weekday and one weekend day), automated camera systems with recognition software, truck driver surveys, contractual records that provide sufficient details for truck activity, telematics systems, etc. Absent specific information about truck class, operators may simplify the analysis by just tracking straight trucks (as a proxy for Class 2b to 7) and tractors (as a proxy for Class 8). Truck trip data must be recorded and maintained, and the records and methods used to collect the truck trip data must be verifiable by South Coast AQMD compliance staff.

In the very rare case where an operator has lost their truck trip activity records due to a force majeure event (such as a fire), default truck trip rates based on truck trip generation rates from the Institute of Transportation Engineers and the Fontana Truck Trip study are also available.⁴⁵ These

⁴⁵ <http://library.ite.org/pub/a3e6679a-e3a8-bf38-7f29-2961becdd498>
<https://tampabayfreight.com/pdfs/Freight%20Library/Fontana%20Truck%20Generation%20Study.pdf>

default Weighted Truck Trip Rates (WTTR) are shown in Table 4 below. Only those trucks that use a warehouse’s truck driveway must be included. Trucks that utilize the employee parking driveway for building servicing activities like mail delivery or trash pickup do not need to be included. Additional discussion of methods to record actual truck trips are provided in the WAIRE Program Implementation Guidelines (Appendix A).

Table 4: Truck Trip Generation Rates Used for Default WTTR in Case of Loss of Records due to Force Majeure

Warehouse Type	Class 8 / Tractor-Trailer / 4+ Axle (Average daily trips per 1,000 sq. ft. of warehouse building area)^	Class 2B-7 / ‘Straight’ Trucks / 2- and 3-Axle (Average daily trips per 1,000 sq. ft. of warehouse building area)^	Weighted Truck Trip Rate (WTTR) (2.5 × Class 8 + Class 4-7)
High Cube Transload & Short Term Storage (≥200k sf)	0.33	0.12	0.95
Warehouse (100k – 200k sf)	0.21	0.14	0.67
Cold Storage (>100k sf)	0.75	0.29	2.17

The proposed stringency of PR 2305 in Equation 1 is 0.0025 WAIRE Points per WATT. The proposed stringency was developed by evaluating 18 different scenarios of potential PR 2305 compliance, described further in Chapter 3. The potential emissions benefits from this scenario analysis were evaluated alongside the potential costs and impact to industry.

The annual variable in Equation 1 is the ramp up schedule for the PR 2305 stringency. As proposed, the full stringency of 0.0025 would not be achieved until the third compliance period for each warehouse. The annual variable in Table 2 of PR 2305 is layered in with the warehouse Phases. All three Phases will be at full stringency in the fifth compliance period. New warehouses that are built after PR 2305 would be placed into the appropriate Phase based on warehouse size. The annual variable is established relative to when PR 2305 is adopted, and does not ‘reset’ for a new warehouse that is built after rule adoption. For example, a new warehouse built in September 2025 that is 125,000 sf with at least 100,000 sf usable for warehousing activities would need to submit its first Annual WAIRE Report 30 days after January 1, 2026. Their annual variable for their first compliance period would be 1.0.

Paragraph (d)(2)

Paragraph (d)(2) provides the three primary options available to earn WAIRE Points. This includes completing actions from the WAIRE Menu in paragraph (d)(3), completing actions from an approved Custom WAIRE Plan in paragraph (d)(4), or paying a mitigation fee from paragraph (d)(5). Points can be earned from any combination of these three options in any compliance period.

Paragraph (d)(3)

Paragraph (d)(3) and Table 3 include the WAIRE Menu option. The WAIRE Menu itself has 32 different actions or investments that can be completed. Points can be earned from any combination of Menu actions, at any level of implementation. Points can be earned only if they go beyond requirements in other U.S. EPA, CARB, or South Coast AQMD regulations in effect during that compliance period.⁴⁶ When determining if an action goes beyond requirements from another regulation, a comparison is made between the regulatory requirement on the entity itself earning Points (typically the warehouse operator), rather than requirements on a non-PR 2305 entity. For example, CARB's ACT regulation requires truck manufacturers to sell a certain fraction of ZE trucks beginning in 2024. ACT does not apply to any regulated entity covered by PR 2305. Therefore, a warehouse operator (or warehouse facility or land owner if they opt in) may earn Points for purchasing a ZE truck, regardless of any requirements in ACT. At this time, there are no regulations in place that limit what a warehouse operator or owner could implement from the WAIRE Menu. There is the potential that CARB's upcoming TRU regulation, its Advanced Clean Fleets (ACF) regulation, or potentially other regulations could impose requirements on warehouse operators or owners. Even if a new regulation comes into place that imposes requirements directly on a warehouse operator or owner, if the action is completed prior to the other regulation's mandated timeline, then Points could still be earned under PR 2305. For example, hypothetically if ACF requires a warehouse operator who owns a fleet to purchase ZE trucks by 2030, but the operator purchases ZE trucks early in 2029, then they would be able to earn WAIRE Points for that action in 2029.

Table 3 in PR 2305 includes specific WAIRE Points for each action. Warehouse operators (or owners who opt in) would earn Points relative to their level of implementation of an action with the Points associated with each annualized metric in Table 3. The basic equation that needs to be followed to earn Points from the Menu is shown in Equation 2 below. As an example, if a warehouse operator demonstrates that they had 520 ZE Class 8 truck visits⁴⁷ to their warehouse during a compliance period, they would earn 72.7 WAIRE Points for that action following the method below.

Equation 2:

WAIRE Points per Annualized Metric × *Level of implementation* ÷ *Annualized metric* = *Points earned*

For ZE Class 8 visits example above: 51 Points × *520 visits* ÷ *365 visits* = *72.7 Points*

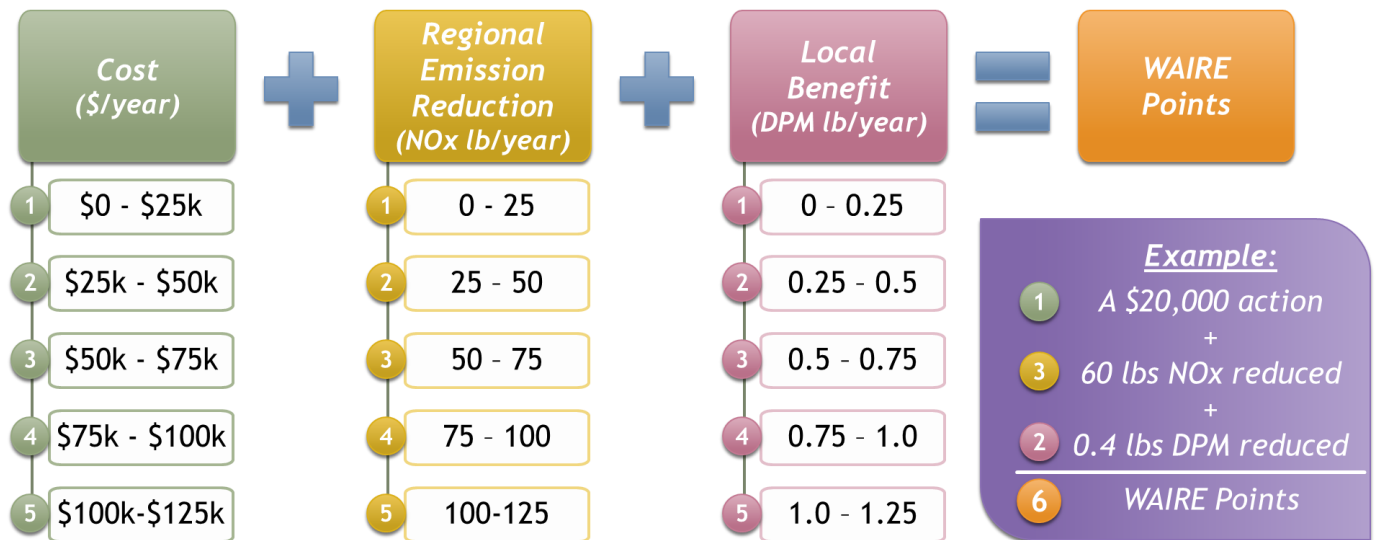
⁴⁶ Points can be earned even if local ordinances (e.g., from a city or county) or building codes include requirements for some of the actions covered by PR 2305. Local land use authorities also have the option to require higher compliance obligations under CEQA using the framework set up by PR 2305. For example, as a condition of approving a new warehouse project, a land use agency could require a warehouse operator to earn additional WAIRE Points beyond their WPCO in order to reduce air quality impacts. However there is no obligation on land use agencies under PR 2305 or PR 316 unless they are a warehouse owner or operator subject to PR 2305.

⁴⁷ 520 visits is the same as 1,040 one-way truck trips.

Figure 7 below shows the underlying calculation used to develop the number of WAIRE Points associated with each WAIRE Menu action. The details for these calculations are provided in Appendix B to this staff report. An earlier draft of this appendix was provided to the Working Group as the WAIRE Menu Draft Technical Report on March 3, 2020. This more detailed calculation approach is not used by warehouse operators or owners to earn WAIRE Points from the Menu. This approach is just the original analysis used to establish the balancing between different menu actions in PR 2305. In this approach, each WAIRE Point consists of three elements: the incremental cost to complete the action, the regional emission reduction of NOx in lbs/year, and the local DPM emission reductions in lbs/year. Each of these elements is calculated for individual actions at a set level of implementation (i.e., the annualized metric), binned and then summed to simplify comparisons.

Actions are split primarily into two groups, one-time investments in technologies that can reduce emissions or facilitate the implementation of emission reductions, and ongoing use of these technologies. Points are earned separately for the investment and the ongoing use. Points can be earned from both a one-time investment in emission reduction technologies and use of that technology in the same compliance period. For example, a warehouse operator could install a charging station and earn Points from that action, and begin using that charging station to earn more Points in the same compliance period.

Figure 7: Approach to Develop WAIRE Points for Each WAIRE Menu Action*



**This approach is not used by warehouse operators or owners to earn Points. This is only the underlying methodology to the WAIRE Menu.*

Finally, PR 2305 does not prohibit operators from using incentive funding from South Coast AQMD, CARB, or other sources to earn WAIRE Points. However, many of these programs have express limitations in using their funds to comply with a regulation. Because these limitations are written into each specific program’s requirements, they are not included in PR 2305 as those programs’ requirements could change through time. Staff is unaware of any requirements in programs like Carl Moyer, AB 617 funding, or similar programs that limit the use of funds with

WAIRE Menu items associated with ongoing use (e.g., truck visits). However, there are commonly limitations in these funding programs associated with the purchase of vehicles or equipment.

Paragraph (d)(4)

Paragraph (d)(4) describes the Custom WAIRE Plan option, including the requirements for what needs to be included in a Plan and Plan application, and the process and criteria for approval or disapproval of the Plan application, or rescission of an approved Plan by South Coast AQMD. Custom WAIRE Plans are only potentially approvable if they include actions that are not already included in the WAIRE Menu in Table 3 of PR 2305. Points may only be earned from an approved Custom WAIRE Plan. The Custom WAIRE Plan only needs to describe how Points would be earned under the plan, not how all Points would be earned to meet the WPCO if the Plan only addresses part of the points compliance obligation. The methodology to calculate WAIRE Points in Custom WAIRE Plan applications is described in the WAIRE Program Implementation Guidelines, and will be consistent with the WAIRE Menu Technical Report methods in Appendix B. The general approach requires comparison of baseline conditions without the Custom WAIRE Plan to the NO_x and DPM emission reductions and the incremental costs when the Plan is implemented. Emission reductions must be quantifiable, verifiable, real, and achieved as quickly as feasible, and no later than three years after Plan approval.

Key milestones need to be described in the Custom WAIRE Plan application and must be adhered to if approved. Approved plans that do not make adequate progress on these approved milestones may have their Plan approval rescinded 30 days after notification by the Executive Officer (EO) of identified deficiencies. If the deficiencies are not corrected in that period, the EO may then rescind the Plan approval. If a warehouse facility or land owner opts into the program and has a Custom WAIRE Plan approved by South Coast AQMD, then they are required to implement it. If the Plan is not implemented, then the entity who filed the Plan application shall be the entity who will be held in violation of the rule for any compliance period covered by the approved Plan for which a sufficient number of WAIRE Points was not earned as demonstrated in the Plan. If a warehouse operator (or owner who opts in) does not earn a sufficient number of WAIRE Points to satisfy their WPCO as demonstrated in a previously approved Plan, they may still satisfy their WPCO for that compliance period through the completion of actions from the WAIRE Menu, or by paying a mitigation fee pursuant to paragraph (d)(5), and document these actions in their Annual WAIRE Report.

Examples of potential Custom WAIRE Plans that some industry stakeholders have expressed potential interest in include: installing offsite charging/fueling infrastructure for ZE vehicles, installing and operating energy efficiency systems for cold storage warehouses, installing onsite ZE charging stations with higher power (i.e., above 350 kW) than is described in the WAIRE Menu, or overcompliance with upcoming CARB regulations should they be approved (such as the TRU regulation or ACF). Other custom approaches are also potentially approvable provided they meet the criteria described in paragraph (d)(4).

Custom WAIRE Plans that rely on VMT reductions will be limited to those projects that can show that these VMT reductions go beyond what is modeled in the latest Regional Transportation Plan (RTP) from the Southern California Association of Governments (SCAG). The Plan application itself would need to include the analysis showing how VMT reductions would be lower than RTP

modeled VMT. An example custom approach that may be disqualified from this includes an operator who moves operations from multiple smaller operations into a larger facility, thus reducing truck trips and VMT between the previous smaller warehouses. However, this reduction in VMT for that operator likely does not reduce VMT overall because the smaller warehouses are not expected to stay vacant given the low vacancy rates experienced by warehouses in the South Coast AQMD region.⁴⁸ Hence, while the operator's VMT declines, the region's VMT may actually increase. Similarly, a warehouse operator that demonstrates that they have a lower trip generation rate and VMT than would be calculated using default values has not demonstrated that overall VMT in the region is reduced. The RTP models average trip generation rates, and outputs average miles per trip. Some warehouses are therefore expected to be higher, and some lower than the average.

Although earning Points through VMT reduction programs may not be likely in most situations, PR 2305 is still expected to provide an additional motivation for warehouse operators to improve efficiency beyond normal market forces. Because the WPCO is tied to a warehouse's annual truck trips, if a facility can find ways to improve efficiency and reduce its number of truck trips, then its compliance obligation under PR 2305 will be lower. PR 2305 has no requirements for warehouse owners or operators to reduce or limit the number of truck trips to their facility.

Paragraph (d)(5)

If a warehouse operator does not earn a sufficient number of WAIRE Points to satisfy their WPCO from the WAIRE Menu or from an approved Custom WAIRE Plan, a warehouse operator may choose to pay a mitigation fee to the South Coast AQMD at a cost of \$1,000 per WAIRE Point. This value was determined by comparing the potential costs of implementing a variety of WAIRE Menu actions at an individual warehouse under different stringencies using methods described in the WAIRE Menu Technical Report (see Appendix B), and evaluating how many WAIRE Points were earned for each action. Although the costs vary across actions, many actions are approximately equal to \$1,000 per WAIRE Point.⁴⁹ Additional discussion about the WAIRE Mitigation Program that would spend the collected fees is included at the end of this chapter.

Paragraph (d)(6)

This paragraph describes the limited transfer of WAIRE Points under PR 2305. PR 2305 is not a credit trading system. Transferring WAIRE Points may only be allowed in three limited instances of overcompliance with rule requirements. First, if an operator conducts warehousing activities at multiple warehouses, it may be more feasible for them to make investments at a larger scale at one facility, compared to repeated smaller investments at several facilities. Under PR 2305, this operator could over-comply and earn extra Points at one warehouse, and then transfer the excess to another warehouse in their control. Because one of the purposes of PR 2305 is to reduce local emissions, the full value of any Points transferred from one warehouse to another is discounted by the amount of the WAIRE Points that were earned from local emission reductions of diesel PM.

⁴⁸ Vacancy rates in 2019 in South Coast AQMD warehouses are about 4%, about 50% lower than the vacancy rates of surrounding markets. Source: IEc Task 2 "Technical Memorandum on Real Estate Markets Neighboring the South Coast AQMD Region"

⁴⁹ Examples are shown in slides 16-19 from the March 3, 2020 Working Group.
http://www.aqmd.gov/docs/default-source/planning/fbmsm-docs/whse_isr_slides_3-3-2020.pdf

Table 3 in PR 2305 already provides the discounted Point value, and operators (or owners who opt in) do not need to determine the amount to discount other than looking up values in that table.

The second transfer method involves a warehouse operator earning excess WAIRE Points in one year and banking those Points to transfer into a subsequent year. These Points are not discounted and can be banked for up to three years. For example, excess Points earned in the compliance period from January 1, 2022 to December 31, 2022 would be usable until the end of the compliance period ending December 31, 2025, and reported in the Annual Report no later than 30 days after January 1, 2026 (pursuant to subparagraph (d)(7)(C)). This three-year period could be shorter if the action that earned Points would have already been required by another regulation in the year in which the Points would otherwise be used. WAIRE Points may also be earned prior to a warehouse operator's first compliance period. For example, an operator of a 125,000 sq. ft. warehouse could earn Points in the 2022 compliance period, even though PR 2305 does not impose a WPCO on a warehouse of this size until the 2024 compliance period. The three-year banking clock in this instance would not commence until after their first compliance period in 2024. The extra time is meant to encourage early compliance and achieve emissions reductions sooner.

The final transfer method involves transfers between a warehouse facility or land owner and a warehouse operator, and vice versa. Warehouse facility or land owners may find it advantageous to improve their properties using options within PR 2305 on their own. Any Points earned from this activity may be transferred to an operator at that site over the subsequent three-year period. Operators may also transfer Points earned in excess of their WPCO back to a warehouse facility or land owner, who may then transfer those Points to a subsequent operator at that site.

Paragraph (d)(7)

This paragraph outlines the required reports and notifications that operators and owners must submit. Warehouse facility owners (not warehouse land owners) must submit a notification on September 1, 2021 or within 14 days after a new operator has the ability to use at least 50,000 sq. ft. of a warehouse with \geq 100,000 sq. ft. of floor space that may be used for warehousing activity. A typical date for this would be the start date of a lease. Notification is also required after a warehouse building has been modified such that it has new square footage. A report must also be submitted within three days of the EO's request.

Warehouse operators must submit a more detailed one-time Initial Site Information Report approximately six months before their first Annual WAIRE Report must be submitted for that site. As an example, if Operator A has recently moved to a new warehouse and has not been required to submit an Annual WAIRE Report before for that site, they are then required to submit the Initial Site Information Report. This is the only Initial Site Information Report that Operator A will need to submit for that site. If Operator A moves to another warehouse and has never submitted an Annual WAIRE Report for that second warehouse, they will need to submit an Initial Site Information Report for that warehouse. Initial Site Information Reports must also be submitted within 30 days of the request from the EO.

Warehouse operators who are required to earn WAIRE Points, and warehouse facility or land owners who earn WAIRE Points as applicable, are required to submit an Annual WAIRE Report within 30 days after January 1 of every year for which they must satisfy a WPCO (in the case of

operators), or earn WAIRE Points (in the case of owners opting in). The Annual WAIRE Report is the primary mechanism by which operators demonstrate how they have earned a sufficient number of WAIRE Points for the preceding compliance period. If an operator with a WPCO departs a warehouse before the end of that compliance period (e.g., if their lease ends), they are required to submit their Annual WAIRE Report no later than the date that they vacate the warehouse. No Annual WAIRE Reports are due before the applicable Initial Reporting Date in Table 1. Because the WPCO is tied to the number of truck trips at a warehouse while the operator was responsible for warehousing activities, the operator's Annual WAIRE report in this instance only needs to demonstrate how Points were earned for the portion of the compliance period when the operator was at that warehouse.

Reporting, Notification, and Recordkeeping Requirements – Subdivision (e)

This subdivision describes the information that must be included in the various reports and notifications required by PR 2305, as well as recordkeeping requirements. An online reporting portal is anticipated to be created if PR 2305 is approved by the Governing Board that will be used for all report and notification submissions. Reporting procedures will be further documented in the WAIRE Implementation Guidelines (Appendix A).

Paragraph (e)(1)

The Warehouse Operations Notification described in this paragraph includes basic information about the warehouse facility itself, whether the warehouse facility owner is also an operator, as well as information about any entities leasing the site, and how much of the site they have leased.

Paragraph (e)(2)

The Initial Site Information Report provided by a warehouse operator must include information about how many square feet they can use for warehousing activities. There are two cases when this is the only information that needs to be provided for this report. First, if the warehouse operator is in a building where the total square footage that can be used for warehousing activities is less than 100,000 sq. ft., then no more information is required. Second, some warehouse operators may lease only a portion of a warehouse with more than 100,000 sq. ft. that can be used for warehousing activities. In this situation, if the operator only can use <50,000 sq. ft. (e.g., due to lease conditions), then they do not need to report any further information. This second case does not apply where there are multiple operators under the ownership or control of a single parent company who each operate <50,000 sq. ft., but who collectively operate more than 50,000 sq. ft.

Apart from the two cases described above, Initial Site Information Reports must include information about actual truck trip data from the previous 12-month period, and the anticipated truck trips in the following 12-month period, by truck class or truck type (e.g., tractors or straight trucks). Trucks delivering or picking up goods from a warehouse are a proxy for total activity and emissions related to a warehouse and will use a truck entrance that is different than the employee vehicle entrance (that may also have minor use for mail trucks, or refuse pickup for administrative activities at the warehouse). In order to streamline reporting, only those trucks or tractors that use a warehouse's truck driveway must be included, with the intention of focusing on truck activity most closely aligned with total warehouse activity and emissions. Occasional truck traffic that utilizes the employee parking driveway for building services activities like mail delivery or trash pickup do not need to be included.

Additional data that must be reported includes information about any trucks owned by the operator that serve that warehouse, information about any onsite alternative fueling stations, information about any yard trucks operated at the site (owned or non-owned), and information about any onsite energy generation equipment. Finally, the report must include the anticipated options that the operator plans to use to earn Points for the current compliance period. These anticipated options might not end up being the actual options used to meet the WPCO, but they do provide an early planning step for operators to consider how they will comply with their WPCO in six months.

Paragraph (e)(3)

The Annual WAIRE Report shall include actual truck trip data used to determine the WPCO pursuant to paragraph (d)(1). The report shall also include how many WAIRE Points were earned from the WAIRE Menu and details about the reporting metric from the WAIRE Menu, the Points from a Custom Plan, and the Points from mitigation fees. Finally, the report shall include current contact information for the warehouse operator.

Paragraph (e)(4)

Records which demonstrate the accuracy and validity of any information reported to South Coast AQMD must be kept for a period of seven years after the reporting deadline and made available upon request during normal business hours.

Paragraph (e)(5)

Some warehouse facility or land owners, or operators may choose to hire consultants to complete some of the reporting requirements in PR 2305. This paragraph ensures that any reports are submitted by an official authorized by an officer of the warehouse owner or operator, as applicable. This authorized official may or may not be an employee of the warehouse owner or operator. The authorized official must certify that the information reported is accurate based on their best available knowledge.

WAIRE Implementation Guidelines – Subdivision (f)

This subdivision identifies that the EO will periodically publish the WAIRE Implementation Guidelines referred to throughout PR 2305 (Appendix A of this staff report).

Exemptions – Subdivision (g)

Three limited exemptions are described in this subdivision. First, similar to paragraph (e)(2), warehouse operators who cannot use more than 50,000 sq. ft. of a warehouse that is larger than 100,000 square feet, for warehousing activities due to lease conditions (e.g., they have leased <50,000 sq. ft.), are not required to earn any WAIRE Points. This exemption does not apply if the warehouse operator is under the control of a parent company of one or more lessees in the same building, and collectively the entities under the parent company's control operate more than 50,000 sq. ft. of a building that is 100,000 square feet or greater.

The second exemption states that warehouse operators with a WPCO <10 are not required to earn any WAIRE Points.⁵¹ This exemption reduces the burden on the smallest warehouse operations that have a low volume of truck trips. No warehouse operations in the analysis of PR 2305 were identified to have a WPCO <10, but there is a possibility that a small number of warehouse operators may qualify and utilize this exemption. The warehouse operator would not be subject to the requirement to earn WAIRE Points in paragraph (d)(1), but the warehouse operator is still subject to the reporting requirements in paragraph (d)(7).

The third exemption relates to rare, unforeseen circumstances, beyond the reasonable control of the warehouse operator, or owner, who made an investment or took action to earn WAIRE Points, but due to a defect in their investment were unable to earn WAIRE Points. For example, if a warehouse operator purchases a zero emission truck and anticipates using this same truck to earn Points, but a malfunction in the powertrain due to an equipment manufacturer defect (e.g., malfunctioning electric motor, fuel cell stack, etc.) results in an inability to use the equipment, then the operator may apply for relief for the Points that would have been earned. The exemption shall be granted if the vehicle or equipment is shown to be due to a manufacturer defect or an installation defect.

Sunset Date for Rule – Subdivision (h)

PR 2305 will sunset upon final action by the U.S. EPA (e.g., when a final rule becomes effective) finding that all air basins within South Coast AQMD have attained the 2015 NAAQS for ozone (i.e., 70 parts per billion), and when CARB has determined that South Coast AQMD has met the state ozone standard (also 70 parts per billion).⁵² The sunset date for the WPCO will be 45 days after the end of the compliance period during which the latter of U.S. EPA or CARB makes the relevant finding. All reporting requirements associated with this final compliance period will remain in effect, however no reporting will be required for future compliance periods.

⁵¹ A WPCO of 10 is approximately equal to about two class 8 truck visits per day. Using default truck trip rates, a warehouse operator in a 100,000 sf warehouse would be required to earn about 61 WAIRE Points at a stringency of 0.0025 and annual variable of one.

⁵² The averaging period for the federal and state standards differ, so it is possible that they may not be achieved in the same year.

The 2015 standard requires ozone levels in South Coast AQMD to meet the standard in 2037. Before then, the 1979 (revoked, 1-hour standard), 1997 (revoked 8-hour standard) and 2008 ozone standards must be met in 2022, 2023, and 2031, respectively. Under section 175A of the Clean Air Act, when a nonattainment area is redesignated as meeting attainment, it must prepare a maintenance plan that ensures the area will continue to meet the air quality standard for another 10 years. In addition, anti-backsliding requirements may also apply.⁵³ PR 2305 could potentially be applied to maintenance plan and anti-backsliding requirements for the 1979, 1997, and 2008 ozone standards prior to its sunset. Even with the sunset, PR 2305 is expected to assist in meeting the 2015 ozone standard. At this time, it is uncertain if PR 2305 would be needed for a maintenance plan or anti-backsliding requirements when the 2015 ozone standard is met because ZE and NZE technologies may be more widespread. As such, the Executive Officer shall prepare a report for the full Governing Board one year prior to the anticipated sunset that evaluates the need for the rule in light of these and any other applicable Clean Air Act requirements. The report shall also evaluate the state of NZE and ZE technologies used at warehouses, the emissions inventory of warehouses, and any other U.S. EPA or CARB regulations that apply to warehouses. Based on these findings, the Executive Officer shall make a recommendation whether any portions of the rule should be retained or amended.

Severability – Subdivision (i)

In the event a court holds that a portion or portions of PR 2305 are invalid or unenforceable, subdivision (h) allows the other portions of the rule to remain fully applicable and enforceable. Similarly, if the exemptions in PR 2305 are held by judicial order to be invalid, then the warehouse operators that had been covered by the exemption shall have to comply with the requirements of PR 2305.

PROPOSED RULE 316 – FEES FOR REGULATION XXIII

Purpose – Subdivision (a)

The purpose of the Proposed Rule 316 (PR 316) is to act as a companion rule to Proposed Rule 2305 (PR 2305) – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program. PR 2305 requires reporting information about facility operations and recordkeeping. PR 316 establishes the administrative fees that PR 2305 warehouse operators and owners must pay in order to recover South Coast AQMD administrative costs associated with ensuring compliance with PR 2305.

The proposed purpose is as follows:

California Health and Safety Code Section 40522.5 provides authority for the South Coast Air Quality Management District to adopt a fee schedule for areawide or indirect sources of emissions which are regulated, but for which permits are not issued, to recover the costs of programs related to these sources. The purpose of this rule is to recover the South Coast AQMD's cost of implementing Rule 2305.

Applicability- Subdivision (b)

Warehouse owners and operators routinely move into or out of warehouses. As the applicability is tied to reports that must be submitted pursuant to PR 2305, any individual company may be

⁵³ Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements, Final Rule. <https://www.govinfo.gov/content/pkg/FR-2015-03-06/pdf/2015-04012.pdf>

required to pay multiple fees under PR 316 in any one year, then potentially not be subject to fees in the following year if they are not required to submit any of the applicable reports.

The proposed applicability is as follows:

This rule applies to owners and operators of facilities subject to Rule 2305 that submit an Annual WAIRE Report, a Custom WAIRE Plan application, an Initial Site Information Report, a Warehouse Operations Notification, or that pay a Mitigation Fee.

Definitions – Subdivision (c)

PR 316 includes definitions of specific terms related to the warehousing industry and aspects of implementing PR 2305. Most definitions refer back to definitions within PR 2305. Please refer to PR 316 subdivision (c) for each specific definition.

Proposed Definitions:

Annual WAIRE Report

Custom WAIRE Plan Application

Initial Site Information Report

Mitigation Fee

Warehouse

Warehouse Operations Notification

Warehouse Operator

Warehouse Facility Owner

Warehouse Land Owner

Warehousing Activities

Annual WAIRE Fees – Subdivision (d)

Fees that will be established in this subdivision will be set at a flat level that is equal to the level of effort required by South Coast AQMD staff to conduct compliance activities related to the reports for which the fees are being paid. Fees must be paid at the time that the report must be submitted pursuant to PR 2305.

Custom WAIRE Plan Application Evaluation Fee – Subdivision (e)

Custom WAIRE Plans applications are expected to be unique, and require varying levels of effort by staff to review depending on the complexity of the application. Similar to other plan review fees in South Coast AQMD Rule 306, the fees in this subdivision are set consistent with the amount of staff time needed to complete an application review. An initial fee must be paid upfront as a deposit to cover a minimal amount of staff time, and subsequent fees may be assessed if more time is required. Staff will track time spent reviewing a Custom WAIRE Plan application, and if less cost is incurred than was paid in the initial fee, a refund will be issued.

Mitigation Program Administration Fee – Subdivision (f)

PR 2305 includes an option for warehouse operators (or owners who opt in) to pay a mitigation fee to South Coast AQMD to earn WAIRE Points. These collected fees will be used for a mitigation program to incentivize near-zero and zero emissions trucks and zero emissions charging infrastructure. Funds will be directed to projects in the communities near the warehouses that paid the fees. South Coast AQMD administers many incentive programs currently, including Carl

Moyer, SOON, AB 617, etc. Prolonged experience with these programs has shown that some funds are needed to ensure efficient and accurate program administration. The amount set in PR 316 is 6.25 percent of the mitigation fee a warehouse operator or owner pays, and is consistent with recent program administration requirements for similar incentive programs.⁵⁴ Based on South Coast AQMD experience with current funding programs like Carl Moyer and Community Air Protection Program grants (i.e., AB 617), this level of funding is needed for the significant administrative effort to conduct outreach to industry, communities, and local governments, and to administer funds and track projects at a local scale (e.g., for each of about three dozen Source Receptor Areas).

Payment Due Dates – Subdivision (g)

Payment of fees for Custom WAIRE Plans are due no later than 60 days after an invoice has been provided. Fees for Annual WAIRE Reports, Initial Site Information Reports, and Warehouse Operations Notifications are due when the applicable report must be submitted. Requirements for payments in this subdivision are consistent with other South Coast AQMD fee programs in Rule 301.

Exemptions – Subdivision (h)

Two exemptions are provided in this subdivision. First, warehouse facility owners who submit a Warehouse Operations Notification for a warehouse that has less than 100,000 sq. ft. that can be used for warehousing activities are exempt from PR 316 fees. Second, warehouse operators who use <50,000 sq. ft. of a warehouse for warehousing activities are also exempt from PR 316 fees. The collection of this information will occur online, and no additional compliance with these components of the WAIRE Program is expected for these entities, hence staff costs are expected to be de minimis for this activity. This reported information is needed however to verify that the owner or operator does not have any further obligations under PR 2305.

WAIRE Mitigation Program

The main intent of the WAIRE Mitigation Program is to provide NOx and DPM emission reductions for communities around warehouses that paid the mitigation fees. Any in-lieu mitigation fees paid to South Coast AQMD by a warehouse operator (or owner who opts in) would be targeted to projects in the surrounding area for NZE or ZE trucks, or ZE charging/fueling infrastructure.⁵⁵ Any solicitations for requests for funding, or funding allocations that would be spent from the WAIRE Mitigation Program must be approved by the South Coast AQMD Governing Board in a public meeting. The proposed incentives would be used toward the purchase of NZE and ZE trucks or the purchase and installation of ZE charging or hydrogen fueling infrastructure. The WAIRE Mitigation Program would be available to any applicant that has trucks domiciled and/or used in the same geographic area of the warehouses that paid the WAIRE Program mitigation fee or applicants who intend to purchase and install ZE charging or hydrogen

⁵⁴ AB 134 (2017): http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180AB134
AB 617 Incentives Guidelines:

https://ww2.arb.ca.gov/sites/default/files/2020-10/cap_incentives_2019_guidelines_final_rev_10_14_2020_0.pdf

⁵⁵ In order to avoid low quality workmanship and potential safety concerns, consideration may need to be made for a skilled and trained workforce. It is important that any installed infrastructure with the WAIRE Mitigation Program perform at a level that consistently meets the needs of the fleets it would serve and minimizes unnecessary impacts on the grid.

fueling infrastructure to serve that same geographic area and county. Funds would be prioritized first to areas in the same Source Receptor Area (SRA)⁵⁶ as the warehouse. Should there be insufficient project applicants in any area for the amount of funding available, the funding may be redirected to an adjacent SRA in the same county as the primary SRA. Project funding solicitations would be issued within one year of receiving mitigation fees, and could potentially be coordinated with solicitations from other incentive programs. Incentive projects would be evaluated for cost effectiveness to maximize the potential for NO_x and DPM reductions of each incentive project. Because this funding program is wholly within the control of South Coast AQMD, funds may be combined with other incentive programs as allowable on a case-by-case basis.

The WAIRE Mitigation Program incentives would be offered as a solicitation to receive enough applications similar to the existing incentive programs of Carl Moyer,⁵⁷ Proposition 1B,⁵⁸ or VW Mitigation Trust.⁵⁹ Similar to the existing incentive programs, there would be an application evaluation following the end of the solicitation. This would include evaluation of application documents, subsequent inspection of the NZE or ZE truck purchased or the ZE charging or hydrogen fueling infrastructure installed, and annual reports to follow the emission reductions of the incentive projects for the life of the incentive project contracts. The ultimate program design is not limited to matching these existing programs however, and other models may emerge after receiving stakeholder input as funding becomes available (e.g., voucher programs, a focus on grid upgrades on the utility side of the meter for some sites, consideration of small businesses, incorporation of community input and/or suggested projects that reduce NO_x, etc.).

Finally, the incorporation of a well-trained and skilled workforce for ZE infrastructure installation is integral to the state's transportation electrification goals. According to a study commissioned by the state Workforce Development Board under AB 398 (2017), there is a strong relationship between high labor standards and investments in energy efficiency projects in both the installation and operations of ZE charging and fueling infrastructure. Workforce development, skilled training, and career development that addresses industry needs can lead to improved productivity and work quality, which are important considerations for PR 2305. ZE charging infrastructure projects funded by the WAIRE Mitigation Program will support equity and inclusion to ensure a well-trained and skilled workforce to comply with Public Utilities Code § 913.4(f) and the California Renewables Portfolio Standard Program. Skill standards such as specialized certifications in the installation, operation, and maintenance of zero emission technologies will be required to ensure safety and high performance.⁶⁰

Additional details to this mitigation program will be developed in a future public process as part of the development of funding solicitations. Solicitations and grant award decisions will be made by the Governing Board in public meetings, and the public will be encouraged to participate and provide feedback. In addition, the Resolution included in the Board package for PR 2305 and PR 316 will include specific language laying out requirements for the WAIRE Mitigation Program.

⁵⁶ <http://www.aqmd.gov/docs/default-source/default-document-library/map-of-monitoring-areas.pdf>

⁵⁷ <http://www.aqmd.gov/home/programs/business/business-detail?title=heavy-duty-engines&parent=vehicle-engine-upgrades>

⁵⁸ [http://www.aqmd.gov/home/programs/business/business-detail?title=goods-movement-emission-reduction-projects-\(prop-1b\)&parent=vehicle-engine-upgrades](http://www.aqmd.gov/home/programs/business/business-detail?title=goods-movement-emission-reduction-projects-(prop-1b)&parent=vehicle-engine-upgrades)

⁵⁹ <http://www.aqmd.gov/home/programs/business/business-detail?title=vw&parent=vehicle-engine-upgrades>

⁶⁰ <https://laborcenter.berkeley.edu/wp-content/uploads/2020/09/Putting-California-on-the-High-Road.pdf>

CHAPTER 3: IMPACT ASSESSMENT

INTRODUCTION

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COMPARATIVE ANALYSIS

INTRODUCTION

PR 2305 and PR 316 will apply to warehouses with greater than or equal to 100,000 square feet of indoor floor space. These warehouses are part of a larger goods-movement network of facilities located throughout the South Coast AQMD region that also includes marine ports, airports, rail yards, and smaller warehouses.

Warehouses serve as an intermediate storage facility for goods coming from manufacturing facilities, other warehouses, or food production sites that are ultimately destined for another location, including retail stores, other warehouses, customers (e.g., through e-commerce), or other manufacturing operations. Goods are transported to and from warehouses in trucks of a variety of sizes, including smaller Class 2b-7 trucks used for local delivery or larger Class 8 tractor trailers (typically diesel-powered) that can transport goods either locally or nationally. These trucks will back up to a warehouse's loading dock to load/unload their cargo in or out of the warehouse. Some warehouses also allow trailers to be parked within their truck yard for short periods of time. These trailers are moved around the yard or to/from a loading dock with a yard truck (typically diesel-powered).

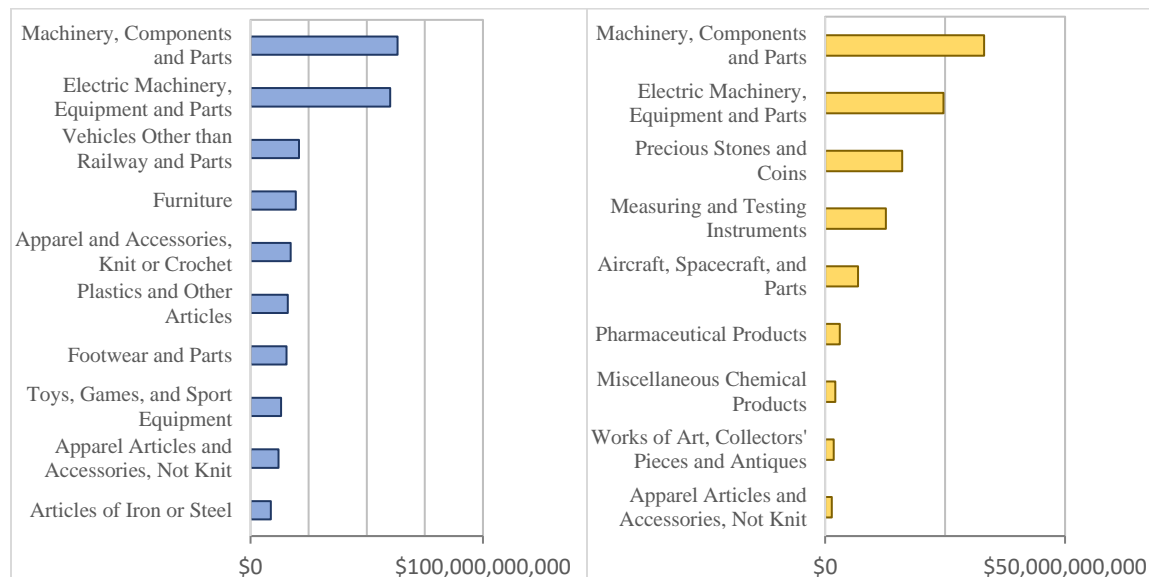
Inside the warehouse, goods are stored on storage racks that may be more than 20 feet high. The level of automation varies inside each warehouse, but, if automation is present, can include conveyor systems, robotics, and scanners. Goods are commonly moved around inside a warehouse by employees operating pallet jacks or small industrial forklifts. Additional activities include sorting, labeling, repackaging, palletizing, applying scannable bar codes (SKUs), racking, and packing/unpacking trucks. Many additional activities can be present at a facility with a warehouse including supporting office administration, manufacturing, vehicle maintenance, or retail stores that are open to the general public. Some warehouses also support cold storage, typically for food products, and will have large refrigeration systems. Trucks distributing goods to/from these cold storage warehouses typically keep goods at their appropriate temperature with a small diesel-powered transport refrigeration unit (TRU) mounted on the truck or trailer.

AFFECTED INDUSTRY

Southern California is a major gateway for goods coming from Asia. A wide variety of industries have supply chains which relies on goods moving through Southern California. Approximately \$500 billion in goods were moved through the larger Southern California Association of Governments (SCAG) region in 2016, with imports accounting for about 75%. It is unclear how much of this total flow of goods move through warehouses subject to PR 2305 and PR 316. However about 69% of imports from the ports of Los Angeles and Long Beach (LA/LB) do not go directly onto rail, and therefore are expected to utilize warehouses within the South Coast AQMD region. Figure 8 shows the top commodities traded through the ports of LA/LB and through the Los Angeles and Ontario airports in 2018.⁶¹

⁶¹ https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial_goods-movement.pdf

Figure 8: Top Commodities Traded Through Long Beach and Los Angeles Ports (left) and Los Angeles and Ontario Airports (right)



Warehouses are operated by cargo owners or by third party logistics (3PLs) firms who manage warehouses on behalf of cargo owners.⁶² Warehouses are typically owned by a landlord⁶³ who leases the facility for a short period (e.g., three years) either to a cargo owner or 3PL. All three groups of industries (i.e., cargo owners, 3PLs, and warehouse owners) will be affected by PR 2305 and PR 316. Some motor carriers may choose to update some of their business practices (e.g., using more NZE or ZE trucks) in response to shifting market conditions brought about by PR 2305 (or other CARB regulations or incentive programs), however they are not regulated by PR 2305.

As shown in the baseline emissions inventory below, most NOx and diesel PM emissions associated with warehouses come from trucks. Trucks are owned and/or operated by motor carriers, and their services are provided on behalf of the owner of the goods they are carrying. Warehouse operators often do not own the goods in their warehouse, and in these cases they may not be directly involved in hiring all or any motor carriers that visit the warehouse.

Industry stakeholders have indicated that the business relationships between warehouse operators, cargo owners, and motor carriers can vary widely, even in a single warehouse. Some warehouses are more vertically integrated where the operator owns the goods in the warehouse, and directly contracts with motor carriers, or uses their own fleet, to transport the goods to retail establishments.⁶⁴ In this situation, the warehouse operator has a relatively high level of control of

⁶² https://scag.ca.gov/sites/main/files/file-attachments/task4_understandingfacilityoperations.pdf

⁶³ In rare instances, the land beneath a warehouse building is owned by a different entity than the warehouse building itself.

⁶⁴ As estimated in Appendix C to this report, up to 40% of warehouse operators subject to PR 2305 may own a fleet. The number of warehouse operators who also directly arrange for some level of trucking services to their facility is unknown, but would increase the total number of warehouses who have a direct ownership or other business relationship with at least some trucks going to their facility. Staff conversations with warehouse operators have

the trucks and cargo flowing through the warehouse.⁶⁵ Other warehouse operators may not own any goods within the warehouse, or have a direct relationship with any motor carriers visiting the warehouse, or own a fleet themselves. The warehouse operator may have very little control over the trucks calling at the warehouse in this configuration.

One common relationship between all warehouse operators is they either own the goods in the warehouse themselves, or have a direct contractual relationship with the goods owner to manage the warehousing of those goods. The specific conditions in these contracts can vary widely depending on the needs of the two parties. For example, some warehouse operators have indicated their contracts with motor carriers have included air quality goals, such as providing incentives to fleets that met EPA SmartWay standards,⁶⁶ or requiring use of zero emission (ZE) trucks. Under PR 2305, some warehouse operators may choose to include contract provisions either with motor carriers or with goods owners who contract with motor carriers, that take into account the requirements of the rule. This could include requiring or incentivizing near zero emission (NZE) or ZE truck visits, or increasing the price charged for warehousing operations so that the operator can comply with PR 2305 in other ways.

Affected Facilities

There are approximately 45,000 industrial buildings of any size located in the South Coast AQMD region, totaling about 1.6 billion square feet. Warehousing makes up a significant fraction of this industrial space, with approximately 90% of these buildings classified as distribution, light distribution, cold storage, truck terminal, or warehouse.⁶⁷ Some industrial properties also include a combination of warehousing and manufacturing uses.

Most industrial properties are smaller in size, typically less than 100,000 square feet. However, the majority of the industrial building square footage occurs in larger buildings (Figure 9). The amount of industrial building space within South Coast AQMD's region has been growing substantially over the past several decades, with most of the growth occurring in the counties of San Bernardino and Riverside since the year 2000 (Figure 10).⁶⁸ Warehousing is anticipated to continue to grow in the SCAG region at a rate of ~1.8% annually.⁶⁹

indicated that while not ubiquitous, it is not uncommon for many warehouse operators to have at least some trucking companies that they directly work with.

⁶⁵ Note that even in this instance, the supplier of some of the goods to the warehouse may arrange to transport inbound shipments without involving the warehouse operator.

⁶⁶ EPA SmartWay is a voluntary program that promotes fuel efficiency for freight carriers.

<https://www.epa.gov/smartway>

⁶⁷ www.costar.com

⁶⁸ Ibid.

⁶⁹ https://scag.ca.gov/sites/main/files/file-attachments/final_report_03_30_18.pdf

Figure 9: Industrial Building Count (left) and Square Footage (right) by Building Size in South Coast AQMD Jurisdiction

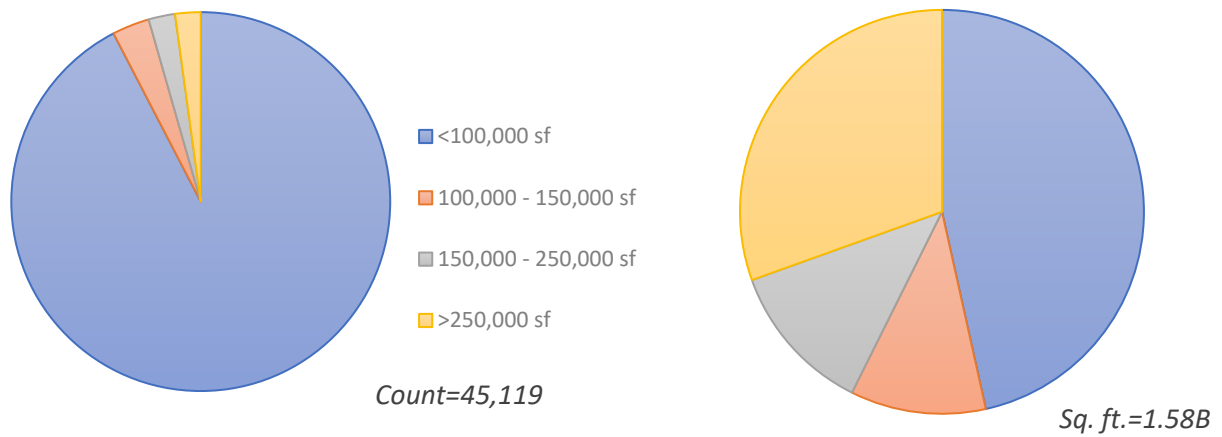
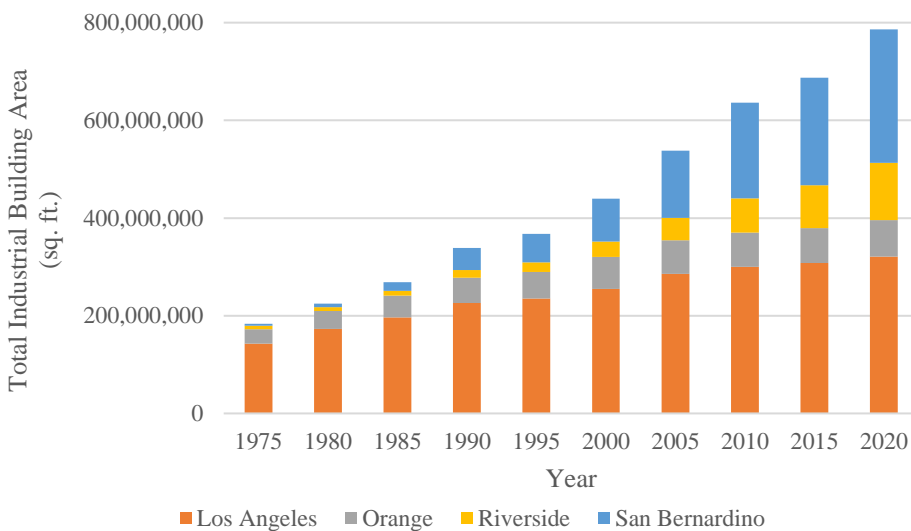


Figure 10: Industrial Building Growth by County



There are currently about 3,320 facilities with 100,000 square feet or more of building area that may be subject to PR 2305 and PR 316 (see Appendix C for a list of addresses and a discussion of how the number and type of facilities was determined). Of these facilities, an estimated 2,902 are expected to be required to earn WAIRE Points under PR 2305, with the remainder only subject to limited reporting (e.g., facilities with $\leq 100,000$ sq. ft. of warehousing activity in a building with $>100,000$ sq. ft.). Of the warehouses expected to be required to earn WAIRE Points, about 38% may have more than one operator in a single building (yielding a total of about 4,000 operators), about 45% may own a truck fleet,⁷⁰ and about 17% may be owner occupied (with any combination thereof).

⁷⁰ Data is not available for how many trucks from operator-owned fleets serve a warehouse.

BASELINE EMISSIONS INVENTORY

The discussion below provides the method for estimating baseline emissions of NO_x and diesel PM in 2019, 2023, and 2031 for the 2,902 warehouses expected to be required to earn WAIRE Points under PR 2305.⁷¹ The estimate presented here relies on the substantial work previously conducted to estimate vehicular-related emissions, including work performed by:

- California Air Resources Board (CARB) both for the 2016 AQMP emissions inventory⁷² and for the Draft Mobile Source Strategy⁷³,
- SCAG for the 2016 Regional Transportation Plan, and
- South Coast AQMD for the 2016 AQMP

South Coast AQMD also sponsored a study to evaluate warehouse activities that affect air quality, co-sponsored with the National Association for Industrial and Office Parks (NAIOP).⁷⁴ The study was conducted by the Institute of Transportation Engineers (ITE) to update warehouse trip generation estimates for warehouses.⁷⁵

Methodology for Estimating NO_x Emissions from Warehouses

Trip Generation Rates

Data was obtained for three categories of warehouses from CoStar⁷⁶ including warehouses $\geq 100,000$ and $< 200,000$ sq. ft., $\geq 200,000$ sq. ft., and all cold storage warehouses $\geq 100,000$ sq. ft. Current warehouse data was projected to 2023 and 2031, using growth factors derived from SCAG's Industrial Warehousing report⁷⁷.

Trip generation rates for on-road vehicles were obtained from the High-Cube Warehouse Vehicle Trip Generation Analysis⁷⁸ by ITE and supplemented with data from the City of Fontana's Truck Trip Generation Study⁷⁹.

Table 5: Trip Generation Rates in Trips/Thousand Sq. Ft.

Warehouse Category	Class 8	Class 4-7	Passenger Vehicles
$\geq 200,000$ sq. ft.	0.33	0.12	1.000
$\geq 100,000 - < 200,000$ sq. ft.	0.21	0.14	1.385
Cold Storage ($\geq 100,000$ sq. ft.)	0.75	0.29	1.282

⁷¹ The spreadsheet that includes all calculations described here is available at: www.aqmd.gov/fbmsm

⁷² <https://www.arb.ca.gov/app/emsinv/fcemssumcat/fcemssumcat2016.php>

⁷³ <https://ww2.arb.ca.gov/resources/documents/2020-mobile-source-strategy>

⁷⁴ <http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/high-cube-warehouse>

⁷⁵ <https://www.ite.org/pub/?id=a3e6679a%2De3a8%2Dbf38%2D7f29%2D2961becdd498>

⁷⁶ <https://www.costar.com/>

⁷⁷ https://www.scag.ca.gov/Documents/Task4_UnderstandingFacilityOperations.pdf

⁷⁸ <https://www.ite.org/pub/?id=a3e6679a%2De3a8%2Dbf38%2D7f29%2D2961becdd498>

⁷⁹ <https://www.tampabayfreight.com/pdfs/Freight%20Library/Fontana%20Truck%20Generation%20Study.pdf>

Table 6: Warehouse Square Footage for Each Warehouse Category

Warehouse Category	2019	2023	2031
≥200,000 sq. ft.	521,727,570	562,574,867	644,269,462
≥100,000 – <200,000 sq. ft.	214,795,154	231,611,979	265,245,630
Cold Storage (≥100,000 sq. ft.)	8,188,346	8,829,431	10,111,601

Trucks

Baseline composite truck emission rates⁸⁰ (ER) were calculated from EMFAC2017 for heavy duty trucks of Class 4-7 and Class 8 for calendar years 2019, 2023, and 2031. EMFAC2017 provides activity and emission rates for all on-road vehicles that operate within California, however, the analysis presented here is limited to those categories most likely to deliver goods to and from warehouses. EMFAC categories⁸¹ in this analysis and their relationship to truck class are shown in Table 7 below.

Table 7: EMFAC Truck Categories

EMFAC Category	Description	Truck Class
T6 CAIRP Small	Medium-Heavy Duty Diesel CA International Registration Plan Truck with GVWR≤26,000 lbs	Class 4-6
T6 Instate Small	Medium-Heavy Duty Diesel Instate Truck with GVWR≤26,000 lbs	
T6 OOS Small	Medium-Heavy Duty Diesel Out-of-State Truck with GVWR≤26,000 lbs	
T6 CAIRP Heavy	Medium-Heavy Duty Diesel CA International Registration Plan Truck with GVWR>26,000 lbs	Class 7
T6 Instate Heavy	Medium-Heavy Duty Diesel Instate Truck with GVWR>26,000 lbs	
T6 OOS Heavy	Medium-Heavy Duty Diesel Out-of-State Truck with GVWR>26,000 lbs	
T7 CAIRP	Heavy-Heavy Duty Diesel CA International Registration Plan Truck with GVWR>33,000 lbs	Class 8
T7 NNOOS	Heavy-Heavy Duty Diesel Non-Neighboring Out-of-State Truck with GVWR>33,000 lbs	
T7 NOOS	Heavy-Heavy Duty Diesel Neighboring Out-of-State Truck with GVWR>33,000 lbs	
T7 POLA	Heavy-Heavy Duty Diesel Drayage Truck in South Coast with GVWR>33,000 lbs	
T7 Tractor	Heavy-Heavy Duty Diesel Tractor Truck with GVWR>33,000 lbs	

Vehicle miles traveled (VMT) per trip of 14.2 mi/trip and 39.9 mi/trip for medium-heavy (Class 4-7) and heavy-heavy duty trucks (Class 8) respectively, were derived from SCAG's 2016 Regional Transportation Plan modeling analysis (Table 8).

⁸⁰ This is the sum of each truck category's emissions rate multiplied by its corresponding VMT, and then divided by the total sum of VMTs.

⁸¹ <https://ww3.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf>

Table 8. Truck activity data from SCAG's Heavy-Duty Truck Regional Travel Demand Model

Truck Class	VMT (mi/day)	Trips (trip/day)	Mile/trip
Class 4-7	7,744,000	544,000	14.2
Class 8	12,060,000	302,000	39.9

Class 8 truck emissions were discounted by 22.2% to account for the trips made in between warehouses by trucks.⁸² Total idling emissions in the South Coast Air Basin (SCAB) for these truck classes were proportioned by the VMT estimate associated with warehouse trucking to calculate potential idling emissions associated with warehouses. The equations below show how preliminary emissions estimates were calculated.

Equation [1]:

$$VMT \text{ Associated with Warehouses} = \text{Warehouse size (ksf)} \times \text{trip rates} \left(\frac{\text{trips}}{\text{ksf}} \right) \times \frac{\text{miles}}{\text{trip}}$$

Equation [2]:

$$\begin{aligned} \text{Running Exhaust Emissions Associated with Warehouses} \\ = ER_{\text{Class 8}} \times \text{Warehouse VMT}_{\text{Class 8}} \times (1 - 0.222) \\ + ER_{\text{Class 4-7}} \times \text{Warehouse VMT}_{\text{Class 4-7}} \end{aligned}$$

Equation [3]:

$$\begin{aligned} \text{Idling Exhaust Emissions associated with Warehouses} \\ = \left(\frac{\text{Warehouse VMT}_{\text{Class 8}}}{\text{Total VMT}_{\text{Class 8}}} \right) \times \text{Idling } ER_{\text{Class 8}} (1 - 0.222) \\ + \left(\frac{\text{Warehouse VMT}_{\text{Class 4-7}}}{\text{Total VMT}_{\text{Class 4-7}}} \right) \times \text{Idling } ER_{\text{Class 4-7}} \end{aligned}$$

CARB recently approved two regulations that are expected to lower the emissions from trucks beginning with model year 2024 trucks, including the Advanced Clean Trucks Regulation and the Low NOx Omnibus Regulation. Additional emission reductions are anticipated from the upcoming Heavy Duty Inspection and Maintenance (I/M) regulation⁸³. CARB modified EMFAC 2017 to account for these regulations in the META tool that supports its Draft 2020 Mobile Source Strategy. These modifications were applied to the truck categories and VMT associated with warehouses under PR 2305. The anticipated emission reductions from these regulations associated with the 2,902 warehouses expected to earn WAIRE Points under PR 2305 is shown in Table 9.

⁸² https://scag.ca.gov/sites/main/files/file-attachments/task4_understandingfacilityoperations.pdf (pg 3-24)

⁸³ <https://ww2.arb.ca.gov/our-work/programs/heavy-duty-inspection-and-maintenance-program>

Table 9: Estimated Baseline Truck Emission (tpd) Associated with PR 2305 Warehouses Required to Earn WAIRE Points

	2019		2023		2031	
	NO _x	Diesel PM	NO _x	Diesel PM	NO _x	Diesel PM
EMFAC 2017 Baseline	41.67	0.67	20.19	0.14	20.18	0.14
Reductions from CARB ACT, Low NO _x Omnibus and Heavy Duty I/M Regulations	0	0	-0.005	< -0.01	-3.37	-0.03
Total	41.67	0.67	20.19	0.14	16.81	0.12

Passenger Vehicles

Similar to the methodology described for trucks, composite emission rates for running exhaust and start exhaust emissions for light duty cars and trucks from EMFAC2017, default car trip lengths from SCAG (10.6 mi./trip), and ITE trip generation rates for each warehouse category were used to estimate emissions from passenger car travel attributed to each warehouse category. No corrections outside of default values discussed above were made for passenger cars. Baseline emissions for this category are shown in Table 10 below.

Table 10: Estimated Baseline Passenger Car Emission (tpd) Associated with PR 2305 Warehouses Required to Earn WAIRE Points

	2019		2023		2031	
	NO _x	Diesel PM	NO _x	Diesel PM	NO _x	Diesel PM
Total	1.14	0.02	0.70	0.02	0.39	0.01

Cargo Handling Equipment

Two main types of cargo handling equipment are typically operated at warehouses. These include yard trucks and industrial trucks (including pallet jacks and forklifts). Emissions from industrial trucks are not estimated for PR 2305 warehouses.⁸⁴ Yard trucks operated at warehouses are typically powered by diesel engines, and can be certified as off-road (which restricts the yard truck to one warehouse's yard) or on-road (which allows for short trips to nearby warehouses). Some warehouses may have more than one yard truck operating onsite, while others may have none. Several data sources⁸⁵ were used to estimate the potential yard truck emissions associated with warehouses subject to PR 2305 including:

⁸⁴ Warehouses subject to PR 2305 have indoor areas that are nearly always above grade compared to the nearby truck and trailer yard to accommodate trucks backing up to a dock. Industrial trucks therefore operate almost exclusively in an indoor environment in these warehouses. During site visits, staff did not observe any industrial trucks powered by internal combustion engines (ICEs) at warehouses subject to PR 2305, and operators cited the desire to avoid operating ICEs in indoor environments.

⁸⁵ Population data for yard trucks operated at warehouses is not available from CARB.

- A business survey of warehouses commissioned by South Coast AQMD.⁸⁶ Respondents to this survey indicated that larger warehouses (>200,000 sq. ft.) operate an average of 3.6 yard trucks per million square feet of warehouse space, while smaller warehouses (100,000 to 200,000 sq. ft.) operate an average of 1.2 yard trucks per million square feet.
- Yard truck manufacturing data by calendar year was purchased from Powersys.⁸⁷ This data product includes an attrition model that estimates the retirement of older yard trucks through time. Both on-road and off-road data is available from this product.
- Activity data was provided by a yard truck manufacturer. On-road yard trucks are estimated to travel 2,145 mi/yr and off-road yard trucks are estimated to operate for 1,430 hrs/yr.
- Calendar year-specific emission rates for on-road and off-road yard trucks was obtained from the Carl Moyer Guidelines.⁸⁸

The estimated baseline NOx and diesel PM emissions from yard trucks are presented in Table 11 below.

Table 11: Estimated Baseline Yard Truck Emissions (tpd) Associated with PR 2305 Warehouses Required to Earn WAIRE Points

	2019		2023		2031	
	NOx	Diesel PM	NOx	Diesel PM	NOx	Diesel PM
Total	0.09	0.003	0.09	0.003	0.08	0.003

Transport Refrigeration Units (TRUs)

Updated emission estimates were based on CARB's current rulemaking effort affecting TRUs.⁸⁹ Half of all truck, trailer, and genset TRU emissions in the South Coast Air Basin were assumed to be associated with cold storage warehousing as refrigerated goods must travel to or from a warehouse for local delivery. This emission total was further reduced by the amount of cold storage warehousing square footage subject to PR 2305 WAIRE Point requirements relative to total cold storage warehousing in the South Coast AQMD jurisdiction (which is about 62%). Results of this analysis are presented below in Table 12.

Table 12: Estimated Baseline TRU Emissions (tpd) Associated with PR 2305 Warehouses Required to Earn WAIRE Points

	2019		2023		2031	
	NOx	Diesel PM	NOx	Diesel PM	NOx	Diesel PM
Total	1.82	0.08	1.64	0.07	1.61	0.06

⁸⁶ <http://www.aqmd.gov/docs/default-source/ceqa/handbook/high-cube-warehouse-trip-rate-study-for-air-quality-analysis/business-survey-summary.pdf>

⁸⁷ <https://www.powersys.com/>

⁸⁸ https://ww2.arb.ca.gov/sites/default/files/classic/msprog/moyer/guidelines/2017/2017_cmpgl.pdf

⁸⁹ <https://www.arb.ca.gov/orion/>

Summary of Baseline Emissions

Table 13 presents a summary of total baseline emissions associated with the 2,902 warehouses expected to earn WAIRE Points under PR 2305. This emissions total represents about 19% and 28% of the South Coast AQMD carrying capacity⁹⁰ in 2023 and 2031, respectively.

Table 13: Summary of Baseline Emissions Associated With PR 2305 Warehouses Expected to Earn WAIRE Points

Emission Source	2019		2023		2031	
	NOx	Diesel PM	NOx	Diesel PM	NOx	Diesel PM
Trucks	41.67	0.67	20.19	0.14	16.81	0.12
Passenger Vehicles	1.14	0.02	0.70	0.02	0.39	0.01
Yard Trucks	0.09	0.003	0.09	0.003	0.08	0.003
TRUs	1.82	0.08	1.64	0.07	1.61	0.06
Total	44.72	0.774	22.61	0.227	18.89	0.192

RULE STRINGENCY

Many factors go into considering the stringency of proposed rules. For PR 2305, the draft stringency recommended here considered the following points: the need for emission reductions (discussed in Chapter 1), the significance of emissions associated with the warehousing industry (discussed above in the Summary of Baseline Emissions), the potential emissions reductions from PR 2305 when considering other measures, and the impact to industry.

Potential Emission Reductions from PR 2305 and PR 316 When Considering Other Measures

As described in the baseline emissions inventory analysis above, recent CARB regulations have been quantified to the extent possible. In addition, CARB's Draft Mobile Source Strategy (Draft MSS) is designed to consider all the other measures that may be needed across every mobile source sector to meet various state goals, including attainment of federal air quality standards. This strategy includes very aggressive targets across all sectors, and any shortfall in one sector (e.g., ocean going vessels) would need to be made up by another sector (e.g., trucks).

South Coast AQMD staff submitted comments to CARB stating the Draft MSS needs to go even further, since emission reductions modeled in CARB's Draft MSS are not sufficient to meet either of the upcoming 2023 or 2031 federal deadlines for ozone reduction. Even in the most aggressive modeling in the Draft MSS,⁹¹ in 2023 more than 95% of heavy-duty trucks will be no cleaner than

⁹⁰ The carrying capacity is the maximum amount of NOx emissions that are allowable in the air basin while still meeting 2023 and 2031 federal ozone standards.

⁹¹ The Draft MSS did not explicitly consider any emission reductions from PR 2305 and PR 316.

2010 engine standards assumed for all trucks in the baseline emissions inventory from the 2016 AQMP. This scenario projects these trucks will still make up about 57% of the truck fleet in 2031. Since the 2016 AQMP requires a 45% and 55% reduction in NO_x by 2023 and 2031 respectively, the continued presence of large fractions of 2010 MY trucks in the fleet will hamper efforts to meet these deadlines. Any additional emission reductions provided by PR 2305 and PR 316 would assist in meeting the region's federal air quality attainment needs.

Impact to Industry

Some potential impacts to industry from PR 2305 include increased costs of warehouse operations and potential imposition of competitive disadvantages relative to warehousing in other regions. The potential cost impacts are described in the 'Compliance Costs' section below, and will be analyzed further in the socioeconomic analysis that will be released for public review at least 30 days prior to the public hearing to consider adoption of PR 2305 and PR 316.

The potential imposition of competitive disadvantages from air quality regulatory costs on the goods movement industry has been analyzed in two studies. First, one study was conducted by Industrial Economics Inc. (IEc)⁹² and funded by South Coast AQMD to analyze the potential for PR 2305 and PR 316 to cause warehouses to relocate to nearby areas in order to avoid compliance with the rules. The second study by Davies Transportation Consulting Inc. was funded by the ports of LA/LB to analyze how the logistics industry might respond to a new truck rate for imported goods at marine terminals. These studies will be discussed in greater depth in the socioeconomic analysis, but a brief synopsis of the results is included below.

IEc Warehouse Relocation Study

The IEc study found the warehousing industry in the South Coast AQMD is robust, and has grown at faster rates than surrounding areas (see Figure 10 and Figure 11), all while experiencing consistent increases in rent that have outpaced neighboring markets (see Figure 12). Since 2010, the rent increases in South Coast AQMD have average about \$0.47 per sq. ft. annually, all while growing in capacity by about 17 million sq. ft. per year. Nearby areas outside the South Coast AQMD jurisdiction have only increased their rents about \$0.06 per sq. ft. annually over the same period.⁹³

Industry stakeholders interviewed as part of the IEc study pointed to several benefits that warehouses rely on that are unique to this area, including the highly developed transportation network of multiple ports, railways, and interstate highways, along with a large labor pool that is difficult to access in more remote regions, and proximity to the large metropolitan customer base.

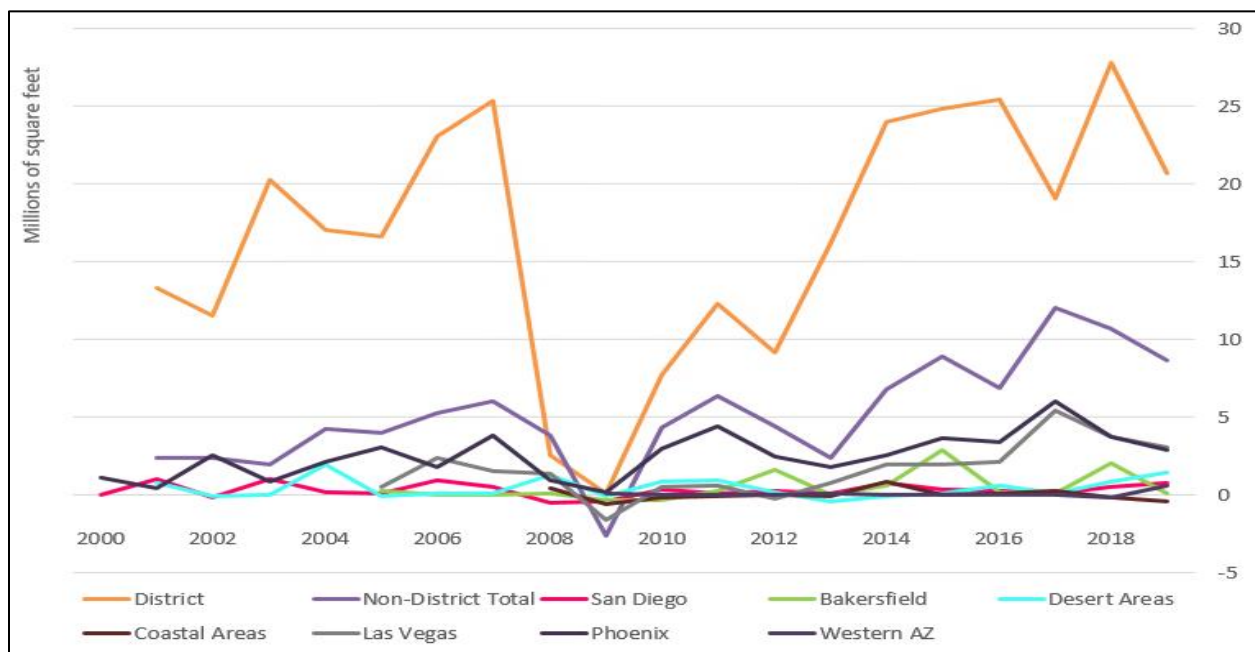
IEc modeled the potential costs that warehouses face with and without PR 2305 and PR 316 using two different methods. These analyses took into account different costs in neighboring markets such as rent, labor, utilities, transportation, etc., as well as costs associated with different potential stringencies of PR 2305 and PR 316. If costs are cheaper in a neighboring region compared to South Coast AQMD, then a warehouse would be motivated to relocate its operations. The analyses

⁹² Study will be included as an appendix to the socioeconomic analysis and is also located here: www.aqmd.gov/fbmsm.

⁹³ These annual \$0.47/sf increased rents result in an additional cost to industry in the South Coast AQMD jurisdiction of about \$11.4 billion from 2010-2019 compared to non-District \$0.06/sf increases in rents.

considered costs for existing building stock in neighboring areas, as well as hypothetical building stock assuming that existing vacant land that is industrially zoned could accommodate warehouses. One method that assumed all warehouses serve all markets equally found that no warehouses would relocate even with compliance costs of up to \$2/sq. ft. of warehousing space. A more conservative modeling method found that up to 10 warehouses would have cheaper costs today (without PR 2305) in neighboring regions if the warehouses were solely dedicated to a single market (e.g., serving the national market only via inbound drayage trucks from the port and outbound trucking to intermodal railyards).⁹⁴ This same conservative model found that no additional warehouses would experience cheaper costs in neighboring areas (and hence potentially relocate) if compliance costs from PR 2305 were at or below \$1.50/sq. ft.

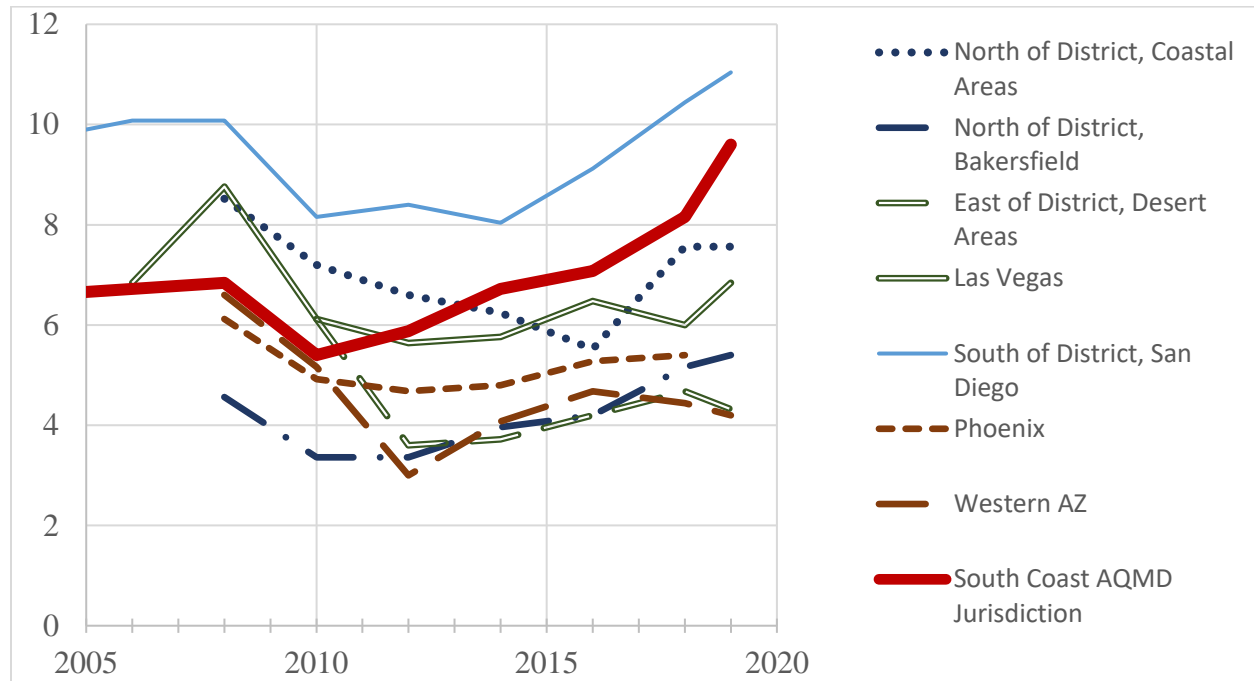
Figure 11: Annual Net Absorption⁹⁵ in Warehousing Space in South Coast AQMD Jurisdiction and Neighboring Areas



⁹⁴ As seen in Figure 10 and Figure 11, warehousing is preferentially growing in the South Coast AQMD jurisdiction compared to neighboring markets. One indication of the conservative nature of this modeling approach is that it finds that the opposite should be occurring in the baseline, and a small number of warehouses should relocate outside of the South Coast AQMD jurisdiction.

⁹⁵ Net absorption is a common metric used to track warehouse industry growth and is defined as the amount of warehouse space that tenants moved into minus the amount of warehouse space vacated in a given time period. Continually rising net absorption in South Coast AQMD indicates that more warehouses are being built and occupied than are being vacated. Negative net absorption indicates that more tenants are vacating warehouses than moving into warehouses during a given time period.

Figure 12: Warehousing Historical Rents in South Coast AQMD Jurisdiction and Neighboring Areas



Davies Transportation Consulting Port Study

The Davies study evaluated the potential for cargo diversion away from the ports of LA/LB if the ports implemented an update to its Clean Truck Program that would impose a new truck rate on loaded cargo containers that move through the port complex, with exemptions provided for NZE (through 2031) and ZE trucks. This study evaluated the different types and ultimate destinations throughout the country of cargo imported to the ports. A model was developed that evaluated the potential costs of using different ports, including the cost of increased time to travel from east Asia to ports in the eastern half of the United States.⁹⁶ This analysis found only a portion of goods are potentially subject to diversion to different ports, even at the maximum truck rate evaluated.⁹⁷ If the truck rate were set at \$70/TEU⁹⁸, the study found that the potential diversion of total containerized imports would only be up to 1.4%. The ports ultimately approved a truck rate of \$10/TEU,⁹⁹ though they have yet to implement the rate. Based on the Davies study, this rate level would result in 0.2% diversion of total containerized imports.

⁹⁶ As an example, the Davies study found that goods traveling from Shanghai to the New York/New Jersey port took more than 10 days longer than goods travelling from Shanghai to the ports of LA/LB.

⁹⁷ The Davies study found that 35% of imported goods would not relocate at all to a different port within the study parameters (i.e., up to \$70/TEU). These are goods that are goods destined for the local market or for markets within about an 800-mile trucking distance from the ports.

⁹⁸ Twenty-foot Equivalent Unit. Most marine containers that are trucked out of the ports are forty-foot equivalent units, equal to two TEUs.

⁹⁹ https://polb.granicus.com/MinutesViewer.php?view_id=77&clip_id=7245.

Potential Impact of PR 2305 and PR 316 on Industry Competitiveness

The two studies analyze the effect of diversion of the logistics sector away from the South Coast AQMD jurisdiction, but with important differences. The Davies study found cargo owners had limited choices if the ports implemented the Clean Truck Program. They could either pay for the cost of NZE or ZE trucks, pay the \$10/TEU rate, or relocate to a different port.¹⁰⁰ The study concluded that at \$70/TEU it would be more cost effective for the vast majority of goods (98.6%) to continue using the ports of LA/LB.

Because PR 2305 and PR 316 apply at warehouses, not at ports, a cargo owner has more options than simply paying the maximum cost of complying with these rules (through increased warehousing costs in the South Coast AQMD jurisdiction) or diverting their cargo to another port. Under PR 2305, cargo owners will have many options and they can implement the cheapest option for their business operation that may be significantly lower cost than the maximum cost option (see Table 20: Total Cost Summary of Each Compliance Scenario (2022-2031) After Accounting for CARB's ACT and Low NOx Omnibus Regulations).

In addition, cargo owners could utilize warehouses just outside of the South Coast AQMD jurisdiction in neighboring areas, rather than shifting to a different port. The IEc study found the stringency of the rule would have to be more than \$1.50/sq. ft. for it to be more efficient to divert a small amount of cargo outside of the Basin to warehouses that are not subject to PR 2305 and PR 316. The cost of diverting cargo to other ports would be even higher than diverting it to warehouses outside the basin, due in large part to the increased travel times: moving cargo to a nearby region increases travel time by only a few hours,¹⁰¹ rather than 10+ days from moving goods to a port on the east coast.

Finally, the Davies study and others¹⁰² have documented the ports of LA/LB have lost market share of containerized imports continuously since at least 2003. The reasons for this loss have been attributed to many macroeconomic causes that outweigh any increased regulatory costs in California, including labor stoppages in 2002 and 2014/2015, the widening of the Panama Canal in 2016, the recent shifting of some manufacturing from east China to southeast Asia in response to trade tensions,¹⁰³ increased investments in infrastructure at competing ports, the lack of increased trade with areas outside of east Asia, etc.

Despite this longer term shift in global trade flows, containerized traffic at the ports of LA/LB has steadily increased¹⁰⁴ (Figure 13) and is still expected to reach 34 million TEUs by 2040.¹⁰⁵ Warehousing in the South Coast AQMD jurisdiction has grown rapidly (Figure 10 and Figure 11)

¹⁰⁰ The Davies study analyzed a variety of costs for goods travelling from Shanghai, China to Chicago, including from ocean shipping, rail shipping, trucking, port and rail fees, the value of time differences in shipping routes, etc.

¹⁰¹ For example, travel time without traffic from the ports to Bakersfield is about 2.5 hours, while travel time from the ports to Ontario (located in the Inland Empire) is about 1 hour.

¹⁰² <https://www.pmsaship.com/wp-content/uploads/2019/12/Briefing-Paper-Loss-of-Market-Share-at-U.S.-West-Coast-Ports.pdf>

¹⁰³ <https://www.freightwaves.com/news/freight-volumes-shift-east-as-supply-chains-move-out-of-china>

¹⁰⁴ <https://www.polb.com/business/port-statistics#latest-statistics>,
<https://www.portoflosangeles.org/business/statistics/container-statistics>

¹⁰⁵ https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial_goods-movement.pdf

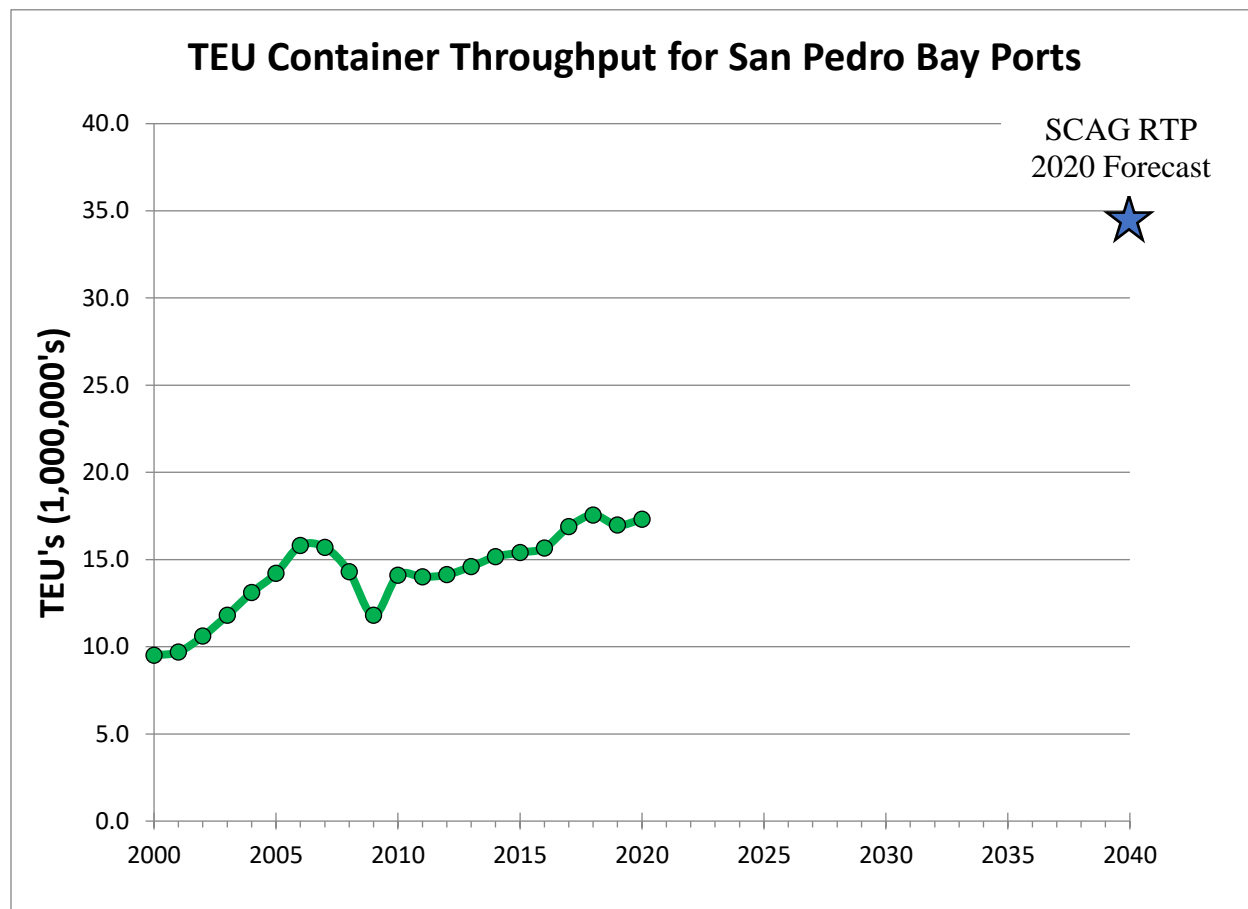
to accommodate this increased goods movement activity and is expected to continue.¹⁰⁶ Thus, even with a loss of market share, given the significant and continued growth in the logistics industry in South Coast AQMD's jurisdiction, it is not clear that any logistics activity has relocated as opposed to experiencing faster growth in other areas.¹⁰⁷ Similarly, the warehousing industry has experienced significant increased costs (Figure 12), and yet has continued to grow faster than neighboring regions (Figure 11). PR 2305 and PR 316 would also impose additional costs on the industry, however relocation of warehousing due to these rules is not expected if costs are below \$1.75 per sq. ft. Similar to the port analysis, it is possible that the growth of warehousing may change in the future in response to many factors (regulatory costs from CARB and/or South Coast AQMD, land costs, labor availability, changing market conditions, etc.)¹⁰⁸

¹⁰⁶ https://scag.ca.gov/sites/main/files/file-attachments/final_report_03_30_18.pdf

¹⁰⁷ As an example, in April 2021 Maersk (the largest container shipping line in the world, <https://www.forbes.com/sites/niallmccarthy/2021/03/29/the-world-largest-container-shipping-companies-infographic/>) increased its service for the Asia-US East Coast route, but did not reduce its service for the Asia-West Coast route (<https://www.freightwaves.com/news/maersk-adding-weekly-service-to-us-east-coast>). The stated reasons for this shift are strong market demand on the US East Coast, a desire to create a more reliable service to the US East Coast, and infrastructure bottlenecks on the US West Coast coupled, with no mention of air quality regulations.

¹⁰⁸ Although PR 2305 is not expected to result in relocation of logistics activity at the proposed level of stringency, CEQA analysis requires a different legal standard of review. To be conservative in that analysis, some relocation is therefore considered to be possible in order to evaluate any potential environmental impacts.

Figure 13: Containerized Trade Flows at the Ports of Long Beach and Los Angeles



Summary of Considerations For Determining PR 2305 Stringency

Because of the pressing need to meet federal air quality standards in 2023 and 2031, both from a public health perspective and from a public policy perspective (e.g., avoiding federal sanctions), the stringency of the rule should be set at a level that achieves emission reductions beyond what other regulations will require, and that is within South Coast AQMD’s legal authority. The immediacy of the 2023 deadline also drives a need for a phase-in schedule that can achieve emission reductions early.

The logistics industry and warehousing in particular are robust in our region and have continued to grow rapidly despite experiencing headwinds such as continuously increasing rents and loss of market share to other ports. However, as demonstrated in the ‘Compliance Costs’ section below, there will be financial impacts to industry to implement PR 2305, and it will also require many warehouse operators and cargo owners to change their business practices to implement actions required by PR 2305. After balancing all of these factors, staff is proposing to set the stringency of PR 2305 at 0.0025 WAIRE Points per Weighted Annual Truck Trip (WATT),¹⁰⁹ phased in over

¹⁰⁹ As described in Chapter 2, warehouse operators must track their WATTs every year to determine their WAIRE points compliance obligation.

a three-year period after a warehouse operator's initial requirement date. The discussion below presents the potential impacts of PR 2305 and PR 316 based on this stringency and phase-in schedule.

SCENARIO ANALYSIS

In response to stakeholder feedback, PR 2305 provides a flexible suite of options for warehouse operators to comply. This proposed rule will require subject warehouse operators to annually earn WAIRE Points¹¹⁰ by completing any combination of 1) implementing actions from the WAIRE Menu, 2) developing and implementing an approved Custom WAIRE Plan, or 3) paying a mitigation fee.

The WAIRE Menu includes 32 options to earn WAIRE Points, and any approved Custom WAIRE Plan would include additional options as it is limited to actions not on the WAIRE Menu. With about 4,000 warehouse operators and dozens of options available for compliance, it is not possible to determine the precise cost or emissions impact of PR 2305 and PR 316. In addition, due to annual compliance obligations, the potential compliance approach from one year may differ from the approach in a following year as technologies and markets evolve, and as early investments are utilized. Because of the variety of outcomes possible, annual updates on the implementation of PR 2305 and PR 316 will be provided to the South Coast AQMD Mobile Source Committee, and additional information will be made available on the South Coast AQMD website. This regular tracking, with opportunity for public input, will allow for timely adjustments to be made to the WAIRE Program should they be necessary.

There are other similar existing programs that also include multiple compliance options including South Coast AQMD Rule 2202 – On-Road Motor Vehicle Mitigation Options¹¹¹ and San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 9510 – Indirect Source Review¹¹². Both of these rules allow facilities to comply through prescriptive measures in the respective rule, or through paying a mitigation fee¹¹³. In the case of Rule 2202, approximately 8% of facilities pay the mitigation fee, and the remainder choose a different compliance option.¹¹⁴ In addition, Rule 9510 has shown as technologies advance, the compliance approaches change. As an example, when SJVAPCD Rule 9510 started in 2006, about 14% of projects reduced emissions using clean construction equipment, whereas the most recent report from 2020 shows 42% of projects chose this option.¹¹⁵

Notwithstanding the potential uncertain outcomes, a robust analytical approach has been conducted to estimate the potential impacts of PR 2305 and PR 316, including through the

¹¹⁰ As described in Chapter 2 and in PR 2305 (d)(1), a facility's WAIRE Points Compliance Obligation (WPCO) is determined based on four parameters: 1) the number of truck trips to a facility in any given year, 2) the stringency of the rule, 3) an annual variable that determines how quickly the rule phases in, 4) a warehouse operator's Initial Reporting Date based on the size of the facility.

¹¹¹ <http://www.aqmd.gov/docs/default-source/rule-book/reg-xxii/rule-2202.pdf>

¹¹² <http://www.valleyair.org/rules/currnrules/r9510-a.pdf>

¹¹³ Called an Air Quality Investment Program fee for Rule 2202 and an Off-Site Emissions Reduction Fee for Rule 9510. Rule 9510 also allows compliance through a Voluntary Emissions Reduction Agreement that is similar to a mitigation fee.

¹¹⁴ <http://www.aqmd.gov/home/research/documents-reports/activity-report>

¹¹⁵ <https://www.valleyair.org/ISR/Documents/2020-ISR-Final-Annual-Report.pdf>

development of 19¹¹⁶ different scenarios designed to show the range of potential outcomes. A description of these 19 scenarios analyzed is included in Table 14 below. The scenarios were developed to show potential end-member impacts from all 32 WAIRE Menu actions,¹¹⁷ as well as using mitigation fees.¹¹⁸

Each scenario is structured to follow a series of choices a warehouse operator may make based on compliance choices from a previous year. For example, if a warehouse operator purchased an NZE Class 8 truck in their first year complying with PR 2305 to earn WAIRE Points, they were assumed to use that same truck in subsequent years to earn additional WAIRE Points.

As a bounding analysis approach, all 2,902 warehouses were assumed to only comply with a single scenario approach from 2022 through 2031. No single scenario in this bounding analysis is expected to occur. Rather, they present possible extreme compliance outcomes. In reality, a hybrid of all scenarios (or other compliance approaches encompassed within the range of scenarios analyzed) is expected to occur.

The scenario analysis included in this second draft staff report includes minor updates since the previously released draft staff report released on March 3, 2021. For these scenario analyses,¹¹⁹ all 2,902 warehouses potentially required to earn WAIRE Points were modeled for every year from 2022-2031 using their square footage and the applicable average trip generation rates¹²⁰ to determine the amount of WAIRE Points they are required to earn in each year, referred to as their WAIRE Points compliance obligation (WPCO). The amount of warehousing space required to earn WAIRE Points was grown 1.8% per year, consistent with analysis from SCAG.¹²¹ The prioritization steps below were used to determine how WAIRE Points would be earned for each scenario. If sufficient WAIRE Points were not earned for any of the previous steps to satisfy a warehouse operator's WPCO in a given year, WAIRE Points were assumed to have been earned from the next step.

- 1) Banked WAIRE Points earned in any of the previous three years¹²²
- 2) WAIRE Points earned from using vehicles or equipment¹²³ acquired or installed in any previous year¹²⁴
- 3) WAIRE Points earned from acquiring or installing vehicles or equipment

¹¹⁶ A new scenario was added since the Preliminary Draft Staff Report – Scenario 7a.

¹¹⁷ See Appendix B – WAIRE Menu Technical Report for supplemental details for each action.

¹¹⁸ Custom WAIRE Plans were not modeled as they are not expected to be used by most facilities. The potential costs and emissions impacts from Custom WAIRE Plan implementation is expected to be within the range of analysis shown for the 18 scenarios.

¹¹⁹ The updated spreadsheet that includes all calculations described here is available at: www.aqmd.gov/fbmsm

¹²⁰ See PR 2305 (d)(1)(C)

¹²¹ https://scag.ca.gov/sites/main/files/file-attachments/final_report_03_30_18.pdf

¹²² PR 2305 (d)(6)(B) allows extra WAIRE Points earned in any one compliance year to be transferred for use in any of the next three compliance years.

¹²³ Trucks earning WAIRE Points were assumed to make 520 visits per year (10 per week), and travelled default distances of 39.9 miles per trip for class 8, and 14.2 miles per trip for all smaller trucks. Yard trucks were operated for 1,000 hrs/yr.

¹²⁴ As a simplifying assumption, the scenarios analyzed here include one half of a year's usage of equipment or vehicles in the year it was installed or acquired.

- 4) Mitigation fees were assumed paid to provide supplementary WAIRE Points if other prescribed actions within a scenario were not available or sufficient to satisfy the WPCO.

Table 14: Scenario Descriptions

#	Scenario Description	Notes
1	NZE Class 8 truck acquisitions and subsequent visits from those trucks	
2	NZE Class 8 truck acquisitions and subsequent visits from those trucks (early purchase)	One additional truck is acquired earlier than required, thus increasing WAIRE Points earned from truck visits in subsequent years.
3	NZE Class 8 truck acquisitions (funded by Carl Moyer program) and subsequent visits from those trucks	No WAIRE Points earned for truck acquisitions. Mitigation fees paid to earn WAIRE Points in first year of compliance.
4	NZE Class 8 truck visits from non-owned fleets	No WAIRE Points earned for truck acquisitions.
5	ZE Class 8 truck visits from non-owned fleets	No WAIRE Points earned for truck acquisitions. ZE Class 8 trucks are assumed to not be commercially available until late 2022. Mitigation fees paid to earn WAIRE Points until then.
6	Level 3 charger installations followed by ZE Class 6 & Class 8 truck acquisitions and subsequent visits from those trucks, using installed chargers	Chargers provide ~30,000 kWh/year per Class 6 truck, and ~90,000 kWh/yr per Class 8 truck. Class 8 trucks only acquired if 25 Class 6 trucks had been previously purchased for one warehouse.
7	Pay Mitigation Fee	
7a	Pay Mitigation Fee and account for NZE trucks visiting the facility incentivized from the WAIRE Mitigation Program	Incentivized trucks earn WAIRE Points and reduce mitigation fees paid.
8	NZE Class 6 truck acquisitions and subsequent visits from those trucks	
9	NZE Class 6 truck visits from non-owned fleets	No WAIRE Points earned for truck acquisitions.
10	ZE Class 6 truck visits from non-owned fleets	No WAIRE Points earned for truck acquisitions.
11	Rooftop solar panel installations and usage	Solar panel coverage limited to 50% of building square footage. Mitigation fees used to make up any shortfall in WAIRE Points.
12	Hydrogen station installations followed by ZE Class 8 truck acquisitions and subsequent visits from those trucks, using the hydrogen station	System installation in first year is followed by a truck acquisition. In subsequent years trucks are only acquired if needed to earn WAIRE Points.
13	ZE Class 2b-3 truck acquisitions and subsequent visits from those trucks	
14	ZE Class 2b-3 truck visits from non-owned fleets	
15	Filter System Installations	
16	Filter Purchases	
17	TRU plug installations and usage in cold storage facilities	Scenario is only applied to cold storage warehouses. Plugs limited to 1:10,000 sq. ft. of building space.
18	ZE Hostler Acquisitions and Usage	

Emission Reductions

The total potential emission reductions associated with PR 2305 and PR 316 from each scenario above are presented in and below.¹²⁵ The methods used to calculate the emission reductions are

¹²⁵ Appendix D includes a discussion of how ‘SIP creditable’ emission reductions can potentially be determined.

consistent with the baseline emissions inventory methodology described above, or with the WAIRE Menu Technical Report in Appendix B, as applicable.¹²⁶ Emission reductions from mitigation fees paid to earn WAIRE Points are assumed to achieve NOx emission reductions at \$100,000/ton in the year after the fee was paid (consistent with current criteria used for funding Class 8 NZE trucks). Although individual funded projects would vary in the amount of reductions and the duration over which the reductions occur, this simplified approach is sufficient to evaluate programmatic impacts of an ongoing WAIRE Mitigation Program. Emission reductions from the Mitigation Program would be lower than shown in these tables if a portion of the funding goes towards projects that facilitate emission reductions from other programs (such as ZE charging/fueling infrastructure).

As discussed in the Baseline Emissions Inventory section above, CARB regulations are expected to also reduce emissions from trucks going to PR 2305 warehouses. Tables 15 and 16 below show the ‘surplus’ emission reductions that would be expected for each scenario after taking into account emission reductions from CARB’s ACT, Low NOx Omnibus, and Heavy Duty I/M rules. As stated in the Air Quality Need section of Chapter 1, there is no requirement that the emission reductions from statewide rules will apply in the South Coast AQMD jurisdiction, and PR 2305 and PR 316 would ensure that higher emission reductions are actually achieved here, as demonstrated in and .

Table 15: NOx Emission Reductions (tpd) for 19 Bounding Analysis Scenarios After Discounting Reductions from CARB Regulations

Scenario	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
1	0.5	1.0	1.9	2.6	2.9	3.0	3.0	3.0	3.0	2.9
2	0.7	1.2	2.1	2.8	3.1	3.2	3.2	3.2	3.1	3.1
3	0.5	3.6	3.0	3.4	3.6	3.6	3.6	3.5	3.5	3.5
4	1.0	1.5	2.5	2.8	2.9	2.8	2.6	2.4	2.1	1.8
5	0	5.1	2.3	2.6	2.7	2.6	2.4	2.2	1.9	1.6
6	0	0.1	0.5	0.9	1.2	1.4	1.5	1.5	1.5	1.4
7	0	3.7	8.8	15.0	17.6	18.9	19.3	19.6	20.0	20.3
7a	0	0.7	1.5	2.4	2.9	2.9	2.9	2.8	2.8	2.7
8	0.3	0.6	1.2	1.8	2.2	2.3	2.3	2.2	2.1	2.0
9	1.0	1.4	2.3	2.6	2.6	2.4	2.2	1.9	1.7	1.4
10	1.1	1.5	2.5	2.8	2.9	2.7	2.4	2.2	1.9	1.5
11	0.0	0.2	1.7	1.0	11.1	13.2	14.6	15.4	14.3	12.9
12	0.0	0.1	0.5	0.8	1.3	1.7	1.9	2.0	2.0	2.0
13	0.2	0.5	0.9	1.2	1.2	1.2	1.1	1.0	0.9	0.8
14	0.4	0.9	1.4	1.5	1.4	1.2	1.0	0.8	0.7	0.5
15	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0
17	0	0.02	0.1	0.2	0.3	0.3	0.3	0.2	0.2	0.1
18	0.0	0.04	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

¹²⁶ The emission reductions calculated in this second draft staff report do not allow a separation of reductions before CARB’s ACT, HD I/M, and Low NOx Omnibus reductions as those regulations have now been integrated fully into the analysis. The only emission reductions shown in this draft fully account for those regulations.

Table 16: Diesel PM Emission Reductions (tpd) for 19 Bounding Analysis Scenarios After Discounting Reductions from CARB Regulations

Scenario	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
1	0.004	0.007	0.014	0.019	0.021	0.022	0.022	0.023	0.023	0.023
2	0.006	0.009	0.015	0.021	0.022	0.023	0.024	0.024	0.024	0.024
3	0.004	0.012	0.021	0.023	0.025	0.025	0.025	0.025	0.025	0.025
4	0.009	0.011	0.018	0.020	0.021	0.021	0.020	0.018	0.016	0.014
5	0	0.010	0.015	0.017	0.017	0.017	0.016	0.015	0.013	0.011
6	0	0.001	0.003	0.005	0.007	0.008	0.008	0.009	0.009	0.009
7	0	0.001	0.004	0.006	0.007	0.008	0.008	0.008	0.008	0.008
7a	0	0.005	0.011	0.017	0.021	0.021	0.021	0.021	0.021	0.021
8	0.023	0.008	0.013	0.015	0.015	0.014	0.013	0.012	0.011	0.009
9	0.023	0.008	0.013	0.015	0.015	0.014	0.013	0.012	0.011	0.009
10	0	0	0	0	0	0	0	0	0	0
11	0	0.001	0.003	0.005	0.008	0.012	0.013	0.014	0.014	0.014
12	0.001	0.005	0.010	0.014	0.016	0.017	0.017	0.017	0.017	0.017
13	0.004	0.010	0.016	0.018	0.018	0.017	0.016	0.015	0.013	0.011
14	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0
16	0	0.001	0.004	0.005	0.005	0.004	0.003	0.002	0.001	0.000
17	0.000	0.001	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003
18	0.023	0.008	0.013	0.015	0.015	0.014	0.013	0.012	0.011	0.009

WAIRE Program Compliance Costs

There are five types of compliance costs warehouse operators may experience with PR 2305 and PR 316 including: 1) costs to implement actions from the WAIRE Menu, 2) costs to develop and implement a Custom WAIRE Plan, 3) optional mitigation fees, 4) administrative fees pursuant to PR 316, and 5) costs associated with reporting and recordkeeping. The analysis presented here is a preliminary draft, and staff anticipates continuing to work on these estimates. Costs can be analyzed in a number of ways with a rule that includes as many options as PR 2305. One approach is to calculate costs using the scenario analysis presented above. A discussion of cost estimates with this approach is below. Because of the variability in emissions estimates and cost estimates in the extreme bounding analyses presented in the scenarios, cost effectiveness calculations may appear different than typical rules and regulations that have less flexibility than PR 2305. Although the bounding analysis scenarios presented are not expected to occur, the analytic approach provides a sound methodology to estimate average costs for any warehouse operator who chooses a scenario approach, both in terms of dollars per square foot of warehouse, as well as cost effectiveness (dollars per ton NO_x reduced).

Scenario Cost Analysis

Preliminary expected costs resulting from each of the 19 bounding compliance scenarios are discussed below. The majority of expected costs result from the capital cost associated with the estimated number of equipment acquisitions (ZE and NZE trucks, solar panels, charger installations, etc.) and the operating and maintenance (O&M) costs associated with usage of the equipment (fuel and electricity consumption, truck maintenance, etc.) in each scenario. This

analysis attempts to isolate and attribute capital and O&M costs for only the equipment incremental to current CARB regulations such as CARB's ACT and Low NOx Omnibus regulations.

Table 20: Total Cost Summary of Each Compliance Scenario (2022-2031) After Accounting for CARB's ACT and Low NOx Omnibus Regulations at the end of this preliminary analysis shows discounted total costs over a ten-year compliance time horizon (2022 – 2031). The costs shown in this analysis are in 2018 dollars and have not been discounted to account for the time value of money. Unless specified otherwise in the discussion here, incremental capital and O&M cost estimates are based on the analysis in the WAIRE Menu Technical Report in Appendix B, and the references contained therein.

To facilitate the discussion of the cost calculations, scenarios are grouped based on their compliance strategy. The groupings are comprised of (1) mitigation fees only; (2) truck acquisition and associated visits; (3) truck visits from non-owned fleets; (4) equipment acquisition and associated usage, and; (5) equipment/truck acquisition and associated usage/visits.

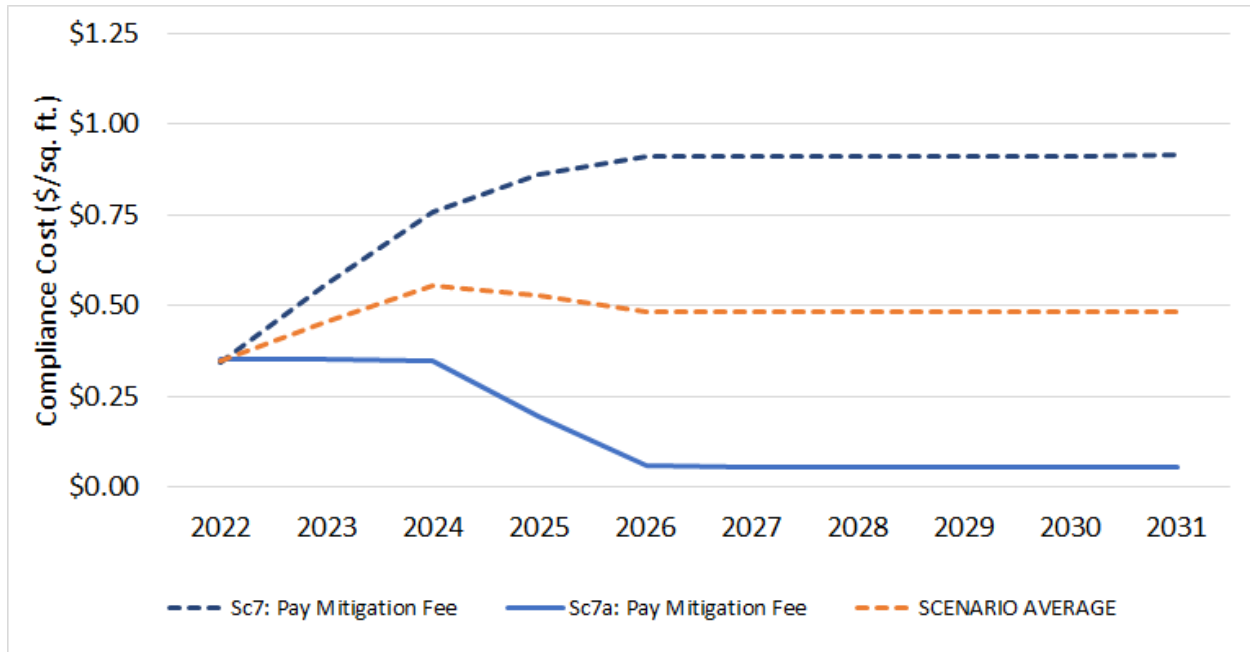
Mitigation Fees Only - Scenario 7 and 7a

The cost calculation for Scenario 7: Pay Mitigation Fee is straightforward. In lieu of earning WAIRE Points from equipment acquisitions and usage, all facilities choose to pay a fee of \$1,000 for each WAIRE Point in their WPCO attributed to their facility in every year of compliance. The total cost associated with the mitigation fee presented here does not reflect earning any Points from any other actions, such as truck acquisitions and visits resulting from CARB's ACT regulation, and should be considered a conservative high-end estimate. It is likely trucks purchased and used due to CARB's ACT regulation will be used to earn WAIRE Points to reduce the total amount of mitigation fees collected.¹¹⁵ This scenario also conservatively does not include any Points that might be earned from any trucks that are incentivized through the WAIRE Mitigation Program. Including these assumptions would significantly lower the cost, and the potential emission reductions from this scenario. This scenario is presented in all of the summary charts below as a point of comparison.

Scenario 7a assumes that facilities pay the mitigation fee and also actively track NZE truck visits from trucks funded by the mitigation fees. Facilities earn Points from visits from trucks purchased with collected mitigation fee funds. These points help to reduce a facilities' future year compliance obligation that would have otherwise been met through mitigation fee payments.

Figure 14 below presents total costs in each compliance year (2022 – 2031) for each mitigation fee scenario in dollars per square foot.

Figure 14: Potential Bounding Analysis Costs from Mitigation Fee Scenarios



Truck Acquisition and Associated Visits - Scenarios 1, 2, 3, 8, 13, and 18

Each scenario in this compliance strategy grouping relies on earning Points through purchase of clean trucks (NZE Class 8, NZE Class 6, ZE Class 2b-3, and ZE hostlers) and their subsequent usage (i.e. visits to the warehouse facility). Only those vehicle purchases and visits incremental to existing CARB regulations are considered.

Figure 15: Potential Bounding Analysis Costs from Truck Acquisition and Subsequent Usage Scenarios below presents total costs (truck acquisition and usage) in each compliance year (2022 – 2031) for each scenario in dollars per square foot.

Figure 15: Potential Bounding Analysis Costs from Truck Acquisition and Subsequent Usage Scenarios

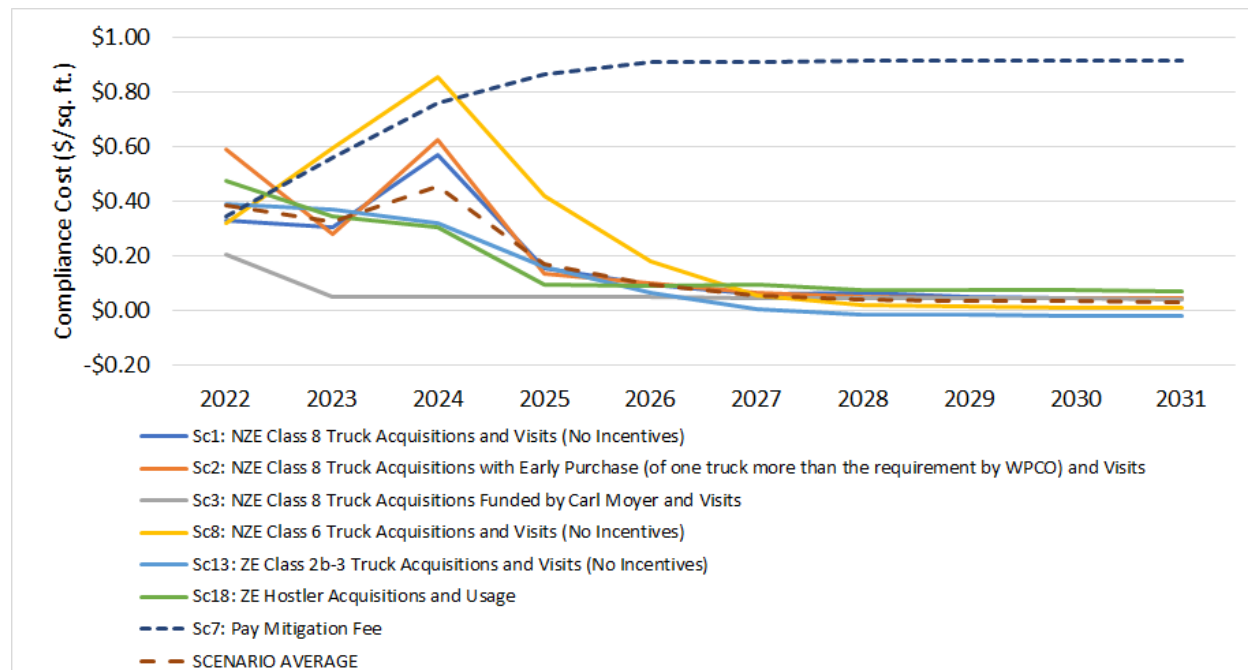


Table 17 below presents capital costs of Diesel and NZE trucks. These costs are assumed to remain constant across the entire compliance period.^{127,128} Per unit incremental costs of NZE Class 8 and Class 6 trucks are assumed to be \$65,000 and \$30,000, respectively. These costs are inclusive of state sales and federal excise taxes and based on analysis documented in the WAIRE Menu Technical Report and the references cited therein.

Capital costs of battery-electric ZE trucks are expected to decrease over time as a result of decreased battery costs. Projected capital costs over time for each ZE vehicle class can be found in Table 18: Capital Cost by ZE Truck Class and Year below.^{129,130,131} The incremental acquisition cost is set equal to the difference between the capital cost of each ZE truck and it’s

¹²⁷ Capital costs for diesel trucks can be found in Table C-6 of the CARB ACT Appendix C-1 – SRIA submitted to DoF: <https://ww3.arb.ca.gov/regact/2019/act2019/appc.pdf>

¹²⁸ Capital costs for NZE Class 8 trucks can be found in Table 31 of the 2018 Feasibility Assessment for Drayage Trucks: <https://cleanairactionplan.org/documents/final-drayage-truck-feasibility-assessment.pdf/>. Class 6 capital costs were calculated by taking the ratio of capital costs for NZE Class 6 and 8 trucks found in the WAIRE Menu.

¹²⁹ Capital costs for each ZE truck class (2b-3, 6, 8) for model years 2024-2030 are taken from CARB’s ACT Appendix C-1 – SRIA as submitted to DoF (Table C-7): <https://ww3.arb.ca.gov/regact/2019/act2019/appc.pdf>.

¹³⁰ To fill in missing years (2022, 2023), ZE capital costs were linearized between 2018 and 2024. 2031 costs assumed to be equal to 2030.

¹³¹ ZE Hostler capital cost projections are not available for future years. Staff applied a yearly cost multiplier based on ZE Class 2b-3 capital costs to the incremental cost of ZE Hostlers included in the WAIRE Menu. A cost multiplier is generated by taking ratio of difference in capital cost in each year (2022 -2031) to the difference in capital costs in year 1 (2022).

diesel equivalent. An 8% sales tax is also applied to each ZE truck acquisition and a 12% federal excise tax is applied to all ZE Class 8 acquisitions.

When the number of truck purchases in any compliance year for a given scenario falls below the expected number of truck purchases in CARB's EMFAC 2017 projections for that year, the incremental acquisition cost for each truck class and fuel type is used. However, if the number of truck purchases in a scenario exceeds EMFAC 2017 projections, the full capital cost associated with each truck type is used for those trucks above projections. No financing costs have been included in this analysis.

Scenario 3 assumes all trucks purchased are subsidized by Carl Moyer incentive funds and no WAIRE Points (or costs) are attributed to warehouse operators for these vehicle purchases. Because no Points are earned for NZE Class 8 truck acquisitions in Scenario 3, it is necessary for facilities to pay a mitigation fee for the additional WAIRE Points needed for compliance in each calendar year (2022 – 2031) in which visits from Moyer-funded trucks are not sufficient to meet the WPCO.

Table 17: Capital Costs for Diesel and NZE Truck Acquisitions

Vehicle Class	Diesel	NZE
Class 2b-3	\$50,000	N/A
Class 6	\$85,000	\$115,000
Class 8	\$130,000	\$195,000

Note: Capital costs for diesel trucks listed here are pre-tax.

NZE capital costs include sales taxes (Class 8 and Class 6) and federal excise taxes (Class 8 only).

Table 18: Capital Cost by ZE Truck Class and Year

Year	ZE Class 8	ZE Class 6	ZE Class 2b-3
2022	\$292,544	\$155,055	\$71,920
2023	\$246,948	\$143,904	\$68,318
2024	\$201,351	\$133,554	\$64,896
2025	\$194,134	\$128,321	\$63,635
2026	\$188,312	\$124,112	\$62,599
2027	\$183,371	\$120,563	\$61,684
2028	\$178,870	\$117,345	\$60,829
2029	\$174,809	\$114,456	\$60,035
2030	\$170,748	\$111,568	\$59,241
2031	\$170,748	\$111,568	\$59,241

Note: Capital costs for all ZE trucks listed here are pre-tax

Costs associated with the use/visits of facility-owned NZE and ZE trucks is done on a per-mile basis. Per-mile usage costs resulting from fuel consumption and other costs (including maintenance, fees, insurance, and mid-life costs) were calculated for all truck classes and fuel types and then multiplied by the expected VMT in each compliance year for each scenario.^{132,133,134} A breakdown of total usage costs for each truck class and fuel type can be found in Table 19 below. Per-mile usage costs (not considering capital costs) of Class 6 and 8 NZE trucks is slightly lower than diesel, and results in a modest net savings to facilities. Per-mile usage costs of Class 2b-3, 6, and 8 ZE trucks is significantly lower than diesel and results in a net savings to facilities. Additionally, for Scenario 18, the incremental cost associated with ZE hostler/yard truck usage is taken from the WAIRE Menu Technical Report in Appendix B (\$6,250/1000 hours), and the references therein.

Table 19: Annual Operating and Maintenance Costs by Vehicle Class and Fuel Type (in 2018 Dollars)

Vehicle Class	Fuel Type	Total Annual Fuel Cost	Total Annual Other Cost	Total Annual Miles	\$/mile
Class 8	Diesel	\$34,231	\$15,306	54000	\$0.92
	ZE	\$13,125	\$16,361	42000	\$0.70
	NZE	\$30,918	\$16,841	54000	\$0.88
Class 6	Diesel	\$12,130	\$7,844	24000	\$0.83
	ZE	\$3,923	\$7,238	24000	\$0.47
	NZE	\$9,219	\$8,525	24000	\$0.74
Class 2b-3	Diesel	\$2,418	\$4,221	15000	\$0.44
	ZE	\$1,508	\$3,843	15000	\$0.36

Truck Visits from Non-owned Fleets - Scenarios 4, 5, 9, 10, and 14

Scenarios associated with this compliance strategy grouping earn WAIRE Points solely from visits to their facilities from non-owned NZE or ZE trucks. Costs for these scenarios only include visits above and beyond those resulting from existing CARB regulations. To calculate expected costs due to PR 2305, the incremental cost associated with each visit by truck class and fuel type was calculated based on the total cost of ownership (TCO) and multiplied by the number of visits by non-owned trucks necessary to comply in all compliance years.

¹³² Data on maintenance costs, mid-life costs, fuel cost and fuel economy for diesel, ZE and NZE trucks is taken from the WAIRE Menu Technical Report in Appendix B.

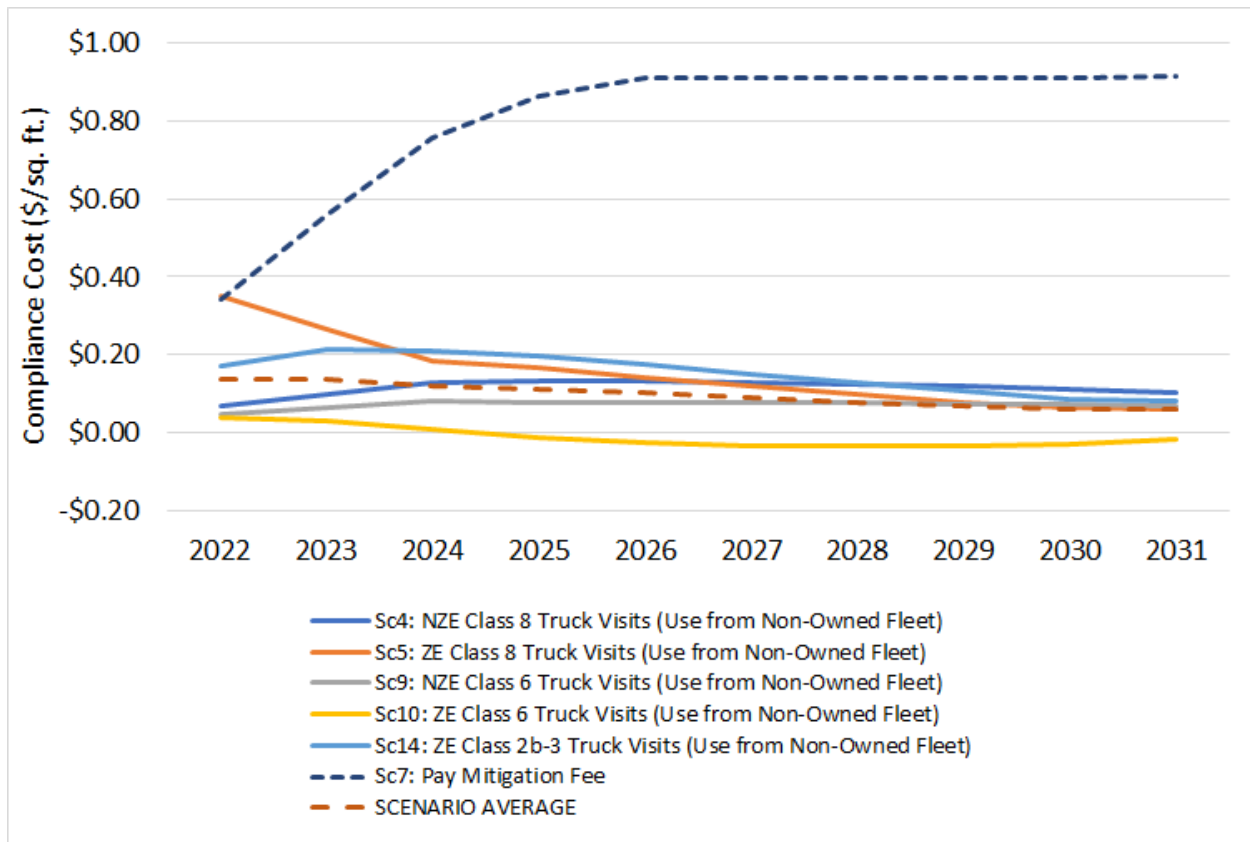
¹³³ Vehicle fees for all ZE and diesel truck classes are taken from CARB's ACT Total Cost of Ownership document: <https://ww3.arb.ca.gov/regact/2019/act2019/apph.pdf>. Fees for NZE trucks are assumed to be the same as diesel trucks.

¹³⁴ Annual insurance costs assumed to be equal to 3% of vehicle value. Vehicle value assumed to decrease by 10% in years 2-8 and an additional 5% in years 9-11. The average annual cost is included in the per mile cost analysis.

A TCO analysis was performed for each truck class and fuel type for each compliance year using the assumed acquisition and usage costs described above. A 4% financing rate was used over a five-year financing period. A 12-year useful life is assumed for all trucks and a 4% discount rate was used to discount all costs in years beyond 2022. The TCO for all diesel and NZE trucks is constant over the compliance period and does not vary based on the year purchased. Because capital costs for ZE trucks are assumed to decline over time, the TCO does vary by purchase year. For a more detailed discussion of the TCO analysis, please see the Compliance Costs section of the PR2305 Draft Socioeconomic Impact Assessment dated April 2021.

The analysis for scenarios 9 and 10 indicates that if all warehouse operators only complied using ZE or NZE Class 6 trucks as a bounding analysis, that the total VMT associated with WAIRE Points could exceed the VMT from these Class 6 trucks in EMFAC. To account for the shortfall in this bounding analysis, the analysis does not include WAIRE Points beyond existing VMT in EMFAC, and assumes that warehouse operators earn the remaining WAIRE Points necessary for compliance by paying the mitigation fee. Figure 16: Potential Bounding Analysis Costs from Truck Visits from a Non-owned Fleet below presents total costs, including non-owned truck visits and the mitigation fee (Scenario 5 only), in each compliance year (2022 – 2031) for each scenario in \$/sq. ft.

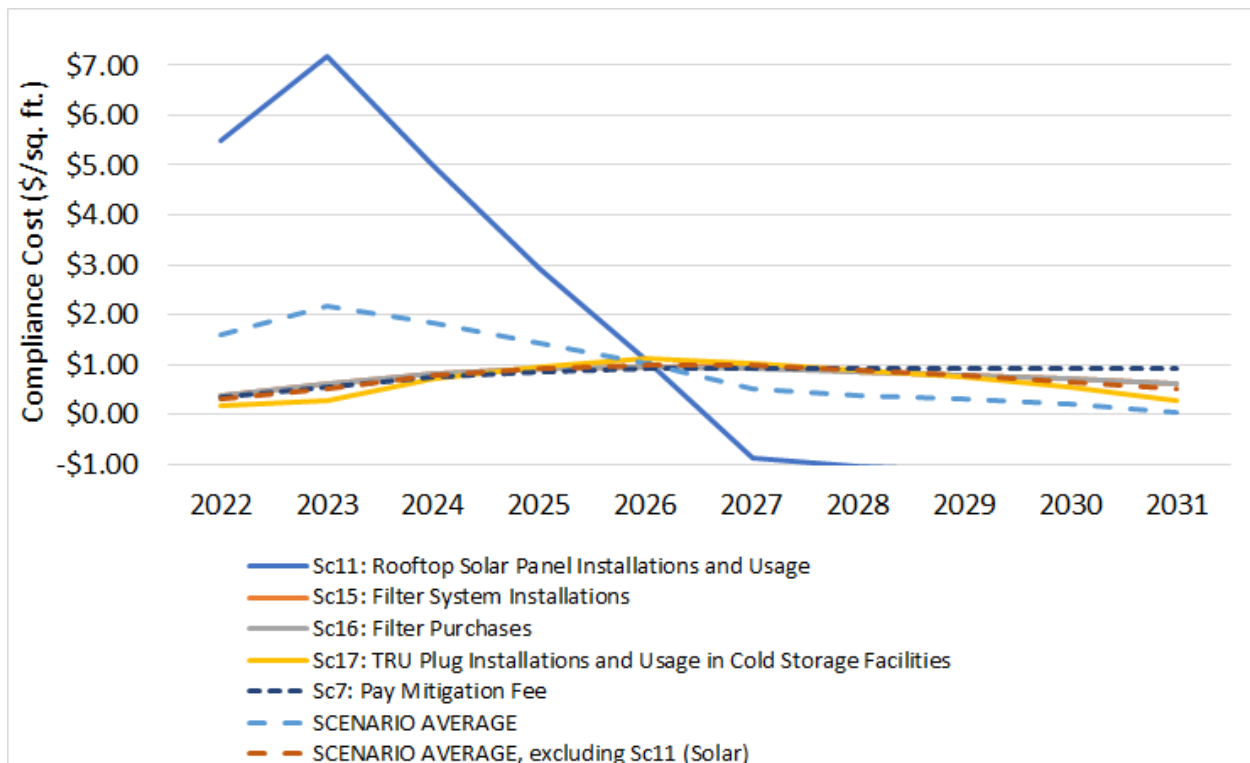
Figure 16: Potential Bounding Analysis Costs from Truck Visits from a Non-owned Fleet



Equipment Acquisition and Associated Usage - Scenarios 11, 15, 16, and 17

Facilities in these scenarios meet their WAIRE Point obligation by acquiring and using clean technologies, such as solar panels (Scenario 11), filter systems (Scenario 15), filters only (Scenario 16), and TRU plugs (Scenario 17). Costs associated with the acquisition and usage of these technologies, as well as construction and permitting costs for TRU plug installs are listed in the WAIRE Menu Technical Report in Appendix B. Usage of installed solar panels results in a cost savings equal to the assumed electricity price of \$0.17 per kWh. TRU costs were only applied to cold storage warehouses. Construction and permitting costs associated with TRU plug installations have been included. For Scenario 17 only, it is necessary for facilities to pay a mitigation fee for the additional WAIRE Points needed for compliance in each calendar years 2024 – 2031. Figure 17: Potential Bounding Analysis Costs from Non-truck Equipment and Associated Usage presents total costs in each compliance year (2022 – 2031) for Scenarios 11, 15, 16, and 17 in \$/sq. ft.

Figure 17: Potential Bounding Analysis Costs from Non-truck Equipment and Associated Usage



Equipment/Truck Acquisition and Associated Usage/Visits - Scenarios 6 and 12

Scenarios 6 and 12 assume facilities use both ZE truck and charging/fueling infrastructure acquisitions and their associated usage to earn WAIRE Points. Scenario 6 combines Level 3 charger installations with Class 6 and 8 ZE truck purchases. Scenario 12 combines hydrogen station installations and Class 8 ZE truck purchases. Incremental acquisition costs for Class 6 and 8 ZE trucks can be found in Table 18. Level 3 charger and hydrogen station installation and usage

costs are also listed in the WAIRE Menu Technical Report in Appendix B, along with construction and permitting costs for charger installation projects. To avoid double-counting, no costs are accumulated for charger usage as electricity costs are already accounted for in the per-mile usage costs for Class 6 and 8 ZE trucks. This analysis also assumes hydrogen costs decline over time from roughly \$9.75/kg per in 2020 to \$6.20/kg in 2031.¹³⁵ Figure 18: Potential Bounding Analysis Costs from Equipment Acquisition (Truck and Non-Truck) and Associated Visits/Usage below presents total costs for both scenarios in each compliance year (2022 – 2031) in \$/sq. ft.

Figure 18: Potential Bounding Analysis Costs from Equipment Acquisition (Truck and Non-Truck) and Associated Visits/Usage

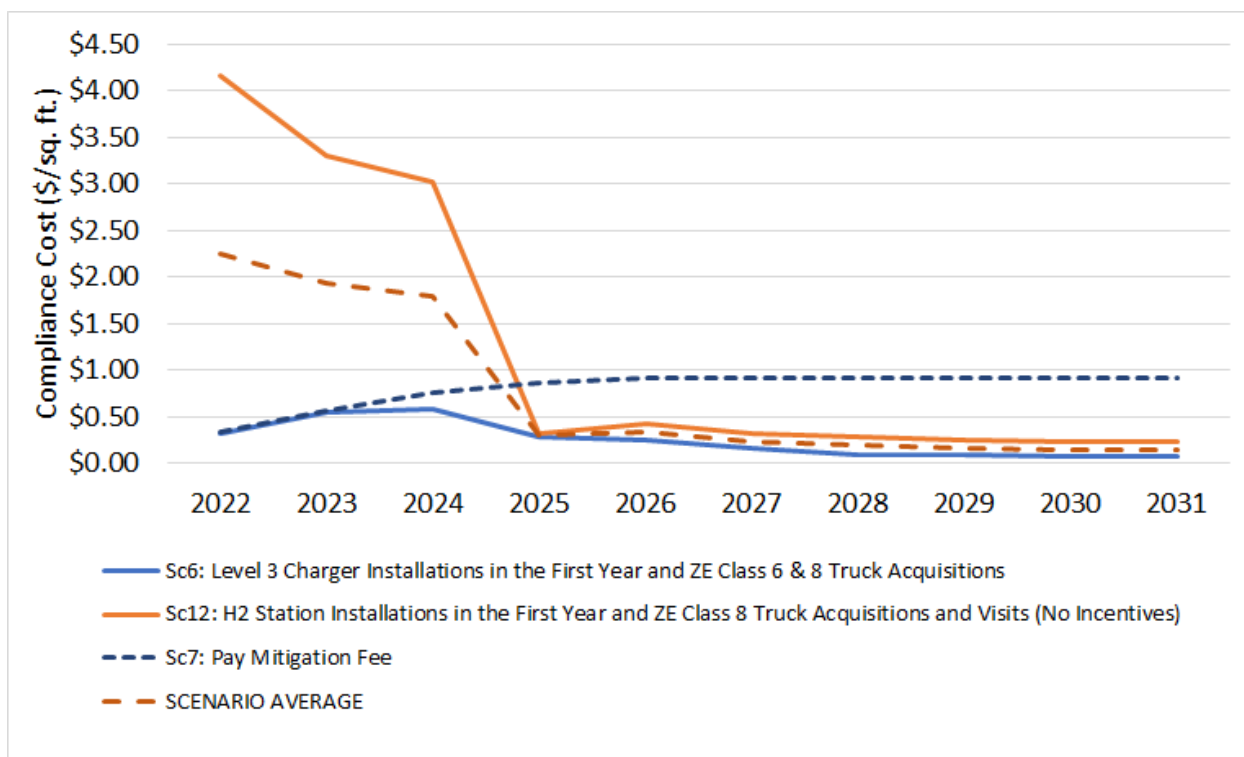


Table 20 below shows a cost summary for each compliance scenario including net present value (assuming 1% discount rate), average annual cost, and a weighted average annual cost per square foot of warehouse space after taking into account equipment acquisition from CARB’s ACT, Low NOx Omnibus. The total costs presented here are inclusive of all administrative costs and fees related to compliance. These administrative costs are explained in more detail in the next section of this report.

¹³⁵ Hydrogen cost projections can be found in CARB ACT Appendix C-1 – SRIA submitted to DoF (Figure C-5): <https://ww3.arb.ca.gov/regact/2019/act2019/appc.pdf>

The costs presented here are default calculations broadly applicable to the industry, however individual warehouse operators may identify different specific costs for their operations. Warehouse operators are assumed to gravitate towards the lowest cost options for their specific situations. As such, the maximum cost that warehouse operators would be expected to incur is about \$0.83/sq. ft./yr. resulting from the mitigation fee-only scenario. However, based on the cost analysis, it is likely that in most situations warehouse operators will identify substantially cheaper options that work within their operations.

Table 20: Total Cost Summary of Each Compliance Scenario (2022-2031) After Accounting for CARB's ACT and Low NOx Omnibus Regulations

	Equipment	Discounted Total Costs - NPV (1%) (in millions)	Discounted Total Costs - NPV (4%) (in millions)	Average Annual Cost (in millions)	Average Annual Cost (\$/sq. ft)
Sc1	NZE Class 8	\$1,225.7	\$1,102.6	\$127.2	\$0.16
Sc2	NZE Class 8	\$1,345.1	\$1,219.9	\$139.2	\$0.17
Sc3	NZE Class 8	\$430.2	\$374.4	\$45.2	\$0.06
Sc4	NZE Class 8	\$887.4	\$749.5	\$94.1	\$0.12
Sc5	ZE Class 8	\$1,067.2	\$941.8	\$111.5	\$0.14
Sc6	ZE Class 6 & 8	\$1,799.3	\$1,603.8	\$187.3	\$0.23
Sc7	Mitigation Fee	\$6,298.0	\$5,264.0	\$670.2	\$0.83
Sc7a	Mitigation Fee	\$1,097.7	\$985.5	\$114.0	\$0.14
Sc8	NZE Class 6	\$1,785.0	\$1,627.1	\$184.3	\$0.23
Sc9	NZE Class 6	\$553.6	\$467.6	\$58.7	\$0.07
Sc10	ZE Class 6	-\$114.9	-\$87.3	-\$12.6	-\$0.02
Sc11	Solar	\$9,796.9	\$9,712.2	\$979.0	\$1.21
Sc12	ZE Class 8	\$8,117.5	\$7,445.5	\$836.7	\$1.04
Sc13	ZE Class 2b-3	\$803.2	\$752.8	\$82.1	\$0.10
Sc14	ZE Class 2b-3	\$1,128.8	\$978.3	\$118.7	\$0.15
Sc15	Filter System	\$5,985.7	\$5,056.7	\$634.7	\$0.79
Sc16	Filter	\$5,862.9	\$4,953.4	\$621.6	\$0.77
Sc17	TRU	\$54.2	\$45.8	\$5.7	\$0.70
Sc18	Yard Trucks	\$1,152.6	\$1,028.7	\$120.0	\$0.15

WAIRE Program Administrative Costs

PR 316 Estimated Costs

PR 316 details the administrative fees that PR 2305 regulated entities must pay to fund South Coast AQMD compliance activities for PR 2305. The total annual cost for South Coast AQMD to administer and enforce the WAIRE Program was determined as a function of the fully burdened hourly rates for staff multiplied by the total staff time required to process the three types of reports required by PR 2305, including the Warehouse Operations Notification, Initial Site Information Report, and the Annual WAIRE Report – and all the associated auditing and enforcement activities for the WAIRE Program. In addition, reporting would be conducted through a new web portal, which includes an estimated \$25,000 annually to maintain. Warehouse Operations Notifications require significantly less information than the other two reports

There are 3,320 warehouse owners expected to initially submit a Warehouse Operations Notification, and about 4,000 initial warehouse operators across 2,902 warehouses that are expected to submit an Initial Site Information Report and Annual WAIRE Report during their first year that they would need to earn WAIRE Points. As described in Appendix C, an estimated 515 warehouse owners are operators who would need to submit a one-time Initial Site Information Report and Annual WAIRE Reports thereafter. The remaining warehouses are assumed to get a new operator every five years. Table 21 below shows how many reports are expected every year through 2031, including accounting for continued growth in the warehousing industry.

Table 21: Number of Reports Submitted by PR 2305 Warehouses Each Year

Year	Warehouse Operations Notification	Initial Site Information Report	Annual WAIRE Report
2021	3,320	0	0
2022	561	1,333	1,333
2023	561	1,894	2,695
2024	561	1,894	4,073
2025	578	578	4,120
2026	584	584	4,167
2027	591	591	4,214
2028	598	598	4,261
2029	604	604	4,308
2030	611	611	4,355
2031	617	617	4,402

Table 22 below shows the estimated average level of effort, burdened rates for staff, and costs for each report.

Table 22: PR 316 Fee Evaluation

Staff	Burdened Hourly Rate	Warehouse Operations Notification	Initial Site Information Report	Annual WAIRE Report
Planning & Rules Manager	\$141.29	0.05 hrs	0.1 hrs	0.2 hrs
Program Supervisor	\$126.57	0.05 hrs	0.2 hrs	0.6 hrs
Air Quality Specialist	\$110.28	0.1 hrs	1.0 hrs	1.75 hrs
Air Quality Inspector II	\$94.78	0 hrs	0.5 hrs	1.25 hrs
<i>Staff Cost per Report</i>		<i>\$24.42</i>	<i>\$135.59</i>	<i>\$387.41</i>
<i>Web Portal Cost per Report</i>		<i>\$5.09</i>	<i>\$5.09</i>	<i>\$5.09</i>
<i>Total Cost per Report¹³⁶</i>		<i>\$29.51</i>	<i>\$140.68</i>	<i>\$392.50</i>

Finally, Custom WAIRE Plan Application Evaluations will be assessed on a level of effort basis. A fee of \$161.25 will be assessed for every hour of review, consistent with plan review fees for other South Coast AQMD programs.¹³⁷ Reviews are expected to require multiple hours of staff time, and an initial fee will be assessed when the application is submitted equal to five hours of review (\$806.25). If review requires less than five hours, then a refund will be provided to the applicant.

Warehouse Operator Administrative Costs

Warehouse operators are expected to experience administrative costs associated with recordkeeping and reporting for PR 2305.¹³⁸ There are three main administrative costs that operators required to earn WAIRE Points will experience: reporting costs, total truck count costs, and NZE/ZE truck recording. The reporting associated with Initial Site Information Reports and Annual WAIRE Reports is expected to be similar to the kind of reporting required in CARB's ACT regulation, specifically for large entity reporting, and is estimated to be no more than 25 hours of work totaling \$1,250 per year.¹³⁹

The total truck count costs are associated with counting all truck trips to/from a warehouse in order to determine the WPCO. A variety of different methods exist to count trucks, such as security cameras that include a log of vehicles that pass the camera, in-road sensors which can count truck trips and identify the number of axles per truck, the use of an onsite personnel to check in all vehicles that enter, telematics systems, etc. Warehouse operators may already have measures in place for security and tracking purposes and would not experience additional costs from PR 2305 for installing new systems. To estimate administrative costs for this activity, the video recording method described in the WAIRE Implementation Guidelines is used as a default. This method allows a warehouse operator to record 24 hours of continuous video at each of their truck gates (assume an average of two per facility) one weekday and one weekend day per month that represent

¹³⁶ Similar to other South Coast AQMD fees in Regulation III, costs are expected to increase through time, consistent with the Consumer Price Index including for increased staff costs and overhead costs from inflation. All fees in PR 316 will therefore be adjusted periodically consistent with all other Regulation III fees pursuant to Rule 320.

¹³⁷ Rule 306(d)

¹³⁸ Engineering costs to implement specific WAIRE Menu actions (such as for charging infrastructure) have already been included in the compliance cost estimates above.

¹³⁹ <https://ww3.arb.ca.gov/regact/2019/act2019/isor.pdf>

a peak period during the respective days of the week. Onsite personnel could then review the video (using standard video tools on already available desktop computers, cell phones etc.), sped up so as to reduce the time needed to view, and then count truck trips over that time period. These video counts could then be applied to the rest of the days in that month to come up with the total truck traffic expected at the site. The time needed to do this work is estimated at 144 person-hours per year (48 hrs/month * 2 truck gates * 12 months/year, with video sped up between 8X-10X speed). This low technology solution to counting trucks could result in staff costs of about \$7,200 per year, however cheaper options may be used too as long as representative and verifiable methods are used.

If a warehouse operator chose to track NZE or ZE trucks that visited their facility in order to earn WAIRE Points, there are several potential methods available. If the trucks are owned by the warehouse operator, then delivery schedules or other paper records may suffice. Other methods could include telematics systems, automated license plate reader systems, contract data with trucking companies (if the operator contracts with a trucking company). This information may need to be supplemented with records that document that the truck used to earn WAIRE Points is an actual ZE or NZE truck. The simplest method could include truck driver check-ins where truckers could fill out a simple form that provides basic information about their truck, including license plate number, vehicle identification number, model year, weight rating (or class), fuel type, and trucking company name and contact information. This basic information could be compiled by onsite personnel and used as verification that a ZE or NZE truck visited the site. Supplementary information could also be kept if the operator chose to, such as photos or videos of the truck onsite. The number of ZE/NZE trucks visiting a site will vary, but a 250,000 square foot warehouse with an average truck trip rate would have about 42 Class 8 trucks visiting per day. Only five of these trucks per day would need to be NZE in order to meet that operator's WPCO at the proposed stringency of 0.0025. Onsite personnel could compile this info every week (one hour of effort) and use these records to demonstrate that they have met their WPCO. This type of reporting is expected to result in about \$2,600 in administrative costs. Other WAIRE Menu options are not expected to exceed the administrative costs listed here.

The socioeconomic impacts from administrative costs, PR 316 fees, and WAIRE Points costs are included in the Draft Socioeconomic Impact Assessment. Additional analysis of PR 2305 costs is also included below.

FEASIBILITY

The potential feasibility of PR 2305 and PR 316 have been evaluated using a variety of approaches. Staff considered the technical, economic, and market feasibility as described below. Many technical assessment studies have been conducted on NZE and ZE technologies that may be used to comply with PR 2305. These studies are referenced in the WAIRE Menu Technical Report in Appendix B. Additional information on technical feasibility was also obtained from industry sources who have used technologies in commercial service at warehouses, and results from South Coast AQMD funded projects.¹⁴⁰ The technical feasibility of some WAIRE Menu actions are not

¹⁴⁰ Examples: <http://www.aqmd.gov/docs/default-source/technology-research/clean-fuels-program/clean-fuels-advisory-agenda---september-17-2020.pdf>, <http://www.aqmd.gov/docs/default-source/technology-research/annual-reports-and-plan-updates/2019-annual-report-2020-plan-update.pdf>

considered technically feasible today (e.g., ZE Class 8 trucks), however they are expected to become commercialized in the next two years and are therefore included as a compliance option. While this one menu option is just beginning to be commercialized, most other WAIRE Menu are commercially available today, including NZE trucks (which have been available for years), smaller ZE trucks, ZE yard trucks, solar panels, charging/fueling infrastructure, and filtration systems.

Economic impacts are considered in more detail in the socioeconomic impact analysis report, however some preliminary analysis is included here. First, the proposed rule may impose annual average costs between about \$0 per year and \$670 million per year,¹⁴¹ which translates to a range of about \$0 per sq. ft. to \$0.83 per sq. ft.

There are two points of comparison that illustrate the impact PR 2305 may have on industry. First, there are about \$500 billion worth of goods that flow through the SCAG region every year, with the vast majority flowing through the import and export points in the South Coast AQMD region.¹⁴² If only 31% of imported containerized goods at the ports of LA/LB go directly to rail, the majority of the remainder likely flows through the largest warehouses. The warehouses subject to PR 2305 include about 750 million sq. ft. of space, out of a total of about 1.2 billion sq. ft. of warehousing space in the entire SCAG region (all building sizes), or about 63%.¹⁴³ Because PR 2305 warehouses include the largest facilities, an even greater fraction of goods is expected to flow through these warehouses with smaller warehouses sending or receiving goods from the larger facilities. At the low end, it is possible to estimate that the total value of goods flowing through PR 2305 warehouses is at least \$217 billion.¹⁴⁴ Using the ~\$670 million annual cost from the mitigation fee-only scenario (Scenario 7) as a proxy for the highest costs that could be imposed by PR 2305 at the proposed stringency, at the high end PR 2305 and PR 316 could therefore add ~0.3% to the total cost of goods handled by warehouses. The much lower cost example of a mitigation fee scenario (Scenario 7a) shows that total costs may be as low as \$114 million per year, which would be <0.05% of the total cost of goods handled by warehouses.

The potential cost effectiveness of PR 2305 is difficult to determine with the wide variety of options available for compliance. PR 2305 aims to reduce regional NOx emissions, as well as local emissions of diesel PM (to reduce regional PM and local toxics emissions), and local exposures to air pollution. Traditional cost effectiveness approaches are therefore not comparable to other programs focused solely on regional pollutant emission reductions that simply divide total cost by NOx emission reductions, or toxics rules that do not calculate cost effectiveness. Nevertheless, Table 23: Preliminary Estimates of Cost Effectiveness for Regional NOx Reductions After Considering CARB ACT, HD I/M, and Low NOx Omnibus Regulations below shows a cost-effectiveness in dollars per ton of NOx reduced after accounting for CARB's ACT, HD I/M, and Low NOx Omnibus regulations (using Table 20: Total Cost Summary of Each Compliance Scenario (2022-2031) After Accounting for CARB's ACT and Low NOx Omnibus Regulations and Table 15). These estimates are expected to be conservative because they don't account for all incentive programs that could help offset costs (e.g., Low

¹⁴¹ The high end cost is set equal to the mitigation fee-only scenario.

¹⁴² https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial_goods-movement.pdf

¹⁴³ Ibid.

¹⁴⁴ \$500 billion * 69% (non-rail) * 63% (PR 2305 whse sq. ft./SCAG whse sq. ft.) = \$217 billion

Carbon Fuel Standard) and they only show a 10-year period (less than the useful life of a truck) of costs and emission reductions. As shown in Figures 16 through 18, costs are much lower in later years, and emission reductions are expected to continue past 2031.

Table 23: Preliminary Estimates of Cost Effectiveness for Regional NO_x Reductions After Considering CARB ACT, HD I/M, and Low NO_x Omnibus Regulations

	Equipment	Total Nox Reductions (tons)	Discounted Total Cost - NPV (1%) (millions)	Discounted Total Cost - NPV (4%) (millions)	Cost-Effectiveness (1%)	Cost-Effectiveness (4%)
Sc1	NZE Class 8	8,609	\$1,226	\$1,103	\$142,371	\$128,075
Sc2	NZE Class 8	9,353	\$1,345	\$1,220	\$143,808	\$130,420
Sc3	NZE Class 8	11,623	\$430	\$374	\$37,015	\$32,213
Sc4	NZE Class 8	8,178	\$887	\$750	\$108,507	\$91,649
Sc5	ZE Class 8	8,502	\$1,067	\$942	\$125,534	\$110,781
Sc6	ZE Class 6&8	3,702	\$1,799	\$1,604	\$485,970	\$433,179
Sc7	Mitigation Fee	52,270	\$6,298	\$5,264	\$120,490	\$100,708
Sc7a	Mitigation Fee	7,880	\$1,098	\$985	\$139,309	\$125,068
Sc8	NZE Class 6	6,211	\$1,785	\$1,627	\$287,406	\$261,983
Sc9	NZE Class 6	7,075	\$554	\$468	\$78,256	\$66,088
Sc10	ZE Class 6	7,879	-\$115	-\$87	-\$14,581	-\$11,078
Sc11	Solar	30,824	\$9,797	\$9,712	\$317,834	\$315,086
Sc12	ZE Class 8	4,509	\$8,118	\$7,445	\$1,800,480	\$1,651,413
Sc13	ZE Class 2b-3	3,218	\$803	\$753	\$249,588	\$233,930
Sc14	ZE Class 2b-3	3,578	\$1,129	\$978	\$315,529	\$273,439
Sc15	Filter System	-	\$5,986	\$5,057	-	-
Sc16	Filter	-	\$5,863	\$4,953	-	-
Sc17	TRU	579	\$54	\$46	\$93,567	\$79,083
Sc18	Yard Trucks	260	\$1,153	\$1,029	\$4,436,646	\$3,959,829

The cost effectiveness of recent mobile source regulations varies depending on the program, and depending on the timescale chosen. The table below summarizes recent key regulations from CARB and their cost effectiveness through about 2032 (dollars per ton of NO_x). Costs are substantially lower for many of these regulations when considering cost savings that are projected to occur in the 2030s and beyond, however the shorter timeline is compiled here to show a similar end year as for the analysis for PR 2305 (analysis conducted through 2031). The cost effectiveness for various scenarios with PR 2305 as shown in Table 24 above is similar to the wide range of values shown in Table 24 below.

Table 24: Cost Effectiveness of CARB Regulations

CARB Regulation	Approximate Cost Effectiveness (through 2032)
Airport Shuttle Bus	\$430,000/ton NOx
Innovative Clean Transit	\$271,000/ton NOx
At Berth (Ocean Going Vessels)	\$83,000/ton NOx
Low NOx Omnibus	\$39,000/ton NOx
Advanced Clean Trucks	\$22,000/ton NOx

The market feasibility was evaluated by considering whether the proposed stringency of PR 2305 would result in a level of implementation that exceeds the potential ability of the market to respond. In an extreme hypothetical example, if the stringency of PR 2305 required ten billion miles of Class 8 ZE truck travel per year, but there is only a total of three billion miles of truck travel from all Class 8 trucks (fueled by diesel, electric, natural gas, etc.), then this would indicate that the stringency is infeasible.

The scenario analysis described above includes calculations to determine whether any bounding analysis scenario exceeded expected market conditions. The parameters that were evaluated include the number of new trucks purchased in a year, the amount miles travelled by trucks in a year, the amount of power required to charge trucks, and the amount of fossil fueled power generation in South Coast AQMD. In nearly all cases, PR 2305 would not exceed existing market capacity. In rare instances, some bounding analysis scenarios show that some new truck sales in early years of the program could be higher than is expected in EMFAC for those respective truck categories, assuming that every warehouse operator bought the same class of truck and technology (e.g., NZE or ZE) to comply with PR 2305. This is unlikely as no more than about 40% of warehouse operators are estimated to own truck fleets (and not every truck fleet owns all truck classes), and truck acquisitions to earn Points would necessarily be less than shown. Even in these extreme cases (which are not reasonably expected to occur), the amount of sales is typically no more than about double what is projected from EMFAC for our region. No scenarios were found to require total VMT for any truck class greater than what is included within EMFAC 2017. For example, no scenarios required more truck travel to earn Points than the total amount of truck travel in the air basin. Finally, the highest electricity demand for charging electric trucks (Scenario 6) is about 697 GWh per year. This level of charging is less than what CEC has preliminarily calculated for the total need for electric trucks in the South Coast AQMD region.¹⁴⁵

¹⁴⁵ As part of the development of the 2020 Integrated Energy Policy Report, CEC staff included a scenario that explicitly evaluates the electric power needed if >100,000 ZE trucks are deployed to assist in meeting 2031 ozone standards. This analysis showed the projected electricity demand from charging these trucks would be about 1,684 GWh in 2031, with a peak summer hourly load of about 164 MW for Southern California Edison, the region's largest utility. This results in about a 1-2% increase in electricity demand overall from SCE compared to the 'mid' case analysis in the 2019 IEPR, but is still within the range of expected demand as the additional load does not exceed CEC's modeled 'high' case.

Considering the many different compliance options and business models of warehouse operators, it is unlikely that any of the extreme scenarios discussed above would be expected to occur. With roughly three dozen options for earning WAIRE Points (32 Menu actions, a mitigation fee option, and additional options from Custom WAIRE Plans), it is unlikely any particular scenario modeled would be chosen by more than a small fraction of all warehouse operators in any given year. If these more realistic lower levels of implementation are assumed for each scenario, then none of the market capping conditions would be exceeded. It is also foreseeable that if some of the extreme examples discussed above began to materialize during a compliance period, with all operators choosing the same exact truck type and technology to implement, that warehouse operators would respond to these market conditions and pivot to implement other alternatives.

SOCIOECONOMIC ASSESSMENT

A draft socioeconomic analysis was prepared and released for public comment and review on March 3, 2021, more than 30 days prior to the South Coast AQMD Governing Board Public Hearing on PR 2305 and PR 316, which is anticipated to be heard on May 7, 2021. A second draft of the socioeconomic analysis will be released together with this second draft staff report. This second draft socioeconomic analysis includes updates based on a third-party peer review, among other updates.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

PR 2305 and PR 316 are considered a “project” as defined by the California Environmental Quality Act (CEQA). Pursuant to CEQA, the South Coast AQMD, as Lead Agency, prepared a Notice of Preparation (NOP) of the Draft Environmental Assessment (EA) and Initial Study (IS) to analyze environmental impacts from the project identified above pursuant to its certified regulatory program (Public Resources Code Section 21080.5, CEQA Guidelines Section 15251(l), and South Coast AQMD Rule 110). The NOP/IS was released for a 32-day public review and comment period that began Friday, November 13, 2020 and ended on Tuesday, December 15, 2020. In addition, because the proposed project could have statewide, regional or areawide significance, a CEQA Scoping Meeting was held on December 2, 2020 pursuant to Public Resources Code Section 21083.9(a)(2). The South Coast AQMD has also prepared a Draft EA (equivalent to a Draft EIR) and has circulated it for a 45-day public review and comment period ending March 12, 2021. The Draft EA can be accessed at the following address:

<http://www.aqmd.gov/home/library/documents-support-material/lead-agency-scaqmd-projects>

If comments are submitted, the letters and responses to comments will be incorporated into the Final EA which will be included as an attachment to the Governing Board package. Prior to making a decision on the adoption of PR 2305 and PR 316, the South Coast AQMD Governing Board

<https://efiling.energy.ca.gov/getdocument.aspx?tn=235836>,
<https://efiling.energy.ca.gov/GetDocument.aspx?tn=230923>,
<https://efiling.energy.ca.gov/GetDocument.aspx?tn=230924>

must review and certify the Final EA, including responses to comments, as providing adequate information on the potential adverse environmental impacts that may occur as a result of adopting PR 2305 and PR 316.

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE SECTION 40727

California Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the staff report.

Necessity

PR 2305 and PR 316 are needed to protect public health by reducing local and regional emissions of NO_x and diesel PM associated with warehouses and the mobile sources attracted to warehouses. By reducing these emissions, PR 2305 and PR 316 will also assist in meeting state and federal air quality standards for ozone and fine PM. NO_x is a precursor to the formation of ozone and PM_{2.5}, and diesel PM is a toxic air contaminant and component of fine PM.

Authority

Authority for the South Coast AQMD Governing Board to adopt PR 2305 and PR 316 may be found in sections 39002, 39650 through 39669, 40000, 40001, 40440, 40441, 40522.5, 40701, 40702, 40716, 40717, 40725 through 40728, 40910, 40920.5, 41508, 41511, and 41700 of the Health and Safety Code.

Clarity

PR 2305 and PR 316 are written or displayed so that its meaning can be easily understood by the persons directly affected by it.

Consistency

PR 2305 and PR 316 are in harmony with and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.

Non-Duplication

PR 2305 and PR 316 will not impose the same requirements as any existing state or federal regulations. The proposed rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD.

Reference

In adopting these rules, the following statutes which the South Coast AQMD hereby implements, interprets or makes specific are referenced: Clean Air Act Sections 110(a)(5)(C); 116; Health & Safety Code Sections 40440, 40716, 40717, and 40522.5.

COMPARATIVE ANALYSIS

California Health and Safety Code Section 40727.2 requires South Coast AQMD to perform a comparative written analysis when adopting or amending a rule or regulation that imposes a new or more stringent emission limit or monitoring, reporting, or recordkeeping requirement. The comparative analysis is relative to any existing federal or state requirements, existing or proposed

South Coast AQMD rules and air pollution control requirements and guidelines which are applicable to the same sources as identified in the proposed rule or regulation. PR 2305 regulates warehouses as an indirect source that attract mobile sources of emissions, and PR 316 is the companion fee rule for PR 2305. Under California Health and Safety Code Section 40727.2(g), PR 316 does not in itself require a comparative analysis, but is included for completeness.

There are no comparable federal or state requirements or any comparable existing or proposed South Coast AQMD rules or requirements that apply directly to warehouses. However, there are many air quality regulations at the state and federal level that focus on emissions from the mobile sources associated with warehouses. These can broadly be placed into three categories. First are regulations that aim to reduce emissions through the engine standards for new vehicles. Second are regulations that aim to replace older vehicles with newer vehicles with cleaner technologies through fleet rules. Third are regulations that focus on air quality impacts from facilities that attract mobile sources, such as employee commutes. PR 2305 and PR 316 look at the activities associated with a warehouse facility and aim to reduce air quality impacts beyond what is already required by any existing or proposed regulatory requirement. PR 2305 and PR 316 are summarized below in Table 25.

Table 25: Proposed Rule 2305

Rules	Rule Elements		
	Applicability	Requirements	Reporting, Notification, and Recordkeeping
PR 2305	Owners and operators of warehouses located in the South Coast AQMD jurisdiction with greater than or equal to 100,000 square feet of indoor floor space in a single building (PR 2305(b)).	Warehouse operators are required to earn WAIRE Points annually, either by completing actions off the WAIRE Menu, a Custom WAIRE plan, or paying a mitigation fee based on truck trips. (PR 2305(d)).	Periodic reports on warehouse statistics and its operations. Recordkeeping requirements for all information submitted for rule compliance (PR 2305(e)).

A comparative analysis of other regulations that focus on emissions from the mobile sources associated with warehouses is presented below in Tables 28, 29, and 30.

Table 26: Engine Standards

Rules	Rule Elements		
	Applicability	Requirements	Reporting, Notification, and Recordkeeping
U.S. EPA Phase 1 and CARB Phase 2 Heavy-Duty Fuel Efficiency and Greenhouse Gas (GHG) Standards ¹⁴⁶	Manufacturers, sellers, or importers of heavy-duty trucks and engines, specifically model-year 2014 tractors, vocational vehicles, heavy-duty pick-up trucks and vans, and trailers hauled by heavy-duty tractors.	GHG emission and fuel economy standards on truck and engine manufacturers. Require manufacturers to improve existing technologies or create new technologies to meet these standards.	Report emissions test data and results, technical vehicle data, and end-of-year sales information. Manufacturers will have to keep records of this information.
CARB Tractor-Trailer GHG Regulation ¹⁴⁷	Owners of 53-foot or longer trailers and heavy-duty tractors that pull them.	The tractors and trailers subject must either use U.S. EPA “SmartWay” certified tractors and trailers, or	Report applicable owners. Must keep records of compliance.

¹⁴⁶ <https://www.govinfo.gov/content/pkg/FR-2016-10-25/pdf/2016-21203.pdf>

¹⁴⁷ https://ww3.arb.ca.gov/regact/2018/phase2/finalatta.pdf?_ga=2.205908496.2040751625.1614668703-251503538.1597351373

		be retrofitted with SmartWay verified technologies.	
U.S. EPA Non-Road Diesel Engines and Fuel Standards ¹⁴⁸	Entities that produce or import non-road diesel engines, or produce, import, distribute, or sell and fuel for non-road diesel engines.	Set emission standards for nonroad diesel engines. Phase-in less polluting engine standards. Require: new test procedures and engine certifications.	Registration and reporting required. Recordkeeping for all reporting.
U.S. EPA Non-Road Large Spark Ignition Engines Standards ¹⁴⁹	Manufacturers of non-road large-spark ignition engines.	Non-road emission standards.	Reporting requirements if cannot meet the emission standards.
CARB Optional Reduced NOx Emission Standards for On-Road Heavy-duty Engines	On-road heavy-duty engines.	Sets optional low NOx emission standards. Lists low NOx certified heavy-duty engines ¹⁵⁰ .	
CARB Heavy Duty Low NOx Omnibus Rule	Heavy-duty vehicle engines.	Lower NOx emission standards to 0.05 g/bhp-hr for 2024-2026, 0.02 g/bhp-hr starting in 2027. Revise testing, certification, and warranty requirements.	
CARB Heavy-Duty Inspection and Maintenance Program ¹⁵¹	Heavy-duty vehicles.	Inspection and maintenance programs for vehicle lifetime.	

¹⁴⁸ <https://www.govinfo.gov/content/pkg/FR-2004-06-29/pdf/04-11293.pdf>

¹⁴⁹ <https://www.govinfo.gov/content/pkg/FR-2002-11-08/pdf/02-23801.pdf>

¹⁵⁰

https://ww2.arb.ca.gov/sites/default/files/classic/msprog/onroad/optionnox/optional_low_nox_certified_hd_engines.pdf

¹⁵¹ <https://ww2.arb.ca.gov/our-work/programs/heavy-duty-inspection-and-maintenance-program>

Table 27: Fleet Rules

Rules	Rule Elements		
	Applicability	Requirements	Reporting, Notification, and Recordkeeping
CARB Truck and Bus Regulation	Diesel-fueled vehicles with a gross vehicle weight rating (GVWR) greater than 14,000 lbs.	Requires the installation of verified PM diesel emission control strategy (DECS) on heavy-duty vehicles. Replace engine to meet 2010 emission standards.	Reporting required for exemptions.
CARB Transport Refrigeration Unit (TRU) Air Toxics Control Measure (ATCM)	Diesel-fueled engines used to refrigerate perishable goods. TRU generator sets that provide onboard electric power refrigeration systems.	Reduce emissions of diesel PM from TRUs.	In-Use Recordkeeping and Reporting.
CARB In-Use Off-Road Diesel Regulation	Existing (in-use) off-road diesel-fueled vehicles.	Engine performance requirements to reduce NO _x , diesel PM, and other criteria pollutant. Limit idling time. Restricts purchase of new vehicles based on engine emission standards.	Owners of off-road diesel fleets report fleet information, annually update fleet information. Recordkeeping required for reports submitted.
CARB Large Spark Ignition (LSI) Rule	Fleet operators of LSI engines vehicles.	Hydrocarbon and NO _x emission standards, using fleet average.	Recordkeeping requirements and labeling of LSI equipment.
CARB Advanced Clean Trucks	Truck manufacturers of medium- and heavy-duty trucks. Large fleets with a gross vehicle weight rating (GVWR) greater than 8500 lbs.	Truck manufacturer sales mandate for zero-emission medium- and heavy-duty trucks	Large entities and truck fleets report how fleets are operated, and the number of contractors used to run the fleets.

Table 28: Facility-Based Rules and Other Types of Rules

Rules	Rule Elements		
	Applicability	Requirements	Reporting, Notification, and Recordkeeping
South Coast AQMD Rule 2202 (Employee Commute Reduction)	Employers with 250 or more employees.	Implement emission reduction strategies. Choose from three options.	Plan submission.
AB 617 Community Air Protection Program	Environmental justice communities.	Reduce local air pollution from warehouses through an indirect source rule.	Community Emission Reduction Plan. Community Air Monitoring Plan.

**Appendix A: WAIRE PROGRAM IMPLEMENTATION
GUIDELINES**

**DRAFT WAIRE PROGRAM
IMPLEMENTATION
GUIDELINES**

April 2021

DRAFT WAIRE PROGRAM IMPLEMENTATION GUIDELINES

**OVERVIEW
APPLICABILITY
CALCULATIONS
TRUCK TRIP COUNTS FOR DETERMINING WPCO
REPORTING
RECORDKEEPING
WAIRE MENU
CUSTOM WAIRE PLAN
WAIRE MITIGATION FEE
WAIRE POINTS TRANSFERS
EXEMPTIONS
COMPLIANCE PROGRAM**

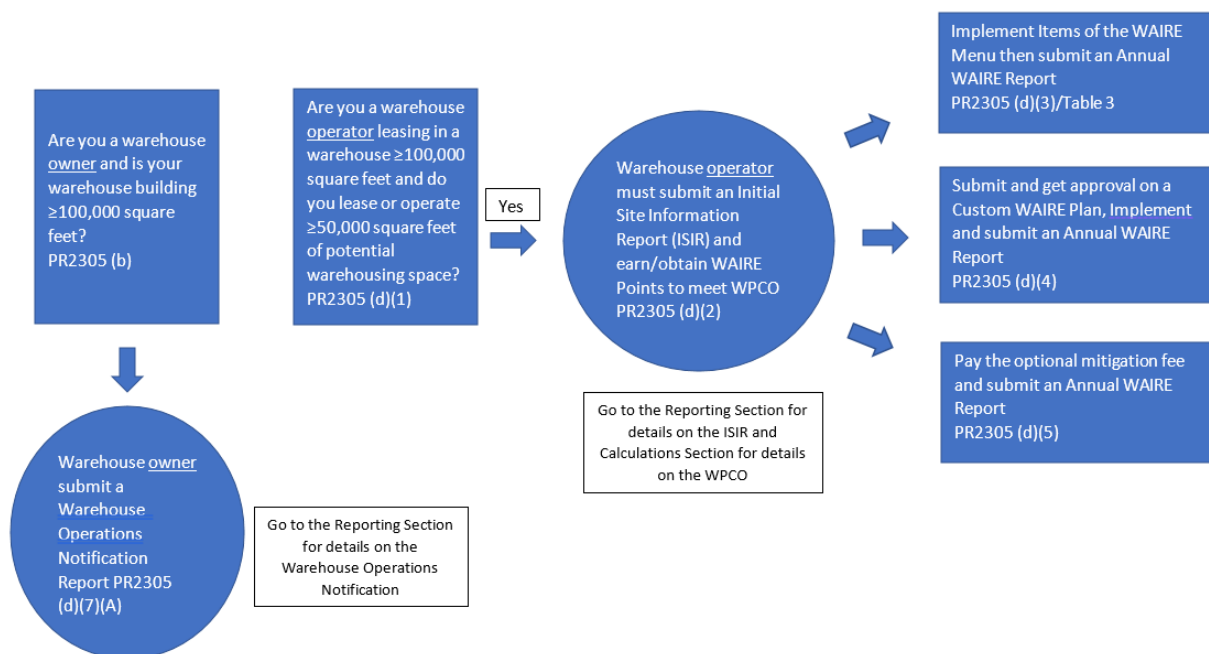
OVERVIEW

Proposed Rule (PR) 2305 is the Warehouse Indirect Source Rule (ISR) which provides the Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program, a menu-based points system. The WAIRE Program determines a warehouse operator’s WAIRE Points Compliance Obligation (WPCO) based on annual truck trips to each applicable new and existing warehouse that has at least 100,000 square feet of indoor floorspace within a single building that may be used for warehousing activities. Each warehouse operator must earn or obtain WAIRE Points to meet their WPCO on an annual basis. PR 316 establishes fees to fund South Coast AQMD compliance activities associated with PR 2305.

The WAIRE Program Implementation Guidelines (Guidelines) do not supersede the requirements specifically stated in PR 2305 and PR 316 but are meant to provide warehouse operators and owners with further guidance on complying with the rules. In any instance where an interpretation of requirements in these Guidelines conflicts with PR 2305 or 316, the rule language takes precedence. All owners and operators subject to PR 2305 and 316 should anticipate that the reports they submit and the records that they keep will be reviewed by South Coast AQMD staff in desktop audits and onsite field inspections, and are subject to public records act requests. Further, data regarding warehouse operator compliance will be made publicly available on South Coast AQMD’s website. For any questions about this guidance document, please contact program staff at waire-program@aqmd.gov.

APPLICABILITY

Figure 1 – Applicability Flow Chart



The warehouse ISR applies to warehouse operators and owners of warehouses greater than or equal to 100,000 square feet of indoor floor space within a single building that may be used for warehousing activities. A warehouse operator or owner whose warehousing activity is not explicitly excluded from PR 2305 is presumed to be included in rule requirements. Figure 1 represents a simplified diagram of the requirements for warehouse owners and operators of applicable warehouses. Warehouse owners are only required to submit a Warehouse Operation Notification Report which detail the size and tenant status of the warehouse, further details are provided in the Reporting Section of these Guidelines. Warehouse operators are required to submit an Initial Site Information Report and are required to earn WAIRE points. Warehouse owners may choose to earn WAIRE points on behalf of the warehouse operator.

In addition to the warehouse size applicability, the warehouse ISR is implemented over time based on the applicable warehouse sizes. The warehouse size phase-in shown in Table 1, and details the date range for the Initial Compliance Period when warehouse operators must earn or obtain WAIRE Points to meet their WPCO, and also the due dates for Initial Site Information Report, and the first Annual WAIRE Report.

Table 1 – Implementation Schedule

Phase	Warehouse Size (square feet)	Initial Site Information Report Due Date	First Annual WAIRE Report Due Date	Initial Compliance Period
1	> 250,000	July 1, 2022	January 31, 2023	January 1, 2022 to December 31, 2022
2	> 150,000- <250,000	July 1, 2023	January 31, 2024	January 1, 2023 to December 31, 2023
3	> 100,000- <150,000	July 1, 2024	January 31, 2025	January 1, 2023 to December 31, 2024

CALCULATIONS¹⁵²

The WPCO is the number of WAIRE Points a warehouse operator must earn or obtain to comply with PR 2305. Figure 2 represents a simplified diagram of how a WPCO is calculated based on the number and type of trucks that enter or exit a warehouse site.

Figure 2



Truck trips are defined as one-way trips that tractors and straight trucks make to a warehouse facility when delivering goods to or from another location.¹⁵³ They are counted when a truck enters or exits a site. A single visit from a truck is equal to two trips. PR 2305 refers to the total calculated truck trips in a compliance period as Weighted Annual Truck Trips (WATTs) which is calculated by inputting the actual truck trip counts of the number and type of trucks in the following equation:

$$WATTs = [Class\ 2b\ to\ 7\ truck\ trips] + [2.5 \times Class\ 8\ truck\ trips]$$

As shown in Figure 2, the WATTs are multiplied by the Stringency factor and the Annual Variable to provide the WPCO for the warehouse. The Stringency factor is defined as 0.0025 WAIRE Points per WATTs, and the annual variable is determined by the phase-in schedule of the warehouse and is provided in Table 2.

Table 2 – Annual Variable

Annual WAIRE Report Year*	Annual Variable		
	Phase 1	Phase 2	Phase 3
2022	0.33	0	0
2023	0.67	0.33	0
2024	1.0	0.67	0.33
2025	1.0	1.0	0.67
2026 and beyond	1.0	1.0	1.0

* This is the year that a warehouse is first required to submit its Annual WAIRE Report.

¹⁵² The WAIRE Menu Technical Report, included as Appendix B in the PR 2305 staff report, is included as an appendix to these Implementation Guidelines to assist in determining how WAIRE Points are calculated.

¹⁵³ A truck or yard truck delivering a trailer or goods from one part of a warehouse to another part of a warehouse is not considered a truck trip since it does not include delivery of goods to/from another location.

TRUCK TRIP COUNTS FOR DETERMINING WPCO

The WATTs calculation equation weighs the activity and emission contribution of a Class 2b-7 straight truck and that of a Class 8 tractor which emits approximately 2.5 times more NOx emissions. Class 8 tractors are differentiated from Class 2b-7 straight trucks by their Gross Vehicle Weight Rating being greater than 33,001 pounds. Absent more specific data, all tractors that can pull a trailer should be counted as Class 8, and all straight trucks should be counted as Class 2b-7.

With the WPCO being closely tied to the number of actual truck trips entering and exiting the warehouse site, it is important to accurately document the total number of truck trips and whether they were Class 8 tractors or Class 2b-7 straight trucks. Truck trips must be counted and records must be verifiable, where date and time of the truck trips recorded may be tied to the compliance period records for review. Below are five examples of methods to count the number of truck trips. The key criteria for ensuring that the truck trip counts are accurate enough for determining a warehouse operator's WPCO is that the data needs to be collected using a method that provides reliable and verifiable truck trip counts that are either contemporaneous (e.g., daily) or extrapolated from a short term contemporaneous tracking during a representative peak period, as described below. Warehouse operators are responsible for maintaining data the support the truck trip count and the data must be made available to South Coast AQMD for verification. Verifiable data can be provided through the following methods:

1. Electronic Telematics Systems – These systems are used to track truck activity, typically through the use of on-board GPS systems and fleet management software. These systems can track when equipped vehicles are located at a warehouse.
2. In-Roadway or Driveway Sensors - Various sensor technologies are available to count vehicles such as pneumatic tubes, radar, or lasers installed at a driveway. These devices are used to count the number of vehicles passing a certain point and can provide truck classification data (e.g., straight trucks).
3. Video Monitoring – Many warehouse operators already employ security cameras to monitor their gates. Warehouse operators could use staff or software to identify the number and type of trucks that enter the gate and note truck Class (i.e. straight trucks vs. tractors) from video recordings. Video recordings and subsequent counts can be continuous but in no cases should be less than one weekday (Monday – Friday) per month and one weekend day (Saturday or Sunday) per month (if the warehouse is open on weekends). Each weekday and weekend day once-per-month sample must be taken at least three weeks apart from the next respective sample. With this less intensive once-per month sampling method, a representative peak weekday and weekend day must be recorded (with documentation indicating why those days of the week were chosen). The weekday count may then apply to all weekdays during that month, and the weekend count may then apply to all weekend days during that month.
4. Guardshack – Many warehouse operators employ a guard or other personnel to (incomplete sentence) Contracts or other similar records – Many warehouse operators are responsible for shipments to/from their warehouse, including with their own fleet or through third party fleets. Records such as contracts or manifests that document the loads delivered to or picked up from a warehouse can be used to determine truck trip information provided that all trips to a site are documented (which could include supplementary sources of data, such as through methods described above).

Loss of Truck Trip Count Data

In the event that there is insufficient truck trip data due to events beyond the warehouse operator’s control such as with records destroyed in a fire or other force majeure event, an alternative WATTs calculation may be used as described below.¹⁵⁴ The WATTs must be calculated using the equation and table below.

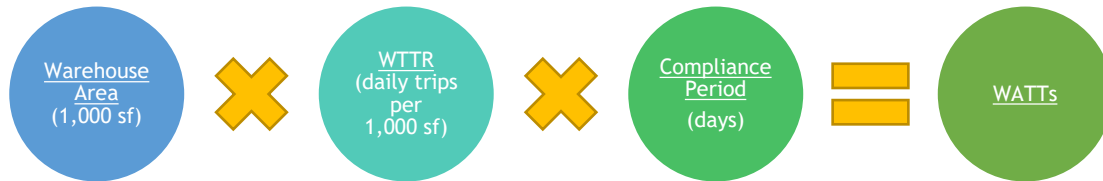


Table 3 Weighted Truck Trip Rates (WTTR)

Warehouse Type	WTTR (trips/1,000 sf)
≥200,000 sf	0.95
≥100,000 – 199,999 sf	0.67
Cold Storage (≥100,000 sf)	2.17

Example calculation for a 250,000 square foot (non-cold storage) warehouse that experienced a force majeure event and lost 30 days of records:

$$250 \text{ tsf} \times 0.95 \text{ trips/tsf} \times 30 \text{ days} = 7,125 \text{ WATTs}$$

These calculated WATTs would be added to the other WATTs counted during the rest of the compliance period to determine the warehouse operator’s WPCO.

REPORTING

Report Submission

Warehouse operators and owners subject to PR 2305 are required to submit reports to South Coast AQMD to provide details on their applicable warehouse operations and compliance. PR 2305 requires that all records used to demonstrate compliance be maintained by warehouse operators or owners, as applicable, for a period of no less than seven years and made available to South Coast AQMD upon request during normal business hours in order to determine compliance. Table 3 provides an overview of the reporting requirements for PR 2305. Appendix A to these Guidelines will provide a user’s guide to the WAIRE Program Online Portal (POP) through which warehouse operators and owners will submit their required reports and pay necessary fees.¹⁵⁵

¹⁵⁴ This alternative calculation can only be used in cases of force majeure. Normal practice requires the warehouse operator to count all truck trips. Further details on the alternative WPCO calculation are available at PR2305 (d)(1)(C).

¹⁵⁵ This appendix will be developed if the rule is approved and once the WAIRE POP has been developed. If the WAIRE POP system is not available, all reports should be submitted to waire-program@aqmd.gov.

Table 4 Reporting Overview

WAIRE Program Report	Reporting Entity	Information Required	Due Dates
Warehouse Operations Notification (WON)	Warehouse Owners	<ul style="list-style-type: none"> Warehouse size and area that may be used for warehousing activity, Warehouse operator(s) name and contact information, Lease end date (if applicable), Previous warehouse operator(s) information, Square footage used by the warehouse owner for warehousing activities 	<ul style="list-style-type: none"> <u>On or before September 1, 2021</u> Within 14 days of a new warehouse operator having access to at least of 50,000 square feet of space for warehousing activities, Within 30 days after a renovation that alters the size of the warehouse, Within 3 days of a request for the report from South Coast AQMD
Initial Site Information Report (ISIR)	Warehouse Operators*	<ul style="list-style-type: none"> Warehouse size and space used for warehousing activities,** Number of truck trips in the previous 12-month period,*** Number of truck trips anticipated during the compliance period for which the upcoming AWR must be submitted, Anticipated actions to meet the WPCO for the current compliance period, Details on the following potential onsite equipment: owned or leased truck fleet, onsite alternative fueling stations, yard trucks, and onsite energy generation systems (e.g., solar) 	<ul style="list-style-type: none"> On or before July 1 of the first compliance period when the warehouse operator must submit their first Annual WAIRE Report for that warehouse Within 30 days of a request for the report from South Coast AQMD
Annual WAIRE Report (AWR)	Warehouse Operators*	<ul style="list-style-type: none"> Truck trip counts for the compliance period, Number of WAIRE Points earned for each action, Associated metrics for the WAIRE Menu actions used to earn WAIRE Points 	<ul style="list-style-type: none"> No more than 30 days after January 1 of the compliance period If an operator vacates a warehouse before <u>the AWR submission deadline</u> in any year, they must submit an AWR <u>no later than the date they vacate the warehouse.</u>

* The warehouse owner may choose to comply on behalf of the warehouse operator, or may be required to submit the report if they are also the warehouse operator.

** If the warehouse building size is <100,000 sf, or if the warehouse operator leases <50,000 sf for warehousing activities, then no further reporting is required. Multiple warehouse operators owned or controlled by a single parent company collectively leasing ≥50,000 sf for warehousing activities in a warehouse do not qualify for this exemption from additional reporting. Also, if an activity is not expressly exempt from rule requirements, it is presumed to be subject to the rule.

*** Warehouses submitting an ISIR before, July 1 2022 are only required to report truck trips since July 1, 2021.

Warehouse Operations Notification Report

The Warehouse Operations Notification (WON) must be submitted by an authorized official of the warehouse owner through the WAIRE POP online system. The applicable administrative fee listed in PR 316 must be submitted via e-check or credit card at the same time as the WON.

Warehouses owners submitting a WON for a warehouse with less than 100,000 square feet of floor area dedicated to warehousing activities are exempt from the reporting fee.

Warehouse Renovation or Size Change

In the event there is a change in the applicable 100,000 square feet or greater of indoor floor space within a single building that may be used for warehousing activities, a WON must be submitted within 30 days of receiving a certificate of occupancy from the applicable local building department. Example renovations could include expanding the size of the building to add more warehousing space, or constructing more office space within the warehouse such that the indoor floor space that may be used for warehousing activities is now less than 100,000 feet.

New Warehouse Operator

Any time a new warehouse operator takes over operational control of at least 50,000 square feet of a warehouse building with more than 100,000 square feet that may be used for warehouse activities, a WON must be submitted within 14 days to report that change. A typical example would include a new tenant's starting date for their lease.

Initial Site Information Report

The Initial Site Information Report (ISIR) must be submitted by an authorized official of the warehouse operator through the WAIRE POP online system. ISIRs are only submitted during the first compliance period a warehouse operator is occupying the warehouse¹⁵⁶, and prior to the first AWR unless requested by the South Coast AQMD Executive Officer. The applicable administrative fee listed in PR 316 must be submitted via e-check or credit card at the same time as the ISIR.

Warehouse Size

The ISIR must include the total indoor floor square footage of the applicable warehouse building and the amount of space the warehouse operator leases that may be used for warehousing activities. Typical records used to determine this information will be the operator's lease, information from the warehouse owner, and/or property tax assessment data. The warehouse operator may need to make their own determination about how much of the warehouse facility they can use for warehousing activities.¹⁵⁷ Vacant areas that may be used for warehousing activities (e.g., empty storage racks, open floor space designed for warehousing, drive paths for

¹⁵⁶ Additional ISIRs would be required to be submitted by the warehouse operator should they relocate to a different warehouse subject to PR 2305.

¹⁵⁷ Areas that may be used for warehousing activities include indoor spaces related to the storage and distribution of goods, including but not limited to the storage, labelling, sorting, consolidation and deconsolidation of products into different size packages. Supporting office administration (e.g., employee break areas, restrooms, offices, etc.), maintenance (e.g., vehicle maintenance or charging/fueling areas), manufacturing areas, or retail sales areas open to the general public, within the same warehouse building, that are physically separate from the warehouse area, are not considered warehousing activities.

pallet jacks or forklifts used in warehousing activities) must be included in the square footage calculation.

No additional reporting is required in the ISIR if 1) the total square footage that may be used for warehousing activities in that facility is less than 100,000 square feet, or 2) the warehouse operator's lease does not allow them to use more than 50,000 square feet for warehousing activities.

Truck Trips

There are two sets of truck trip data that must be reported in the ISIR. First, truck trips from the previous 12-month period must be recorded using the same types of methods used to determine the operator's WPCO (see discussion beginning on page 5). Because the ISIR is due by July 1, the typical applicable period for this reporting would be from the previous June 1 through May 31 period. Trips only need to be reported from periods when the operator occupied the warehouse. For example, if an operator's lease only began in September of that previous year, then truck trips only need to be reported from that period on.

Second, the operator must provide an estimate of the number of truck trips that will be reported during the applicable period for their upcoming Annual WAIRE Report. This estimate could just be an extrapolation of the data reported above for the previous 12-month period, or could include an estimate based on expected business through the end of the compliance period.

These two sets of truck trip data can serve as a basis for the operator to estimate their WPCO for that compliance period. However, the final WPCO used in the Annual WAIRE Report must be based on the actual truck trip counts during the compliance period itself (see discussion below).

Onsite Warehouse Equipment

The Initial Site Information Report requires information on existing onsite equipment at the warehouse for onsite fleets, ZE charging/fueling station, yard trucks, and solar panels. Baseline information on the onsite equipment is required to assist in calculating future WAIRE Points that may be potentially earned from the usage of the existing onsite equipment.

Anticipated Approach for Earning WAIRE Points

Using the truck trip data provided in the ISIR (described above) and the subsequent estimated WPCO, the warehouse operator must also submit how they anticipate meeting that WPCO for the current compliance period. This could include any combination of approaches from the WAIRE Menu, a Custom Plan, transferred Points, or the mitigation fee. This portion of the report is a planning exercise to assist the operator and the South Coast AQMD on the anticipated mechanisms that will be used for compliance. Recognizing that conditions can change, the actual approach used to earn WAIRE Points in the Annual WAIRE Report does not need to follow the approach outlined in the ISIR.

Annual WAIRE Report

An Annual WAIRE Report (AWR) must be submitted by every warehouse operator who must satisfy a WPCO for every compliance period, beginning with their Initial Compliance Period (see page 4). Warehouse owners who intend to voluntarily want to earn WAIRE Points, on

behalf of a warehouse operator, must also submit an AWR at the end of the compliance period when the Points were earned. The AWR must be submitted by an authorized official of either the warehouse operator, or owner if the WAIRE Points are earned by the owner, through the WAIRE POP online system. The applicable administrative fee listed in PR 316 must be submitted via e-check or credit card at the same time as the AWR.

Truck Trip Counts

The number of truck trips for the compliance period must be reported specifying the number of Class 2b-7 straight trucks and Class 8 tractors that entered or exited the warehouse site, following the methods described beginning on page 5. Upon entering the truck trip data for the compliance period into the WAIRE POP system, the corresponding WPCO will be displayed using the equation shown on page 5.

Earned WAIRE Points

The warehouse operator must report how the WPCO was satisfied in terms of how many WAIRE Points were earned from:

- 1) Each WAIRE Menu action, and/or
- 2) Actions in an approved Custom WAIRE Plan, and/or
- 3) Points transferred from another site, the warehouse owner, or banked from a previous year, and/or
- 4) The mitigation fee.

For WAIRE Points earned from the WAIRE Menu, the warehouse operator must report the associated level of implementation using the reporting metrics for each WAIRE Menu action (see Table 3 of PR 2305). The applicable increments of progress must be reported for actions implemented from an approved Custom WAIRE Plan. For WAIRE Points that were transferred or banked, the original method used to earn those WAIRE Points must also be reported, including who originally earned the WAIRE Points and when and how the WAIRE Points were earned.

RECORDKEEPING

Adequate records that document all reported information must be maintained for seven years after the applicable report was submitted and be available upon request during normal business hours. While summarized information is reported in the WON, ISIR, and AWR, during audits and field inspections South Coast AQMD staff will require warehouse operators and owners to provide detailed records in order to verify the accuracy of the information submitted.

WAIRE MENU

The WAIRE Menu provides flexibility in a warehouse operator's ability to comply with the WPCO. Table 3 in PR 2305 provides the WAIRE Menu showing the actions, the annual metrics, and the WAIRE Points based on the listed annual metric. The following discussion describes the factors that South Coast AQMD staff will review during audits and inspections for each WAIRE Menu option. Table 4 below provides an overview of the reporting metrics that warehouse operators must report on their AWR to earn WAIRE Points from the WAIRE Menu.

Table 4 – WAIRE Menu Item Metrics

WAIRE Menu Action/Investment	WAIRE Menu Reporting Metric for Each Compliance Period
Acquire ZE/NZE Trucks	Number of ZE/NZE Trucks Acquired by Truck Class
Visit from ZE/NZE Trucks	Number of ZE/NZE Truck Visits
Acquire ZE Yard Trucks	Number of ZE Yard Trucks Acquired
Use ZE Yard Truck	Number of Hours a ZE Yard Truck Operated
Install Onsite Solar Panel System	Kilowatt Rating of Installed System
Use Onsite Solar Panel System	Number of kWh Generated by the Solar Panel System
Install Stand-Alone MERV 16 or Greater Air Filtration Systems	Number of Stand-Alone Air Filtration Systems Installed
Replace MERV 16 or Greater Air Filters	Number of MERV 16 or Greater Air Filters Replaced

NZE/ZE Truck Acquisition

Many warehouse operators already own and operate trucks, and they may acquire NZE or ZE trucks for their fleet to earn WAIRE Points. Vehicle Identification Numbers and records verifying that the truck was acquired by the warehouse operator must be kept. Acquisition could include purchasing, leasing, or renting trucks. If a truck is leased or rented, the WAIRE Points earned for that temporary acquisition are proportional to the amount of the compliance period that the truck is leased or rented. For example, if truck is leased for 6 months of a 12-month compliance period, the number of WAIRE Points earned would be one half of the amount shown in Table 3 of PR 2305. In the case of a Class 6 NZE truck, the warehouse operator would earn 13 WAIRE Points, instead of the 26 WAIRE Points shown in the WAIRE Menu for the full annual period.

NZE trucks fueled by natural gas have been commercially available for the past few years in a variety of Classes, with engines ranging from 6.7 liters to 11.9 liters to serve both medium duty and heavy duty applications.¹⁵⁸ NZE engines are defined as the lowest non-zero optional low

¹⁵⁸ <https://www.epa.gov/sites/production/files/2021-01/documents/420f21002.pdf>,
<https://ww3.arb.ca.gov/msprog/onroad/cert/cert.php#6>,
https://www.ngvamerica.org/vehicles/availability/?vehicle_type=heavy-duty-truck-oems

NOx standard at the time of the engine's manufacture, which is currently 0.02 g/bhp-hr. One benefit of NZE is that publicly accessible fueling infrastructure for trucks already exists throughout the region and beyond.¹⁵⁹

Many ZE trucks are also commercially available today in a variety of truck Classes, and many more are expected in the next few years.¹⁶⁰ In the near term, charging or fueling infrastructure may be installed at a warehouse facility (which also would earn WAIRE Points), or may be available from a truck leasing company. Additional ZE charging and fueling infrastructure is expected to be installed in the coming years.

If a warehouse operator earns WAIRE Points from the acquisition of ZE or NZE trucks, they will need to retain records of the purchase, lease, or rental of the truck (such as a purchase invoices, or lease agreement), and documentation (e.g., onsite video or photographs from multiple days) that the truck serves that warehouse facility (e.g., that it is domiciled at that site or regularly visits that site). The purchase, lease, or rental documentation must contain enough information to demonstrate that the truck is NZE or ZE, as well as the truck Classification (e.g., the gross vehicle weight rating).

Existing funding programs¹⁶¹ like Carl Moyer, Proposition 1B, Hybrid Voucher Incentive Program, etc. cannot be used to purchase a truck and also earn WAIRE Points for truck acquisition due to statutory prohibitions preventing those incentive programs from being used to comply with a regulation. The warehouse operator therefore has the option of either receiving incentives to reduce the purchase price of a NZE or ZE truck or foregoing the incentives to earn WAIRE Points for the NZE/ZE truck acquisition.

NZE/ZE Truck Visits

WAIRE Points may also be earned for every visit to a warehouse by a NZE or ZE truck.¹⁶² It is important to note, that WAIRE Points for acquisition and visits from the same truck can be earned in the same compliance period. Trucks that were purchased using incentive funds from the previously described funding programs, can be used for crediting towards number of ZE or NZE truck visits. WAIRE Points are earned for each NZE or ZE truck visit, which includes the truck trip into and out of the facility. The number of truck trips to earn WAIRE Points can be more or less than the annualized metric in the WAIRE Menu. WAIRE Point values from the WAIRE Menu can be ratioed (for any WAIRE Menu action), as demonstrated in the following example. In the WAIRE Menu, 42 Points are earned for 365 visits from a Class 8 NZE truck. If a warehouse operator has 1,000 Class 8 NZE truck visits during their compliance period, the number of WAIRE Points earned would be:

$$\frac{42 \text{ Points}}{365 \text{ visits}} = \frac{XX \text{ Points}}{1,000 \text{ Visits}} \rightarrow \mathbf{115.1 \text{ Points}}$$

¹⁵⁹ https://afdc.energy.gov/fuels/natural_gas_locations.html#/analyze?region=US-CA&fuel=LNG&fuel=CNG&Ing_vehicle_class=HD&show_map=true&cng_vehicle_class=HD

¹⁶⁰ <https://globaldrivetozero.org/tools/zero-emission-technology-inventory/>

¹⁶¹ <http://www.aqmd.gov/home/programs/business/business-detail?title=vehicle-engine-upgrades>

¹⁶² Trucks that have been purchased through incentive programs can earn WAIRE Points at the same level as trucks that are not incentivized.

NZE and ZE truck visits can come from the warehouse operator's own fleet or by any other third party fleet (whether contracted by the warehouse operator or not). NZE and ZE truck visit counts must be made contemporaneously with the trips and records documenting the visits must be verifiable by South Coast AQMD staff. Example methods to record these truck visits are described below.

1. Trucker check-in – Many warehouses already require some type of check-in from truck drivers when they arrive onsite. As part of that check-in process, warehouse operators could fill out a short form with the following information for every ZE or NZE truck that visits the site¹⁶³ (either themselves or through a form filled out by the truck driver):
 - a. The date and time that the truck arrived
 - b. Truck license plate number¹⁶⁴ and Vehicle Identification Number (VIN)
 - c. Truck fuel type (e.g., natural gas, electric, hydrogen)
 - d. Trucking Company Name, DOT number, and contact phone number (if not owned by the warehouse operator)
 - e. If filled out by a truck driver unaffiliated with the warehouse, the driver's name and signature confirming that the above information is accurate
2. Electronic Telematics System (ETS) – ETS systems are increasingly used to track truck activity, and warehouse operators that employ these systems can use the data it collects and supplement it with truck characteristics (i.e., items b. through d. above) to determine how many NZE and ZE visits occur.
3. Security Cameras – Cameras may be used to record the trucks entering or exiting a warehouse site and document the truck license plate number (using either manual or automated tracking), and potentially other information such as fuel type, trucking company name, and DOT number. Information from items (incomplete sentence)
4. Contractual Records – Some warehouse operators arrange for trucking services from third party fleets. Provisions within the contract requiring NZE or ZE trucks to be used (and resulting in a specified number of visits) could be used as one method of documentation. Additional documentation verifying that the NZE or ZE trucks have actually visited the warehouse must also be maintained.

ZE Yard Trucks

Yard trucks are utility trucks that can be classified as on-road or off-road vehicles and are typically used to move trailers and containers around a warehouse yard or to nearby locations. NZE yard trucks are not included as an option in the WAIRE Menu but may earn WAIRE Points in a Custom WAIRE Plan (further details are provided in the Custom WAIRE Plan section). WAIRE Points may be earned for the acquisition¹⁶⁵ as well as the use of the ZE yard truck within

¹⁶³ As a point of reference, for a typical 250,000 sf warehouse that has about 42 Class 8 truck visits per day, only about 5 NZE Class 8 truck visits would be required per day on average (at a stringency of 0.0025) if this method was used to earn WAIRE Points.

¹⁶⁴ The license plate number of the truck/tractor, not the trailer.

¹⁶⁵ Similar to the discussion on truck acquisitions above, existing incentive programs cannot be used to acquire ZE yard trucks, due to limitations within the incentive funding programs.

the same compliance period. Proof of the acquisition of the ZE yard truck in the form of receipt, invoices, contract or similar documents must be kept by the warehouse operator.

Warehouse operators must keep records of the number of hours of ZE yard truck use during every compliance period for which it earns WAIRE Points. In most cases the operating hours for a yard truck can be obtained from an hour meter on the yard truck. If the yard truck does not have an hour meter installed, a warehouse operator could have one installed as a way to document the hours of operation needed to earn WAIRE Points, or the hours could be recorded through other means (like a time sheet). The hours of operation should be logged regularly either weekly or monthly to keep the records accurate and prevent errors in reporting the annual metric.

ZE Charging or Fueling Infrastructure

ZE charging or fueling infrastructure for on-road vehicles and yard trucks¹⁶⁶ can earn WAIRE Points when installed¹⁶⁷ and when used.¹⁶⁸ NZE fueling infrastructure installation or use is not included as an option in the WAIRE Menu and is prohibited from earning WAIRE Points in a Custom WAIRE Plan. Warehouse operators will need to consult with warehouse owners, local utilities, and local building departments prior to installing ZE infrastructure. Warehouse facility or land owners may also voluntarily install the ZE infrastructure and earn WAIRE Points, and subsequently transfer those WAIRE Points to the warehouse operator(s) at that site. Offsite installations can earn WAIRE Points, but only through a Custom WAIRE Plan.

Electric Charging Infrastructure Installation

A long lead time may be needed to install electric charging infrastructure at some sites, and WAIRE Points may be earned for several milestones that are achieved during project completion. The table below describes the milestones and examples of the documentation needed to verify that the milestone was achieved.

Electric Charger Installation Milestone	Examples of Documentation
Acquisition of the charger(s) (also called EVSE's)	Invoices and photo/video documentation that the chargers have been delivered to the site. Records of any incentives or rebates received for the chargers or charger installation.
Initiating onsite construction	Copies of permits and photo/video documentation showing that construction was initiated.

¹⁶⁶ ZE charging/fueling infrastructure installations or usage for industrial trucks used indoors (e.g., pallet jacks or forklifts) cannot earn WAIRE Points.

¹⁶⁷ In order to avoid potential problems of low quality workmanship and subsequent safety concerns, warehouse operators and owners earning WAIRE Points from installing ZE infrastructure are encouraged - though not required - to use a skilled and trained workforce as defined in Public Contract Code section 2601 for all construction work, and follow the Public Utilities Code section 740.20, subdivision (2) requirement that at least 25 percent of the total electricians working on an electric vehicle infrastructure project, at any given time, hold Electric Vehicle Infrastructure Training Program certification.

¹⁶⁸ Similar to truck acquisitions, most incentive funding programs from CARB, South Coast AQMD, and the Energy Commission cannot be used to install charging infrastructure used to earn WAIRE Points. However, utility programs like Southern California Edison's Charge Ready Transport program have different requirements and do not have the same restrictions.

The latter of final energization or permit sign-off for the system	Permit records and/or photo/video documentation of the system in use.
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The WAIRE Menu only includes ZE charging infrastructure up to 350 kW. Chargers with higher ratings are not yet commercialized but are expected in the near future. Warehouse operators can earn WAIRE Points for these larger systems through a Custom WAIRE Plan. WAIRE Points can also be earned for installing chargers for Transportation Refrigeration Units (TRUs). As of February 2021, CARB is currently developing a new regulation that could mandate the installation and use of TRU chargers at cold storage warehouses covered by PR 2305. In order to earn WAIRE Points for TRU charger installations, if CARB’s proposed rule is adopted and goes into effect, warehouse operators would be required to either install more chargers than required by CARB’s rule in any given year, or install chargers before CARB’s rule requires them.

Electric Charging Infrastructure Usage

Warehouse operators earning WAIRE Points from charger usage¹⁶⁹ for on-road vehicles and/or yard trucks are required to report total kWh dispensed from charging stations at that site. Charger usage earns WAIRE Points equally for trucks owned by a warehouse operator and for third party fleets. Individual charger kWh are not required to be recorded or reported if a single master electrical meter is dedicated to all chargers and does not serve any other electrical loads (this is a common setup in charger installations). Records documenting this electrical usage would typically include electric utility bills, but could also include photo documentation of meter readouts, or charging software system reports.

Similar to the discussion above for TRU charger installation, if CARB’s proposed rule on TRU’s is approved and goes into effect, WAIRE Points may only be earned for TRU charging if it exceeds requirements in CARB’s rule. Records must be kept documenting how the usage goes beyond CARB requirements for any WAIRE Points earned in this situation.

Hydrogen Station Installation and Use

Hydrogen station installations are expected to occur on a faster timeline than electric charging infrastructure, and specific milestones are not included in the WAIRE Menu. WAIRE Points may be earned upon final station installation and availability for fueling. Records documenting the station installation can include permit records, invoices, and photo/video documentation of the station. The WAIRE Menu assigns 1,680 WAIRE Points for the installation of a hydrogen station capable of dispensing 700 kg/day for on-road vehicles and/or yard trucks. Similar to the ratio method described in the truck visit section, stations with higher or lower throughput capacities would receive proportionally more or less WAIRE Points than listed in the WAIRE Menu.

Hydrogen station use must be reported in total kilogram dispensed during the compliance period. The station can be used for the warehouse operator’s own fleet or for third party trucks. Records

¹⁶⁹ Warehouse operators may obtain Low Carbon Fuel Standard (LCFS) credits and/or revenue from those credits and still earn WAIRE Points for that dispensed electricity.

documenting this use should include a meter read-out and can also include invoices for delivered hydrogen, or other similar records.

Solar Panel System Installation and Use

Solar panel system installations can be installed either on the roof of the warehouse or as a carport configuration. Warehouse operators will need to consult with warehouse owners, local utilities, and local building departments prior to installing solar panel systems. Additionally, the warehouse facility or land owner may voluntarily install the solar panels and earn WAIRE Points that they can subsequently transfer to their warehouse operator(s). Proof of the installation of the solar panel system and its kilowatt (kW) rating in the form of receipt, invoices, contract, photos/videos, or similar documents should be maintained for future audits and inspections. WAIRE Points will be awarded upon the latter date of system energization or final permit sign-off.

The total energy produced by the solar system is typically recorded through software systems and may differ from reports provided by utilities. The total system energy production (measured in kilowatt-hours or kWh) is available to earn WAIRE Points, not just the net energy reported by the utility. Both the installation size and the system usage can be scaled using the ratio method described in the truck visits section.

Air Filtration Systems

Air filtration systems can be installed or air filters replaced at residences, schools, daycares, hospitals, or community centers within three miles of the warehouse in order to reduce exposure to particulate matter.¹⁷⁰ The minimum type of filters that can be installed or replaced are minimum efficiency reporting value (MERV) 16 or greater efficiency. Records documenting the number of systems installed or filters replaced could include invoices, contracts, photos/videos of installed systems, or similar documents. The documentation must include proof that the systems were actually installed, and not just purchased. Earning WAIRE Points with this approach will therefore require coordination with, and voluntary cooperation from other entities. Air filtration system installations and filter replacements can be scaled using the ratio method described in the truck visits section.

¹⁷⁰ Example systems are described here:

<http://www.aqmd.gov/docs/default-source/ceqa/handbook/aqmdpilotstudyfinalreport.pdf>

CUSTOM WAIRE PLANS

PR 2305 provides the option of proposing a Custom WAIRE Plan for actions that are not on the WAIRE Menu. WAIRE Points can only be earned upon approval of the Custom WAIRE Plan, any action or investments made prior to the approval of the Custom WAIRE Plan will not be considered for WAIRE Points. The process for applying for a Custom WAIRE Plan is shown in Figure 3 below. Custom WAIRE Plan Applications must be submitted through the WAIRE POP system, or as otherwise directed by South Coast AQMD, along with the applicable fee in PR 316.

Some examples of potential Custom WAIRE Plan proposals include jointly owned off-site ZE charging or fueling infrastructure, the use of battery storage systems or energy management that reduces emissions from local natural gas fired powerplants, and the acquisition and/or usage of NZE yard trucks. NZE yard trucks may be submitted as a Custom WAIRE Plan for consideration but only if they only utilize renewable fuels such as renewable natural gas (RNG), renewable propane, or other equivalents.¹⁷¹ The section below provides an example of a Custom WAIRE Plan calculation methodology to earn WAIRE Points for NZE yard trucks.

NZE Yard Truck WAIRE Points Calculation Example

The acquisition and/or use of NZE yard trucks may be proposed as a Custom WAIRE Plan if the NZE yard truck's engine meets CARB's lowest Optional Low NOx standard (currently 0.02 g/hp-hr) applicable at the time of engine manufacture and is fueled with renewable fuels. The expected WAIRE Points for NZE yard trucks in a Custom WAIRE Plan are shown below, following the same methods as is described for ZE yard truck acquisition and usage in Appendix B – WAIRE Menu Technical Report.¹⁷²

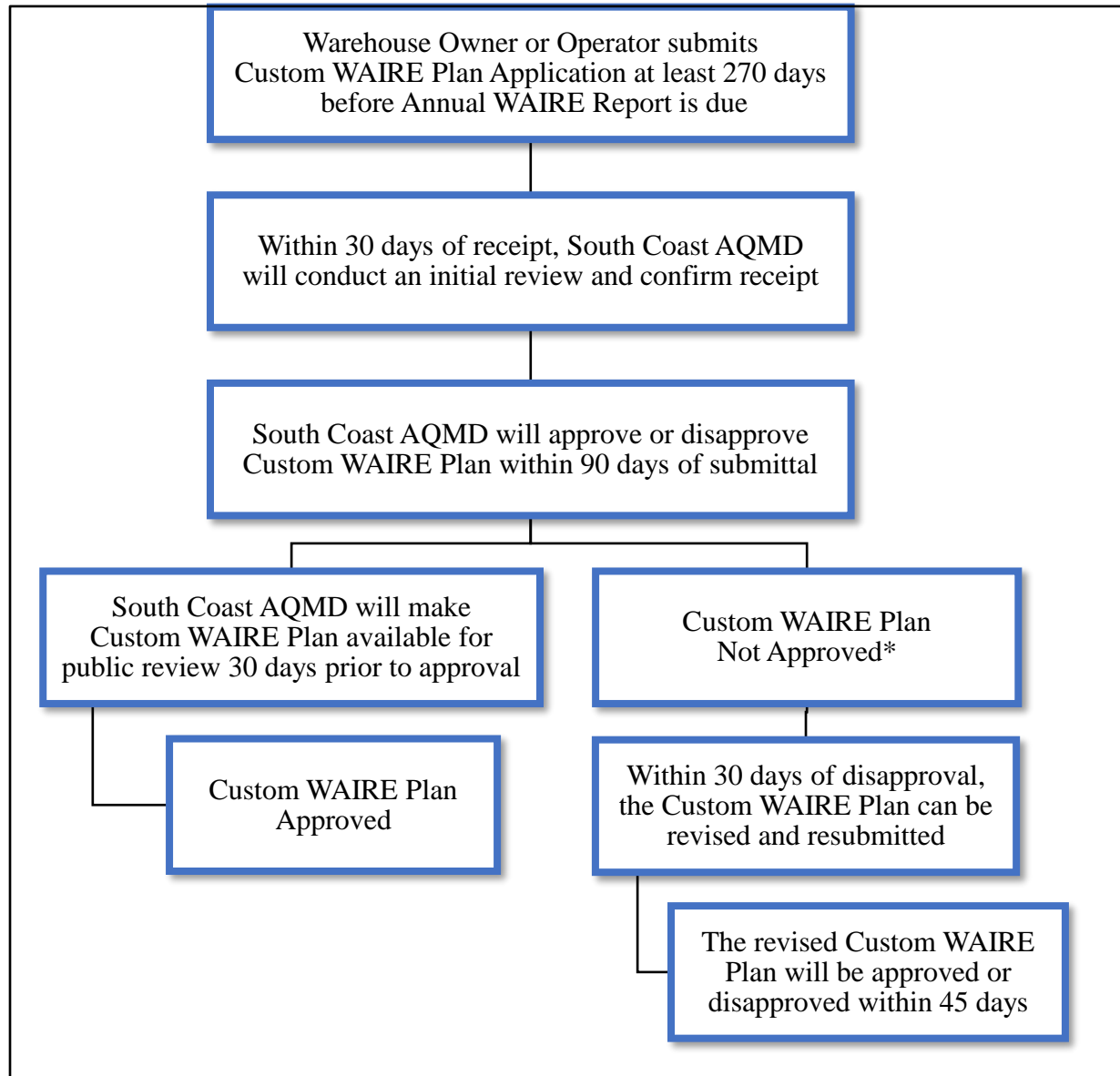
Acquire One NZE Yard Truck = 42 WAIRE Points

Use One NZE Yard Truck for 1,000 hrs in a year = 288 WAIRE Points

¹⁷¹ Renewable fuels include any non-fossil fuel whose carbon intensity is lower than the applicable standard for that year as determined through CARB's Low Carbon Fuel Standards program.

¹⁷² The following key assumptions are used here: \$50,000 incremental acquisition cost relative to diesel counterpart, \$2,250 incremental annual usage cost relative to diesel (<https://cleanairactionplan.org/documents/final-cargo-handling-equipment-che-feasibility-assessment.pdf/>), 90% of the NOx emissions benefit as a ZE yard truck, and 100% of the Diesel PM benefit of a ZE yard truck.

Figure 3 – Custom WAIRE Plan Application Process



* A disapproval will identify the deficiencies in the application that must be revised before approval can be considered. Applications that have not been explicitly approved within the review period are presumed to be disapproved.

Custom WAIRE Plan actions must meet similar criteria to the analysis conducted for the actions and investments included in the WAIRE Menu. Custom WAIRE Plan Applications must include the following elements:

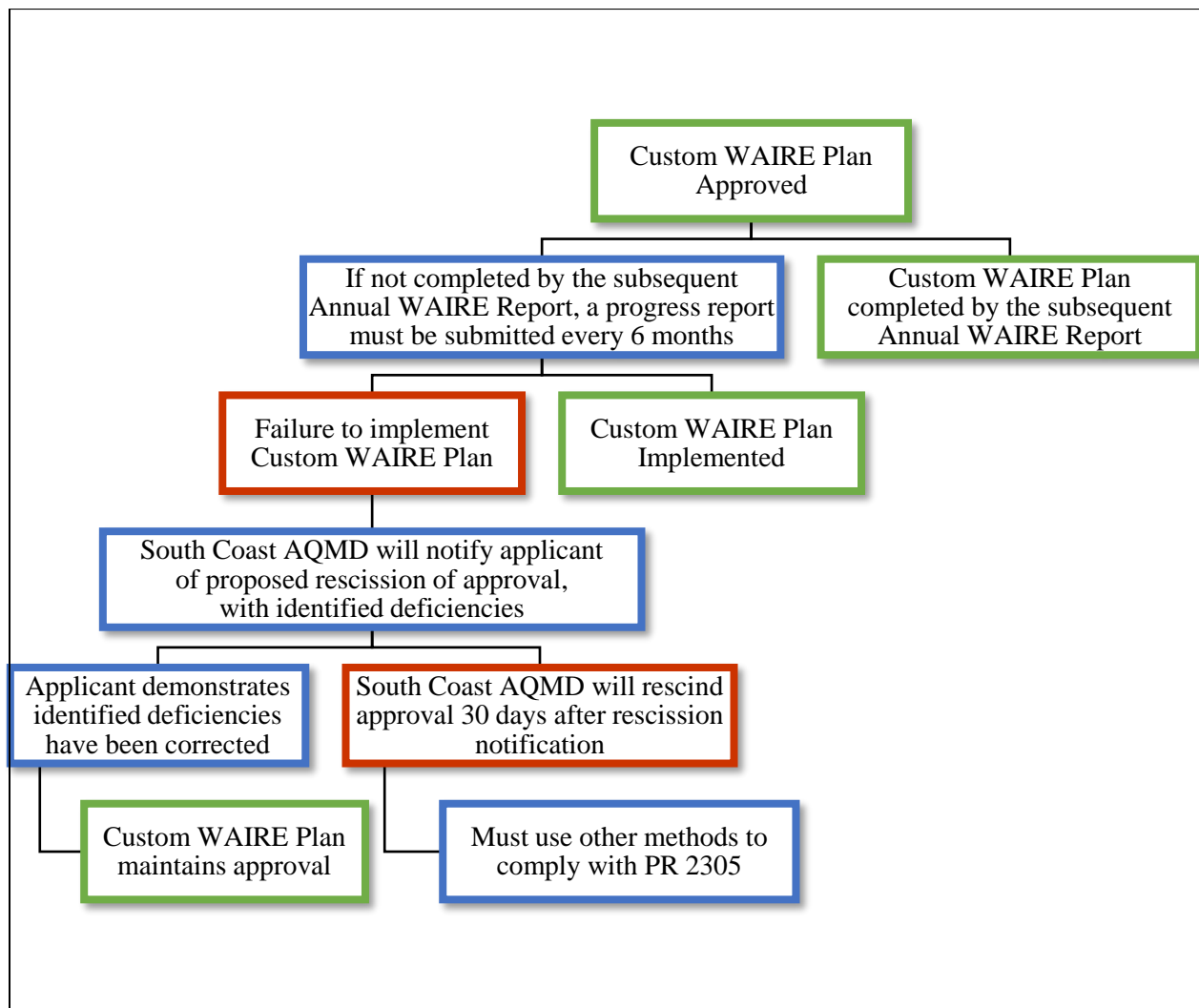
- A demonstration how the proposed action will earn WAIRE Points based on the incremental cost of the action, the NO_x emission reductions from the action, and the DPM emission reductions from the action, relative to baseline conditions if the warehouse operator had not completed the action in that compliance period,
 - Baseline conditions should be calculated using the latest emissions estimation methodologies, such as those used in the most recently approved Air Quality Management Plan. The calculation of WAIRE Points from actions in a Custom WAIRE Plan should be consistent with the calculation methodologies included in the WAIRE Menu Technical Report included as Appendix B to the PR 2305 Staff Report. Emission reductions that go beyond baseline conditions must consider the effect of existing regulations that phase in through time, if applicable.
- A demonstration how WAIRE Points earned from the Custom WAIRE Plan for emission reductions are quantifiable, verifiable, and real,
- A description of how the proposed actions will achieve quantifiable, verifiable, and real NO_x and DPM emission reductions as quickly as feasible, but no later than three years after plan approval,
 - All Custom WAIRE Plans must result in emission reductions, or directly facilitate emission reductions. Examples of facilitating projects could include installation of ZE charging infrastructure at an offsite location or acquisition of ZE TRUs that go beyond CARB requirements.
- A quantification of expected NO_x and/or DPM emission reductions from the proposed actions within the South Coast AQMD and within three miles of the warehouse,
 - All Custom WAIRE Plan projects, including facilitating projects, must result in verifiable NO_x and/or DPM emission reductions within three miles of the warehouse.
- A description of the method to be used to verify that the proposed actions will achieve NO_x and/or DPM emission reductions,
 - Example methods documenting how the effectiveness of an action can be verified are included in these Guidelines for WAIRE Menu items.
- A schedule of key milestones showing the increments of progress to complete the proposed actions,
- A description of the location and a map of where the proposed actions will occur,
- Any expected permits or approvals required by other private parties, or South Coast AQMD, or other federal, state, or local government agencies to implement the Custom WAIRE Plan

Custom WAIRE Plan Milestones

The timetable of an approved Custom WAIRE Plan application allows for at least six months to implement the custom WAIRE Plan project (or three and a half months if the application was disapproved, resubmitted, and then approved). Some projects may take longer to implement and could extend beyond the compliance period when the Custom WAIRE Plan application was submitted. In these cases, a progress report must be submitted every six months after the Custom

WAIRE Plan was approved. In the event milestones are not reached, the progress report must explain the conditions that resulted in the milestone not being reached and propose a new milestone date. If in reviewing the progress report, South Coast AQMD staff determines that progress on the approved Custom WAIRE Plan is not adequate, a notice may be sent to the Custom WAIRE Plan applicant advising of the inadequate progress. The Custom WAIRE Plan approval may be rescinded 30 days after the notice if the applicant does not demonstrate how the identified deficiencies have been corrected. Figure 4 shows the Custom WAIRE Plan implementation process.

Figure 4 – Custom WAIRE Plan Implementation



WAIRE MITIGATION FEE

Warehouse operators may earn WAIRE Points by paying a mitigation fee at \$1,000 per WAIRE Point, but any of the other methods that can earn WAIRE Points (i.e., the WAIRE Menu, Custom Plans, transferring) can be used to fully satisfy a warehouse operator's WPCO so that no mitigation fees are paid. There is also an additional 6.25% administration fee charged on top of any mitigation fees paid to cover South Coast AQMD's costs of administering the WAIRE Mitigation Program. Mitigation fees and accompanying administrative fees must be submitted through the WAIRE POP system with the AWR. Payments less than \$300,000 can be made by e-check or credit card. Payments larger than this must be mailed to South Coast AQMD or submitted in person.

The WAIRE Mitigation Fee Program is expected to provide incentives toward the purchase of NZE and ZE trucks and ZE charging and fueling infrastructure. Warehouse operators may apply for the WAIRE Mitigation Fee Program funds. However, similar to other funding programs, the incentivized vehicle or equipment may not earn WAIRE Points for its acquisition, only for its subsequent use. Further, any ZE charging or fueling infrastructure funded by the WAIRE Mitigation Program must be publicly accessible and cannot solely be for the use of the operator's private fleet.

Projects funded by the WAIRE Mitigation Program will be approved annually or more often by the South Coast AQMD Governing Board and will follow the policies described in the Board Resolution that accompanies PR 2305 as well as subsequent requirements set out by the Board (e.g., in future solicitations).¹⁷³

WAIRE POINTS TRANSFERS

WAIRE Points can only be transferred under limited situations, and only WAIRE Points in excess of the warehouse operator's WPCO may be transferred. The following are the three sole instances when WAIRE Points may be transferred or banked:

1. Excess WAIRE Points transferred to a warehouse operator's other warehouses:
If a warehouse operator conducts warehousing activities at more than one warehouse during any single compliance period, then WAIRE Points earned for one warehouse may be used at the other warehouse(s) under the operational control of that same warehouse operator. Only those points earned in excess of a warehouse operator's WPCO at that site may be transferred, and only for the current compliance period. Any WAIRE Points transferred to a different warehouse shall be discounted as shown in the rightmost column in the WAIRE Menu in Table 3 of PR 2305.
2. WAIRE Points transferred between a warehouse owner and operator:
A warehouse facility or land owner may voluntarily earn WAIRE Points during a compliance Period using the WAIRE Menu, a Custom WAIRE Plan, by paying a mitigation fee, or may have WAIRE Points transferred to them from the warehouse operator at that site. The warehouse facility or land owner may then transfer these WAIRE Points to any warehouse operator at the site where the WAIRE Points were earned within a three-year period after the points were originally earned. Any warehouse operator using these transferred WAIRE Points to satisfy a WPCO during this three-year period must demonstrate that any onsite improvements or equipment installations that were used to earn the WAIRE Points being transferred are still operational at that warehouse facility in the year that WAIRE Points are used.

¹⁷³ A link to the resolution will be added here if the rule is approved.

- a. Warehouse operators that vacate a warehouse before the end of a compliance period may transfer any excess WAIRE Points to the warehouse owner. These Points may then be transferred to the next warehouse operator.
3. Excess WAIRE Points banked for future use at that site:

WAIRE Points in excess of the warehouse operator's WPCO in one compliance period may be banked for use in any of the next three compliance periods. After this time, any remaining banked WAIRE Points will expire and can no longer be used. WAIRE Points banked for future use in this way cannot be transferred to another warehouse. WAIRE Points may not be transferred to a subsequent compliance period if the WAIRE Menu items used to earn WAIRE Points are required by U.S. EPA, CARB, or South Coast AQMD rules and regulations in that subsequent year. An example could include CARB's anticipated TRU rule that could require charging infrastructure at a future date. Installations earlier than CARB requirements could earn Points and be banked for future years. However, the banked Points can no longer be used in any year in which CARB requires those chargers to be installed. Further, if any onsite improvements or equipment installations that were used to originally earn the WAIRE Points are no longer functional, the banked WAIRE Points may not be used to satisfy a WPCO. Finally, if WAIRE Points are earned prior to a warehouse operator's first compliance period, the three-year clock on banked WAIRE Points does not begin until after their first compliance period.

In order to use banked WAIRE Points, the WAIRE Menu item that generated the WAIRE Points must still be onsite and was used for the compliance period that the WAIRE Points are to be used to comply with the WPCO. (Incomplete sentence) For Phase 2 and 3, there is an early action provision that allows for earning WAIRE Points ahead of their initial compliance period, and include a provision for the clock on three year life of the WAIRE Points for those early action WAIRE Points to not begin until after the initial compliance period.

It is the responsibility of the warehouse operator who uses transferred or banked WAIRE Points to keep records documenting how and when the WAIRE Points were originally earned. If WAIRE Points are transferred between the warehouse owner and operator, both entities must keep records documenting the agreement to transfer the WAIRE Points. To avoid any potential disputes, the agreement should be signed by authorized officials for both entities.

EXEMPTIONS

Warehouse operators may be exempt from parts of PR 2305 in three limited instances. First, warehouse operators who can only use less than 50,000 sq. ft. of a warehouse for warehousing activities are not required to earn any WAIRE Points. However, if the warehouse operator has the same parent company as another warehouse operator in the same building, and collectively they may use more than 50,000 sq. ft., then the exemption does not apply.

Second, warehouse operators with a calculated WPCO <10 are not required to earn any WAIRE Points but will still need to submit required reporting. This exemption is in place to reduce the burden on small warehouse operations with only a small volume of truck trips to their warehouse.

Third, there may be rare instances when a warehouse operator invests in new technology to comply with PR 2305. If that equipment malfunctions through no fault of the operator, then they may apply for an exemption from the portion of their WPCO for which that action applies. An

example could include a warehouse operator who purchases a ZE or NZE truck that experiences a significant manufacturer's defect that renders the truck inoperable for an extended period of time. Applications for this exemption should be submitted to waire-program@aqmd.gov. Applications should include a description of the investment that has the defect, relevant details about the defect, and the number of WAIRE Points anticipated during the current compliance period from that investment for which the operator is seeking an exemption. The warehouse operator's WPCO should not be assumed to be reduced unless South Coast AQMD staff submits an approval of the exemption in writing or email. The application will be reviewed based on evidence provided by the applicant that the vehicle or equipment had defects caused by the manufacturer of the vehicle or equipment, or a defect in the installation of equipment following manufacturer-approved methods. Further, the applicant must demonstrate that they made a good faith effort to have the equipment or vehicle repaired but was unable to do so or do so in a timely manner.

COMPLIANCE PROGRAM

South Coast AQMD will periodically conduct both desktop and field audits for compliance with the WAIRE Program. The South Coast AQMD staff may contact warehouse owners and operators to request further documentation or clarification on submitted WAIRE Program reports. Additionally, South Coast AQMD inspectors may conduct field visits of the warehouse facilities. South Coast AQMD inspections are generally unannounced, and a South Coast AQMD inspector may visit a warehouse facility any time during regular business hours to verify a facility is following recordkeeping requirements and other applicable requirements. Upon arrival, the South Coast AQMD inspector will present proper South Coast AQMD identification and inform a facility representative of the purpose and scope of the inspection. Most inspections are conducted to verify the information submitted on the required WAIRE Program reports. An inspector may also request a tour of the facility to verify the onsite presence of any equipment related to WAIRE Program compliance. It is helpful if a facility representative familiar with the WAIRE Program assist with the inspection, and that an organized collection of the WAIRE Program related documents be readily available either as a hardcopy or digitally.

Some of the records that a South Coast AQMD inspector could inquire about include:

- Current contact information of warehouse operator
- Truck trip count records
- WPCO calculation and plans to earn WAIRE Points
- Copy of Initial Site Information Report
- Copies Annual WAIRE Report(s)
- Copy of any approved Custom WAIRE Plan(s)
- Fleet data (invoices, vehicle registration, model year, fuel type, license plate numbers)
- Information about any onsite energy generation equipment
- Information about any onsite alternative fueling station(s)
- Information about any onsite yard truck(s)
- Information on any air filter systems or filters installed or replaced for the surrounding community
- Copies of exemption documentation
- Copies of lease agreement

If South Coast AQMD staff identify a discrepancy in the warehouse operator's WAIRE Program reporting such as an issue with the truck trip counts, the reporting metrics submitted, or similar differences, the South Coast AQMD inspector will discuss the issue(s) with the warehouse operator to determine the cause of the issue(s) or require further documentation and enforcement action may be taken. For example, if the warehouse operator submits in the Annual WAIRE Report that there were 100 ZE tractor visits for the compliance period, and if after verifying the 100 tractor VINs the South Coast AQMD staff determines that only 50 of the truck visits were actually ZE tractors, more detail on the truck visits may be required or a further review of the method for accounting for ZE trucks would be needed. If sufficient proof cannot be provided to support the 100 ZE tractor visits reported, then the warehouse operator may need to obtain more WAIRE Points to satisfy their WPCO. Frequently updating and tabulating reporting metrics would limit discrepancies and provide more documentation to support submitted WAIRE Program reports.

Appendix B: WAIRE MENU TECHNICAL REPORT

DRAFT WAIRE Menu Technical Report

OVERVIEW

This technical report describes the methodology used to determine how WAIRE Points are attributed to each of the actions on the WAIRE Menu provided in PR 2305. Section 1 of this report presents an overview of how the Points are determined within the Menu, while all subsequent sections presents detailed methodologies for each Menu item.

SECTION 1) WAIRE Points Calculation Methodology

This section describes the general methodology used to determine how WAIRE Points are attributed to each of the actions on the WAIRE Menu. While this methodology is used to determine the value of each WAIRE Menu action during the rulemaking process, warehouse operators and/or owners will not need to use this calculation methodology document to determine how to comply with the rule. For compliance, warehouse operators (and in some cases owners if they choose to comply on behalf of their operator) will only need to consult the WAIRE Menu itself to determine how many actions, or how much of each action to complete for compliance.

WAIRE Points may be earned in two ways, through the purchase of near-zero (NZE) and zero emission (ZE) equipment or equipment that facilitates its use, and through the usage of NZE and ZE equipment. WAIRE Points are assigned based on three key parameters, cost, regional emissions reductions, and local emissions reduction. The cost parameter is based on the incrementally higher cost a warehouse operator faces when choosing to purchase NZE/ZE equipment (compared to conventional diesel technology). The regional emissions reduction parameter is based on the reduction in nitrogen oxides (NOx) emissions from using ZE/NZE equipment. The local emissions reduction parameter is based on the reduction in Diesel Particulate Matter (DPM)¹ from using ZE/NZE equipment.

In practice, the actual costs and emission reductions of each implemented action will likely vary for each warehouse operator. Calculating these unique values on a case-by-case basis would impose a considerable administrative burden to both the regulated community and to South Coast AQMD. In order to simplify compliance and administration of PR 2305, WAIRE Points for each Menu action are determined using representative default values described in the calculation methodology summaries that follow.

Section 1a) WAIRE MENU ANNUALIZED UNITARY METRICS AND BINS
WAIRE Points values in the WAIRE Menu are determined for each action based on a single Annualized Unitary Metric (AUM). The AUM is the default level of implementation used for

¹ DPM is both a component of the criteria pollutants PM10 and PM2.5, and a toxic air contaminant. Emissions of DPM from warehouse indirect sources can contribute to high-level, localized pollutant concentrations that can significantly affect air quality and public health for populations near warehouses.

calculating each WAIRE Menu action's Points. For example, the AUM for the truck acquisition WAIRE Menu action is one truck acquired during the compliance year. The cost and regional and local emissions reductions are calculated for acquiring one truck and used to determine the default WAIRE Point value for that Menu action. Warehouse operators use these default Point values in the WAIRE Menu to determine how many Points they earned in total depending on their level of implementation. For example, the default Point value in the Menu for acquiring one ZE class 8 truck is 126 Points. If a warehouse operator acquired five ZE trucks, they would earn a total of 630 Points (126 Points for each truck acquisition). Similarly, for ZE class 8 truck visits, the AUM of 365 visits per year (one per day on average) yields 27 Points in the WAIRE Menu. If a warehouse operator only has 100 ZE class 8 truck visits during a compliance year, they would earn a total of 7.4 Points² $[(100 \div 365) \times 27 = 7.4]$. The AUM's for each WAIRE Menu action are described in the individual calculation methodology summaries that follow.

WAIRE Points are also calculated using a point binning system to simplify the merging of the cost, regional emission reduction, and local emissions reduction parameters. For the AUM, Points are earned for each \$25,000 incremental cost, 25-pound NO_x regional emission reduction, and 0.25-pound DPM local emission reduction. Once these three parameters are calculated, their binned points are summed to yield the total default WAIRE Points earned for that action.

Section 1b) COSTS:

The costs for each WAIRE Menu action are based on the annualized incremental costs difference between the new ZE/NZE technology and the costs of the conventional diesel equivalent. Due to existing statutory or regulatory prohibitions, most state incentive funding programs used to offset the higher purchase price of ZE/NZE vehicles and equipment cannot be used to aid in complying with state or federal law or South Coast AQMD rules or regulations³, and incentive funds are not considered in these costs. However, WAIRE Points may be earned from the usage of incentivized vehicles/equipment. For example, if a warehouse operator owns a fleet of trucks, and they want to purchase a ZE or NZE truck, they will need to decide among two options. First, they could purchase the truck at full price and receive WAIRE Points for that action. Second, they could instead choose to receive incentive funding for that purchase but not earn any WAIRE Points for the truck purchase. In both instances, they would be allowed to receive WAIRE Points for the visits that this truck makes to their warehouse.

² WAIRE Points are calculated to no more than one decimal place.

³ California Health and Safety Codes 44281(b), 44391.4(a), 44271(c), CCR Title 13, Ch. 8.2 Sec. 2353 (c)(4), Moyer Guidelines Ch. 2, CA Beneficiary Mitigation Plan

Section 1c) REGIONAL EMISSION REDUCTIONS:

Regional emission reductions are calculated in two ways. First, NOx reductions are calculated from using ZE/NZE vehicles and equipment for activities associated with the warehouse. Second, regional NOx emission reduction Points are calculated for WAIRE Menu items affiliated with the acquisition of ZE/NZE vehicles/equipment at a rate of \$100,000 per ton of NOx. This is the cost effectiveness threshold that South Coast AQMD utilizes in its Carl Moyer incentive funding program. These regional emission reduction Points are assigned to these acquisition Menu items because if a facility chose to pay that level of funding as a mitigation fee, South Coast AQMD would likely spend the funds using the same cost effectiveness threshold.

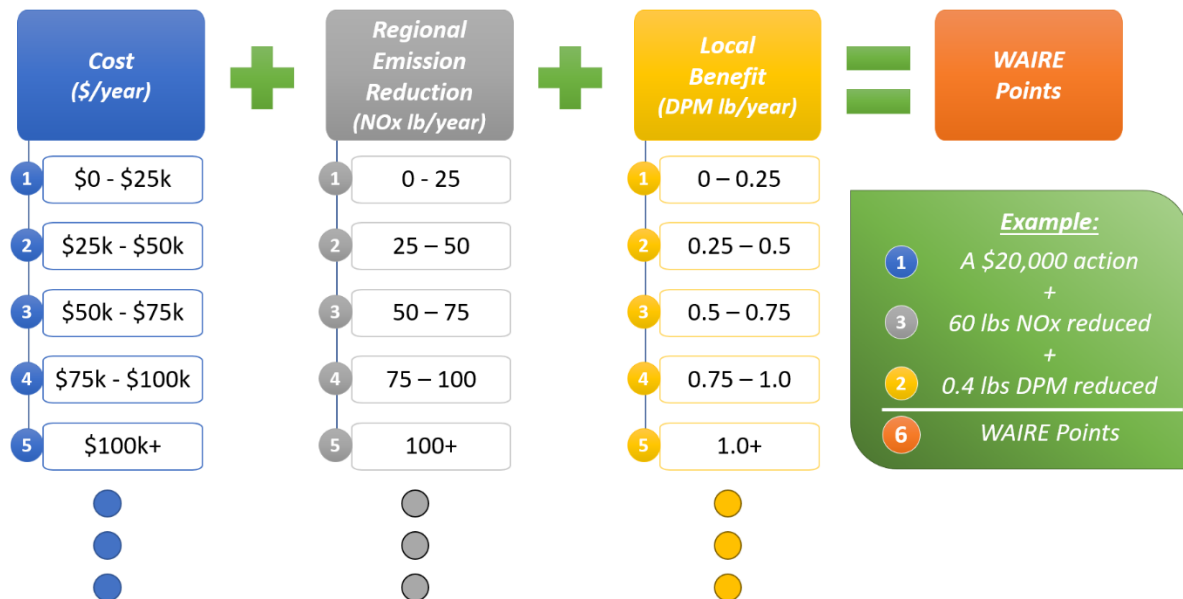
Section 1d) LOCAL EMISSION REDUCTIONS:

Local emission reductions are calculated in a similar manner as regional emission reductions, except that Diesel Particulate Matter (DPM) is used instead of NOx.

Section 1e) EXAMPLE:

Figure 1, below, presents one example of how the calculation methods discussed above would yield the total WAIRE Points earned. In this example, an AUM would cost \$20,000 and result in a 60 lbs/year NOx reduction, and a 0.4 lbs/year DPM reduction. Combining the three together would result in a total of 6 WAIRE Points. Specific calculations for each WAIRE Menu action are included in the following sections.

Figure 1: WAIRE Points Calculation



SECTION 2) Zero and Near-Zero Emission Truck Visits and Truck Acquisitions

Description: Two key factors affect the analysis of ZE and NZE trucks – the definitions of ZE and NZE, and the truck class. In the context of PR 2305, the definition of a ZE truck is the same as CARB’s Advanced Clean Trucks Regulation definition. At the time of this writing, CARB’s draft definition for ZE truck is one “with a drivetrain that produces zero exhaust emission of any criteria pollutant (or precursor pollutant) or greenhouse gas under any possible operational modes or conditions.” For PR 2305 a NZE truck is one in which the engine meets CARB’s lowest Optional Low NOx standard at the time of manufacture, which is currently 0.02 g/hp-hr NOx.

In addition to drivetrain technology, trucks are commonly classified based on their Gross Vehicle Weight Rating (GVWR). Throughout this document Class 2b-7 refers to heavy duty trucks with GVWR of 8,501 – 33,000 lbs and Class 8 trucks with GVWR of greater than 33,000 lbs. Table 1 below presents truck classifications.

Table 1. Truck Classes

Truck Class	GVWR (lbs)
Class 2b	8,501 – 10,000
Class 3	10,001 – 14,000
Class 4	14,001 – 16,000
Class 5	16,001 – 19,500
Class 6	19,501 – 26,000
Class 7	26,001 – 33,000
Class 8	33,001 & over

Commercial Availability: The ZE truck market is beginning to grow rapidly with many models entering the commercial market today and many major manufacturers announcing plans for future commercialization of battery-electric and hydrogen fuel cell electric trucks.⁴ Some notable manufacturer announcements include: Daimler Class 8 eCascadia, Navistar battery-electric Class 8, Volvo battery-electric VNR Class 8, Tesla’s long range battery-electric tractor, BYD’s battery-electric Class 6 and 8, Nikola’s and Kenworth (in conjunction with Toyota) hydrogen fuel cell tractors, Sea Electric Class 4-8 battery-electric trucks, Lion Electric’s Class 6-8 battery-electric trucks, Amazon’s order of 100,000 Rivian’s battery electric trucks, etc. NZE engines are currently available in two sizes – 11.9 liter and 8.9 liter. Major truck manufacturers offer these engines in different truck classes, including for class 8 regional haul and/or drayage truck operations.

Operation: Trucks that visit warehouses may be owned by the warehouse operator, or by a motor carrier not affiliated with that warehouse. Arrangements for truck visits to the site to deliver or pick up goods is typically made by the owner of the goods, or someone acting on their behalf. As such, each individual truck visiting a warehouse can have a unique operating profile that may not be shared by any other truck visiting that site. One truck may travel 30 miles on the inbound trip, and only two miles on the outbound trip. Another truck may be loaded with goods from multiple warehouses or stores, and determining what portion of a trip to attribute to each warehouse would be impractical. Finally, trucks may idle their engines for short periods while at the

⁴ A useful reference is the online ZETI tool. <https://globaldrivetozero.org/tools/zero-emission-technology-inventory/>

warehouse before or after the trailer is dropped off/picked up. For the emissions and cost analyses presented below, input parameters are meant to be broadly applicable and may not reflect any one individual truck trip or truck acquisition.

SECTION 2a) ZE/NZE Truck Acquisitions⁵

ZE/NZE Truck Purchase Prices: Several key references were consulted to estimate incremental purchase prices for NZE and ZE trucks relative to conventional diesel trucks including: CARB’s Advanced Clean Truck Regulation (ACT), Standardized Regulatory Impact Assessment (SRIA)⁶ and Total Cost of Ownership Discussion Documents⁷, California Energy Commission’s Revised Transportation Demand Forecast⁸, the Ports’ Feasibility Study⁹, ICF’s Intensive Literature Review for Medium and Heavy-Duty Electrification in California¹⁰, NACFE’s TCO Calculator¹¹, as well as data from South Coast AQMD’s Carl Moyer Grant Program and CARB’s HVIP program. While cost estimates vary somewhat among these references, the single point estimates shown in Table 2 below are consistent with these previous analyses.

Table 2. Incremental Costs for NZE and ZE Truck Purchases

WAIRE Menu Item		Annualized Unitary Metric	Incremental Cost (\$/metric)
Class 8 Truck	NZE	1 truck purchased	\$65,000
Class 4-7 Truck			\$30,000
Class 8 Truck	ZE		\$150,000
Class 4-7 Truck			\$80,000
Class 2b-3 Truck			\$16,000

WAIRE Points for ZE/NZE Truck Acquisitions: Acquisition of NZE Class 8 and Class 4-7 trucks earns 3 and 2 WAIRE Points, respectively. Similarly, the acquisition of ZE Class 8, Class 4-7, and Class 2b-3 trucks earns 6, 4, and 1 WAIRE Points, respectively. In addition, using a cost-effectiveness of \$100,000 per ton of NOx, WAIRE Points for regional emission reductions for Class 8 and 4-7 NZE truck acquisitions are 52 and 24 WAIRE Points, respectively. For ZE truck acquisitions, Class 8, 4-7, and 2b-3 earns 120, 64, and 13 WAIRE Points, respectively.

⁵ WAIRE Points can be earned from either truck purchases or truck leases. Points are calculated assuming trucks are purchased.

⁶ <https://ww3.arb.ca.gov/regact/2019/act2019/appc.pdf>

⁷ <https://ww3.arb.ca.gov/regact/2019/act2019/apph.pdf>

⁸ <https://efiling.energy.ca.gov/GetDocument.aspx?tn=230885&DocumentContentId=62525>

⁹ <https://cleanairactionplan.org/documents/final-drayage-truck-feasibility-assessment.pdf/>

¹⁰ https://caletc.com/wp-content/uploads/2019/01/Literature-Review_Final_December_2018.pdf

¹¹ <https://nacfe.org/future-technology/medium-duty-electric-trucks-cost-of-ownership/>

SECTION 2b) Truck Visits

Regional and Local Emission Reductions from ZE/NZE Truck Visits: Key parameters that can affect the emissions estimate from any one individual trip include: trip length, truck class, vehicle powertrain, and vehicle speed. Collecting all the necessary information to calculate precise emissions estimates for each trip is not feasible as it would require 1) instrumenting all trucks with telematics systems that report uniform data, 2) requiring detailed information reporting about truck loads (e.g., how much of the goods in each truck trailer is being transported to each location), and 3) conducting substantial data analysis to determine the emissions associated with each truck trip. Because of these challenges, various models are used to estimate emissions from trucking activity. In particular, CARB’s EMFAC model and SCAG’s Heavy-Duty Truck Regional Travel Demand model provide emissions estimates in the South Coast AQMD.

EMFAC2017 provides activity and emission rates for on-road vehicles that operate within California. EMFAC categories¹² and their relationship to truck class are shown in Table 3 below. EMFAC categorizes all truck types that are on the road, however the analysis presented here is limited to those categories that are most likely to deliver goods to and from warehouses.

Table 3. EMFAC Truck Categories

EMFAC Category	Description	Truck Class
LHD1 - DSL	Light-Heavy-Duty Trucks (GVWR 8,501-10,000 lbs)	Class 2b-3
LHD1 - GAS		
LHD2 - DSL	Light-Heavy-Duty Trucks (GVWR 8,501-10,000 lbs)	
LHD2 - GAS		
T6 CAIRP Small	Light-Heavy-Duty Trucks (GVWR 10,001-14,000 lbs)	Class 4-6
T6 Instate Small	Medium-Heavy Duty Diesel Instate Truck with GVWR≤26,000 lbs	
T6 OOS Small	Medium-Heavy Duty Diesel Out-of-State Truck with GVWR≤26,000 lbs	
T6 CAIRP Heavy	Medium-Heavy Duty Diesel CA International Registration Plan Truck with GVWR>26,000 lbs	Class 7
T6 Instate Heavy	Medium-Heavy Duty Diesel Instate Truck with GVWR>26,000 lbs	
T6 OOS Heavy	Medium-Heavy Duty Diesel Out-of-State Truck with GVWR>26,000 lbs	
T7 CAIRP	Heavy-Heavy Duty Diesel CA International Registration Plan Truck with GVWR>33,000 lbs	Class 8
T7 NNOOS	Heavy-Heavy Duty Diesel Non-Neighboring Out-of-State Truck with GVWR>33,000 lbs	
T7 NOOS	Heavy-Heavy Duty Diesel Neighboring Out-of-State Truck with GVWR>33,000 lbs	
T7 POLA	Heavy-Heavy Duty Diesel Drayage Truck in South Coast with GVWR>33,000 lbs	
T7 Tractor	Heavy-Heavy Duty Diesel Tractor Truck with GVWR>33,000 lbs	

¹² <https://ww3.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf> (Table 6.1-1)

Baseline weighted averages of NOx and PM10 emission rates¹³ for calendar year 2023 for running exhaust (RUNEX), exhaust from engine startups (STREX), and idling exhaust (IDLEX) of the above-mentioned truck categories are presented below.

Table 4. Weighted average emission rates (g/mi for RUNEX, g/trip for STREX, g/vehicle/day for IDLEX)

Truck Class	NOx			DPM			Mile/trip ¹⁴	Trip/day/truck ¹⁵
	RUNEX	IDLEX	STREX	RUNEX	IDLEX	STREX		
Class 2b-3	0.727	0.888	0.290	0.008	0.013	0	15.3	1.3
Class 4-7	1.079	2.855	2.117	0.007	0.001	0	14.2	5.9
Class 8	2.372	76.203	2.028	0.020	0.027	0	39.9	5.2

The regional and local emission reductions achieved by switching to ZE trucks relative to baseline emissions are calculated using Equation 1 below. While regional emission reductions from switching to NZE trucks is assumed to equal 90% of the reduction compared to ZE trucks, local emission reductions are assumed to be the same between ZE and NZE as NZE trucks are fueled by natural gas and do not emit DPM.

Equation [1]:

$$\begin{aligned}
 & \text{Emission Reduction } \left(\frac{\text{lb}}{\text{trip}} \right) \\
 &= \left[\left(\text{RUNEX} \left(\frac{\text{g}}{\text{mi}} \right) \times \frac{\text{mi}}{\text{trip}} \right) + \left(\text{STREX} \left(\frac{\text{g}}{\text{trip}} \right) \right) + \left(\frac{\text{IDLEX} \left(\frac{\text{g}}{\text{day.truck}} \right)}{\frac{\text{trip}}{\text{day.truck}}} \right) \right] \times \frac{1 \text{ lb}}{453.592 \text{ g}}
 \end{aligned}$$

Results of the calculation for the two truck class categories are presented in Table 5 below.

Table 5. NOx and DPM emission reductions for a single truck trip

Truck Class	ZE Truck		NZE Truck	
	NOx lb/trip	DPM lb/trip	NOx lb/trip	DPM lb/trip
Class 2b-3	0.027	0.0003	N/A	N/A
Class 4-7	0.040	0.0002	0.036	0.0002
Class 8	0.247	0.002	0.222	0.002

¹³ VMT-weighted, population-weighted and number of starts-weighted averages were computed to equalize the frequency of the values for RUNEX, IDLEX and STREX emission rates, respectively, in the data set by multiplication of each truck category emission rates to its corresponding VMT, population or number of starts and then dividing by the sum of total VMT, population or number of starts.

¹⁴ SCAG 2016 RTP mileage rates for medium-heavy (Class 4-7) and heavy-heavy trucks (Class 8)

¹⁵ Truck populations from EMFAC and trips/day from SCAG 2016 RTP. A trip is a one-way trip, while a ‘visit’ to a warehouse includes the incoming trip and the outgoing trip.

Table 6 below illustrates the method used in determining point values based on regional and local emissions reductions using results in Table 5.

Table 6. NO_x and DPM emission reductions for the Annualized Unitary Metric

WAIRE Menu Item		Annualized Unitary Metric (AUM)	Annualized Regional Emission Reductions (lb NO _x /AUM)	Annualized Local Emission Reductions (lb DPM/AUM)
Class 8 Truck	NZE	365 truck visits	$0.9 \times 180.3 = 162.3$	1.3
Class 4-7 Truck			$0.9 \times 29.2 = 26.3$	0.1
Class 8 Truck	ZE		$0.247 \times 2 \times 365 = 180.3$	$0.002 \times 2 \times 365 = 1.3$
Class 4-7 Truck			$0.040 \times 2 \times 365 = 29.2$	$0.0002 \times 2 \times 365 = 0.1$
Class 2b-3	ZE		$0.027 \times 2 \times 365 = 19.7$	$0.0003 \times 2 \times 365 = 0.2$

WAIRE Points from ZE/NZE Truck Visit Emission Reductions: For the annualized regional NO_x emission reductions, 365 truck visits from Class 8 ZE and NZE trucks will earn 8 and 7 WAIRE Points. Similarly, Class 4-7 ZE and NZE will earn 2 WAIRE Points, and Class 2b-3 ZE will earn 1 WAIRE Point. The associated local DPM emission reductions will earn 6 WAIRE Points for both ZE and NZE Class 8 truck visits, 1 WAIRE Point for both ZE and NZE Class 4-7 truck visits, and 1 WAIRE Point for ZE Class 2b-3.

Costs from ZE/NZE Truck Visits: The incremental cost of a truck visit used in the WAIRE Menu is based on the total cost of ownership of a ZE or NZE truck compared to an equivalent conventional diesel truck, taking into account the estimated total number of trips that truck will take in its useful life. The total cost of ownership (TCO), assuming a 12-year life, for Class 3, 4, 6 and 8 conventional diesel, battery electric, and hydrogen fuel cell trucks were obtained from CARB's Advanced Clean Truck Total Cost of Ownership Discussion Documents. The key components of the TCO include:

- (1) Capital cost: vehicle capital cost, taxes associated with the vehicle purchase, financing costs for the vehicle
- (2) Fuel cost¹⁶: The cost of the fuel
- (3) Other cost: maintenance costs, midlife costs¹⁷, vehicle registration, and residual values at the end of the truck's operating life

Tables 7, 8, 9, and 10 below present the base TCO data used in this analysis for Class 3, 4, 6, and 8 diesel, battery-electric, and hydrogen fuel cell trucks. The total cost of ownership for Class 6

¹⁶ Low Carbon Fuel Standard credits were not included in the analysis presented here.

¹⁷ Midlife costs are the cost of rebuilding or replacing major propulsion components due to wear or deterioration. For diesel vehicles, this would be a midlife engine rebuild, for battery-electric vehicles this would be a battery replacement, and for a hydrogen fuel-cell vehicle this would be a fuel cell stack refurbishment.

CNG shown in Table 8 was estimated using a similar approach as Table 9, with modifications made to the incremental purchase cost, fuel cost¹⁸ and fuel economy^{19,20}. Maintenance cost of natural gas vehicles were assumed to be about one to two cents per mile greater than for diesel vehicles due to more frequent oil changes and inspections, and higher replacement costs for spark plugs and injectors²¹. A summary of the analyses in Tables 7, 8, 9, and 10 is shown in Table 11.

Table 7. Base TCO data for Class 3 trucks²²

	Diesel	Battery Electric	Hydrogen Fuel Cell	Natural Gas NZE
Annual Miles	15,000	15,000	15,000	TCO information was not found in the literature (Most NZE trucks in this Class are conversions)
Operating Years	12	12	12	
Energy Storage	-	38 kWh	10 kWh/10 kg	
Total Capital Cost	\$53,110	\$86,568	\$306,673	
Average Fuel Cost	\$3.74/gal	\$0.18/kWh	\$8.00/kg	
Average Fuel Economy	23.2 mpg	1.79 mi/kWh	58 mi/kg	
Total Fuel Cost	\$20,817	\$13,142	\$25,986	
Lifetime Maintenance Cost	\$23,731	\$17,779	\$23,731	
Midlife Cost	\$0	\$0	\$42,982	
Registration Fees	\$8,331	\$7,509	\$13,919	
Residual Values	(\$8,207)	(\$4,104)	(\$2,052)	
Total Other Cost	\$23,855	\$21,204	\$78,580	
Total	\$97,782	\$113,657	\$410,258	

¹⁸ <https://nacfe.org/future-technology/medium-duty-electric-trucks-cost-of-ownership/>

¹⁹ https://afdc.energy.gov/files/u/publication/ng_regional_transport_trucks.pdf (Figure 5)

²⁰ https://www.energy.gov/sites/prod/files/2014/03/f8/deer12_kargul.pdf

²¹ https://ww3.arb.ca.gov/msprog/tech/techreport/ng_tech_report.pdf

²² <https://nacfe.org/future-technology/medium-duty-electric-trucks-cost-of-ownership/>

Table 8. Base TCO data for Class 4 trucks²³

	Diesel	Battery Electric	Hydrogen Fuel Cell	Natural Gas NZE
Annual Miles	15,000	15,000	Class 4 H2 trucks are not expected in the near future	TCO information was not found in the literature
Operating Years	12	12		
Energy Storage	-	120 kWh		
Total Capital Cost	50,000	100,000		
Average Fuel Cost	\$3.74/gal	\$0.17/kWh		
Average Fuel Economy	10 mpg			
Total Fuel Cost				
Lifetime Maintenance Cost				
Midlife Cost				
Registration Fees				
Residual Values	\$500	\$5,000		
Total Other Cost				
Total	\$124,229	\$177,345		

Table 9. Base TCO data for Class 6 trucks²⁴

	Diesel	Battery Electric	Hydrogen Fuel Cell	Natural Gas NZE
Annual Miles	24,000	24,000	24,000	24,000
Operating Years	12	12	12	12
Energy Storage	-	104 kWh	50 kWh/20 kg	-
Total Capital Cost	\$88,705	\$172,225	\$330,967	\$118,705
Interest Rate	5%			
Financed Period	5 years			
Average Fuel Cost	\$3.74/gal	\$0.17/kWh	\$8.00/kg	\$2.42/GGE
Average Fuel Economy	7.4 mpg	1.04 mi/kWh	14.1 mi/kg	6.3 mpg
Total Fuel Cost	\$104,349	\$33,472	\$171,398	\$110,629
Lifetime Maintenance Cost	\$49,138	\$36,853	\$49,138	\$54,898
Midlife Cost	\$0	\$0	\$32,237	\$0
Registration Fees	\$11,592	\$10,860	\$15,482	\$11,000
Residual Values	(\$10,477)	(\$5,239)	(\$2,619)	(\$10,477)
Total Other Cost	\$50,252	\$42,474	\$94,237	\$55,421
Total	\$243,306	\$248,171	\$596,603	\$340,176

²³ <https://nacfe.org/future-technology/medium-duty-electric-trucks-cost-of-ownership/>

²⁴ <https://nacfe.org/future-technology/medium-duty-electric-trucks-cost-of-ownership/>

Table 10. Base TCO data for Class 8 trucks²⁵

	Diesel	Battery Electric	Hydrogen Fuel Cell	Natural Gas NZE
Annual Miles	54,000	54,000	54,000	68,383
Operating Years	12	12	12	12
Energy Storage	-	510 kWh	10 kWh/10 kg	-
Total Capital Cost	\$167,500	\$593,662	\$786,486	\$192,710
Interest Rate	5%			12.5%
Financed Period	5 years			
Average Fuel Cost	\$3.74/gal	\$0.15/kWh	\$8.00/kg	\$2.92/DGE
Average Fuel Economy	5.9 mpg	0.48	11.2 mi/kg	5.1 mi/DGE
Total Fuel Cost	\$296,381	\$152,074	\$486,820	\$469,831
Lifetime Maintenance Cost	\$95,484	\$71,613	\$95,484	
Midlife Cost	\$0	\$42,949	\$94,023	
Registration Fees	\$27,545	\$21,472	\$26,548	
Residual Values	(\$15,453)	(\$7,727)	(\$3,863)	
Total Other Cost	\$107,576	\$128,308	\$212,192	
Total	\$571,456	\$874,044	\$1,485,498	\$624,925

Table 11. Summary of TCO Analyses from Literature Review

Truck Class	Ownership period	Annual Mileage	Diesel	Low-NOx CNG	Battery-Electric	Hydrogen Fuel Cell
Class 3	12	15,000	\$97,782		\$113,657	\$410,258
Class 4	12	15,000	\$124,229 ¹		\$177,345 ¹	
Class 6	12	24,000	\$243,306 ²	\$340,176	\$248,171 ²	\$596,603 ²
Class 8 (Ports Study)	12	68,383	\$598,122 ³	\$624,925 ³	\$1,063,000 ³	
Class 8 (CARB TCO)	12	54,000	\$571,456 ²		\$874,044 ²	\$1,485,498 ²

1. <https://nacfe.org/future-technology/medium-duty-electric-trucks-cost-of-ownership/>
2. <https://ww3.arb.ca.gov/regact/2019/act2019/apph.pdf>
3. <https://cleanairactionplan.org/documents/final-dravage-truck-feasibility-assessment.pdf/>

Using the reported annual mileages shown in Table 11, costs were calculated on a dollar per mile basis, as shown in Equation 2.

²⁵ <https://nacfe.org/future-technology/medium-duty-electric-trucks-cost-of-ownership/>

Equation [2]:

$$TCO \left(\frac{\$}{mi} \right) = \frac{TCO (\$)}{12 (yr) * Annual Mileage \left(\frac{mi}{yr} \right)}$$

Table 12. Total Cost of Ownership calculated as \$/mi

Truck Class	Diesel	Low-NOx CNG	Battery- Electric	Hydrogen Fuel Cell
Class 3	0.54		0.67	2.28
Class 4	0.69		0.99	
Class 6	0.84	1.18	0.86	2.07
Class 8 (Ports Study)	0.73	0.76	1.30	
Class 8 (CARB TCO)	0.88		1.35	2.29

SCAG's Heavy-Duty Truck Regional Travel Demand model provides an estimate of heavy-duty truck activities within South Coast Air Basin. TCO values on a dollar per trip basis are estimated using SCAG's VMT and trip rates in Table 13.

Table 13. Truck activity data from SCAG's Heavy-Duty Truck Regional Travel Demand Model

Truck Class	VMT (mi/day)	Trips (trip/day)	Mile/trip
Class 2b-3	7,456,000	488,000	15.3
Class 4-7	7,744,000	544,000	14.2
Class 8	12,060,000	302,000	39.9

Equation 3 below illustrates the method used to determine TCOs on a dollar per trip basis using the TCOs (\$/mi) in Table 12 and SCAG's mileage rates in Table 13, with results shown in Table 13.

$$TCO \left(\frac{\$}{trip} \right) = TCO \left(\frac{\$}{mi} \right) \times \frac{mi}{trip}$$

Table 14. Total Cost of Ownership (\$/trip)

Truck Class	Diesel	Low-NOx CNG	Battery- Electric	Hydrogen Fuel Cell
Class 3	8.31		10.28	34.96
Class 4	9.80		13.99	
Class 6	12.00	16.77	12.24	29.42
Class 8 (Ports Study)	29.08	30.39	51.69	
Class 8 (CARB TCO)	35.19		53.82	91.47

Although the TCO analyses above assume a 12-year useful life for a truck, motor carriers may require shorter periods over which they absorb the incrementally higher costs of ZE or NZE trucks compared to diesel. The analysis here therefore assumes that this incremental cost is absorbed over a 3-year period, instead of the full 12-year useful life. The incremental cost is therefore multiplied by four ($12 \div 3 = 4$) to determine the default cost for truck visits.

Table 15. Annualized Incremental Costs

Truck Class		Annualized Unitary Metric	Annualized Incremental Cost (\$/metric)
Class 8	NZE	365 truck visits**	$(\$30.39 - \$29.08) \times 4 \times 2 \times 365 = \$3,825$
Class 4-7*			$(\$16.77 - \$12.00) \times 4 \times 2 \times 365 = \$13,928$
Class 8	ZE		$(\$53.82 - \$35.19) \times 4 \times 2 \times 365 = \$54,400$
Class 4-7*			$(\$12.24 - \$12.00) \times 4 \times 2 \times 365 = \701
Class 2b-3			$(\$10.28 - \$8.31) \times 4 \times 2 \times 365 = \$5,752$

*In this analysis, Class 6 TCOs were used for the Class 4-7 category in the WAIRE Menu

** One visit equals two one-way trips

WAIRE Points for ZE/NZE Truck Visit Costs: Based on the costs presented in Table 15, the number of WAIRE Points earned for ZE Class 8, Class 4-7, and Class 2b-3 truck visits are 3, 1, and 1, respectively. One WAIRE Point is earned for both NZE Class 8 and Class 4-7 truck visits.

Total WAIRE Points for ZE/NZE Truck Visits: The total WAIRE Points for truck visits includes Points from the cost, regional emission reductions, and local emission reductions. In addition, because most of the emissions associated with warehouses comes from trucks visits, a multiplier of three is applied to the summed Points to encourage operators to choose this option, and to promote a more rapid return on investment for the purchase of ZE/NZE trucks. For example, for 365 class 8 ZE truck visits, a warehouse would earn: 8 Points for regional, 6 Points for Local, and 3 Points for cost, with a sub-total of 17 Points. The final total for this Menu item would be 51 Points (17×3).

SECTION 3) Electric Charger Usage and Installation

Description: ZE battery electric trucks require specialized charging infrastructure. Installing this infrastructure can require facility electrical upgrades, dedication of space for electrical equipment and vehicle parking, permitting with local authorities, and plans to optimize charger usage. The charging stations themselves range in size and are typically rated based on the amount of kW that can be dispensed. Higher powered charging stations (≥ 350 kW) are just now entering the market, and may require significant construction. On the usage side, the cost of the electricity can vary depending on the time of day when trucks are charged, the kW charging level, and the level of demand charges. Utilities are introducing new rate structures for the use of these stations to address this new market need. Trucks that would use charging infrastructure at a warehouse are likely to travel to destinations unrelated to the warehouse itself, and providing this infrastructure can facilitate greater usage of ZE trucks.

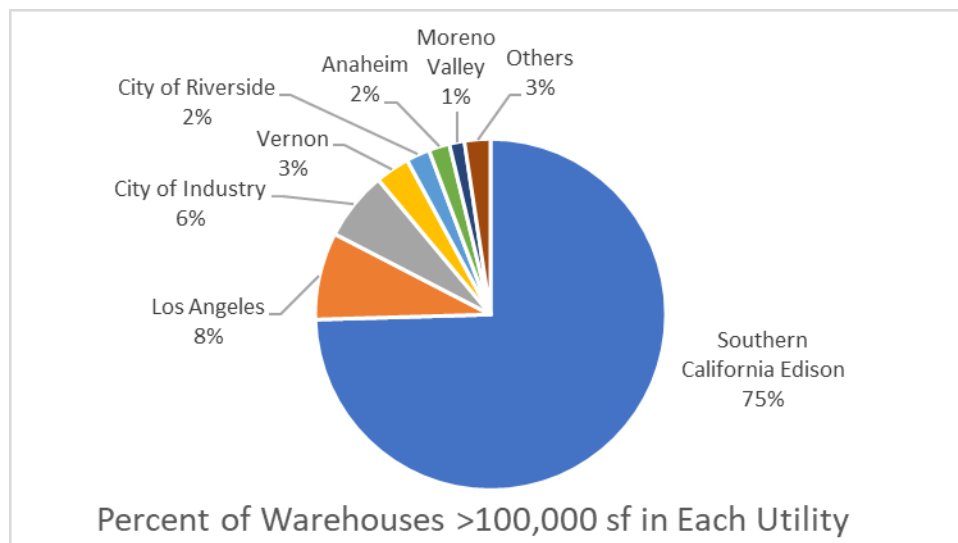
Commercial Availability: Several different manufacturers sell EVSE at a variety of power levels (e.g., Level 2, higher rate chargers, etc.), including with optional power management software that govern how trucks are charged. At the current early stage of commercialization and demonstration of electric trucks, the higher power chargers used for heavy duty vehicle charging have not yet followed a common standard, and proprietary charging systems are commonly tailored to each vehicle. This is expected to change in the near future with the development of a common High Power Charging for Commercial Vehicles standard by the CharIN²⁶ organization. In addition, local utilities and land use agencies are developing programs specifically focused on charging infrastructure upgrades. Notable examples include the Charge Ready Transport program from Southern California Edison (SCE)²⁷, the Commercial EV Charging Station Rebate Program from the Los Angeles Department of Water and Power (LADWP)²⁸, and permit streamlining efforts from many local permitting agencies²⁹. SCE and LADWP collectively provide power to $>80\%$ of warehouses that may be included in PR 2305 (see chart).

²⁶ <http://www.charinev.org/hpccv> - CharIN members include most major vehicle manufacturers as well as many major energy and charging infrastructure companies.

²⁷ <https://www.sce.com/business/electric-cars/charge-ready-transport>

²⁸ www.ladwp.com/ladwp/faces/ladwp/commercial/c-savemoney/c-sm-rebatesandprograms/c-sm-rp-commevstation

²⁹ <http://www.business.ca.gov/ZEVReadiness>



SECTION 3a) Charger Usage

Emissions: While charging infrastructure on its own does not reduce emissions, this equipment does facilitate emissions reductions by providing additional locations for electric vehicles to obtain power and making it possible for their increased use. However, similar to the calculations for truck acquisitions, regional emission WAIRE Points are earned at a \$100,000 per ton of NOx cost effectiveness level. Both regional and local emission reductions Points are earned when charging stations are used. The amount of regional NO_x emissions reductions is tied to the total amount of dispensed electricity, using default electric vehicle efficiencies and emission rates. The amount of local DPM emissions reductions is set equal to six miles of travel for every charging event³⁰. The Annualized Unitary Metric (AUM) is set at 165,000 kWh, equal to about 450 kWh per day, or enough for five separate two hour-long charging events per day on a 50 kW charger, or to recharge one truck with a 500 kWh battery.

The tables and equations below illustrate the methods used to determine Point values based on regional and local emissions reductions.

Table 16. Electric Vehicle Efficiencies³¹, Emission Rates³², and Emissions Reductions

Truck Category	Efficiency	Emission Rate		Emissions Reductions	
	mile/kWh	NO _x g/mile	DPM g/mile	lb NO _x /kWh	lb DPM/kWh
Class 4-5	1.26	1.08	0.007	0.003	0.00002
Class 6-7	0.8	1.08	0.007	0.002	0.00001
Class 8	0.62	2.37	0.02	0.003	0.00003

³¹ CARB Advanced Clean Truck – Draft Standardized Regulatory Impact Assessment (SRIA), 8/8/2019 <https://ww3.arb.ca.gov/regact/2019/act2019/appc.pdf>

³² <https://www.arb.ca.gov/emfac/2017/>, emission rates are from calendar year 2023

Equation [4]: NOx reductions = (mile/kWh) × (g/mile) × 165,000 kWh/yr ÷ 453.59 (g/lb)

Equation 1 (Class 4-5): $1.26 \times 1.08 \times 165,000 \div 453.59 = 495 \text{ lb NOx}$
 Equation 1 (Class 6-7): $0.8 \times 1.08 \times 165,000 \div 453.59 = 314 \text{ lb NOx}$
 Equation 1 (Class 8): $0.62 \times 2.37 \times 165,000 \div 453.59 = 535 \text{ lb NOx}$

Equation [5]: DPM reductions = (mile/kWh) × (g/mile) × 165,000 kWh/yr ÷ 453.59 (g/lb)

Equation 2 (Class 4-5): $1.26 \times 0.007 \times 165,000 \div 453.59 = 3.2 \text{ lb DPM}$
 Equation 2 (Class 6-7): $0.8 \times 0.007 \times 165,000 \div 453.59 = 2.0 \text{ lb DPM}$
 Equation 2 (Class 8): $0.62 \times 0.02 \times 165,000 \div 453.59 = 4.5 \text{ lb DPM}$

WAIRE Points from Charging Station Usage Emission Reductions: Emission reductions vary for each class of truck. For the WAIRE Menu, the regional and local emission reductions from class 8 trucks are used. Regional emission reductions therefore result in 22 WAIRE Points, while local emission reductions result in 18 WAIRE Points.

Costs of Using Charging Stations: Over the past year staff worked closely with multiple utilities to understand their new commercial EV charging rate structures and developed estimates of the average cost of electricity per kWh. As noted above, about three quarters of all warehouses potentially subject to the rule are located within SCE's jurisdiction. For this analysis, multiple scenarios were evaluated for a five concurrent two hour long charging events per day on a 50 kW chargers. Table 17 reflects the expected charging rate and the average electricity rate for two most appropriate SCE rate schedule for heavy-duty EV charging. The average cost assumes an equal amount of charging in each time window.

Table 17. Annual Average Cost of Electricity* – Two Key SCE Rate Schedules for Charging Stations South Coast AQMD Staff Analysis

Charging Window	SCE TOU-EV-9	SCE TOU-8-RTP
	\$/kWh *	\$/kWh **
On-Peak	0.34	0.28
Mid-peak	0.16	0.25
Off-peak	0.14	0.23

* Demand charges and voltage discount are zero for TOU-EV-9

**Demand charges contributes to 40% of total annual electricity cost – Voltage discount included

***These costs do not account for any LCFS revenue that a facility may receive. The LCFS value may vary depending on market conditions but can be more than \$0.10/kWh.³³

In LADWP jurisdiction the electricity rate can range between \$0.11-0.3 \$/kWh for charging heavy-duty vehicles depending on load factor, daily charging hours, and charging capacity. The provided range by LADWP staff is consistent with the rates provided in Table 5.

Using the \$0.21 \$/kWh rate above, and AUM of 165,000 kWh per year for a charging station, the total annual cost of electricity for the warehouse is \$34,650, equal to two WAIRE Points.

³³ <https://ww3.arb.ca.gov/regact/2019/act2019/appc.pdf>

SECTION 3b) Charger Installation

Costs to Install Charging Stations: Charging infrastructure costs can vary greatly from site to site. The analysis presented here was informed by staff discussions with charger providers, utilities, other industry stakeholders, data from current South Coast AQMD funded projects, and multiple studies (referenced below). Table 18 presents a summary of the range of costs for purchasing and installing different EVSEs.

Electrification projects require site-specific planning and sometimes can take more than one year to implement. Because of this potentially extended period, the charging infrastructure installation WAIRE Menu item includes project milestones to allow warehouses to earn Points for partial completion of charger installation during a compliance year. Three milestones that are common to all charging station projects include purchasing the Electric Vehicle Supply Equipment (EVSE), construction mobilization, and final permit sign off & charger energization. In order to account for splitting charger installations into two separate milestones, it is assumed that the construction mobilization milestone will require up to \$10,000 of the total installation cost, and the remaining cost is incurred during construction and prior to final permit sign-off.

Table 18. Charging Infrastructure Installation Cost Ranges, and Key Incentives/Rebates Programs

Charging Installation Activity	Charger Ranges	Cost Range ^{A-D}
		\$ per charger
EVSE Purchase	150-350 kW	60,000 – 140,000
	51-149 kW	30,000 – 60,000
	19.2-50 kW	10,000 – 30,000
	Up to 19.2 kW	3,000 – 5,000
Charger Installation ¹	19.2-350 kW	10,000 – 80,000
	Level 2	5,000 – 10,000

Notes:

1. Installation cost for one charger includes electrical service extension, permitting, labor costs, and trenching to lay cables

References:

- A. Charging the Future: Challenges and Opportunities for Electric Vehicle Adoption, Henry Lee and Alex Clark, August 2018
- B. Estimating Electric Vehicle Charging Infrastructure Costs across Major U.S. Metropolitan Areas. Michael Nicolas, August 2019
- C. Rocky Mountain Institute Report, <https://www.greenbiz.com/blog/2014/05/07/rmi-whats-true-cost-ev-charging-stations>, 2019
- D. CARB Advanced Clean Truck - Standardized Regulatory Impact Assessment (SRIA), August 2019

WAIRE Points from Charging Station Installations: Table 19 below summarizes the Points that a warehouse would earn for purchasing an EVSE and installing it. Similar to truck acquisitions, regional emission Points are assigned at a \$100,000 per ton of NOx cost effectiveness.

Table 19. Summary of WAIRE Points Earned for Installing Charging Infrastructure

Charger Installation Activity	Cost Points	Regional Emissions Points	Total WAIRE Points
1 EVSE Purchased	6	112	118
	3	48	51
	2	24	26
	1	4	5
1 construction project/ Construction Mobilization	1	8	9
	1	48	5
1 construction project/ Final Permit Sign Off & Charger Energization	3	56	59
	1	48	59

SECTION 4) Hydrogen Fueling Station Installation and Usage

Description: Hydrogen refueling stations (HRS) are used to supply fuel to vehicles with hydrogen fuel cell drivetrains. An HRS is composed of storage and dispensing units and can sometimes include a production unit if the hydrogen is produced on site. If the hydrogen is produced on site or delivered to the station at an intermediary pressure or in liquid state, intermediary storage is also needed along with a compression system.

Commercial Availability: While construction of hydrogen fueling stations has been increasing, with 43 now operating in the state³⁴, they are primarily focused on the light duty vehicle market, or in some cases for transit buses. However, some Class 8 truck manufacturers are actively pursuing the development and commercialization of hydrogen fuel cell trucks over the next few years, including Toyota, Kenworth, Hyundai, and Nikola. Fueling infrastructure will be a critical component to facilitate these new ZE trucks.

Hydrogen Station Installation Costs: Hydrogen prices are influenced by the cost of production, distribution, and sales, among other factors. In addition to AB 8 and CARB's Scoping Plan, the recently-updated Low Carbon Fuel Standard, Executive Orders B-16-2012 and B-48-18 provide strong policy drivers for accelerating commercialization of fuel cell vehicles and their associated hydrogen fuel station network.

Table 20 below presents a summary of costs associated with developing a hydrogen fueling station from literature review and discussion with stakeholders. In this context, total capital cost includes site design and engineering, permitting, equipment, project management, and labor costs.

³⁴ www.veloz.org

Table 20. Hydrogen Fueling Station Costs

	Capacity (kg/day)	Cost (\$)	\$/Capacity (\$/kg/day)	Source
			5000-10,000	CARB Total Cost of ownership Discussion Documents ³⁵
Gaseous H2 LDV fueling system at 700 bar	250	1,725,000	6,900	Moyer Granted Project for Sunline Transit- EPC Design
Gaseous H2 Station- 700 bar Cascade dispensing	700	3,065,724	4,380	Argonne National Lab Heavy Duty Refueling Model, (2016 Dollar) ³⁶
Gaseous H2 Station- 700 bar Booster compressor	700	3,140,211	4,486	
Gaseous H2 Station- 350 bar Cascade dispensing	700	2,029,488	2,899	
Liquid H2 Station- 700 bar via vaporization/compression	700	2,421,134	3,459	Argonne National Lab Heavy Duty Refueling Station Model, (2016 Dollars) ²
Liquid H2 Station- 350 bar via vaporization/compression	700	1,430,748	2,044	
Liquid H2 Station- 700 bar via LH2 pump/vaporization	700	1,541,243	2,202	
Liquid H2 Station- 350 bar via LH2 pump/vaporization	700	1,145,634	1,637	
Onsite H2 Production	7257.5	16,500,000	2,274	Industry stakeholder input
Onsite H2 Production	600	5,000,000	8,333	Industry stakeholder input

WAIRE Points for Hydrogen Station Installation: For the WAIRE Menu an onsite hydrogen fueling station with a capacity of 700kg/day with delivered hydrogen was assumed to cost \$2 million. This would yield 80 WAIRE Points. At a cost effectiveness of \$100,000 per ton of NOx, an additional 1600 Points are earned for regional emissions.

Emission Reductions from Hydrogen Usage: Annualized regional NOx emission reductions and local DPM emission reductions were set to be same as the reductions achieved by usage of onsite electric charger stations at 535 lb NOx/yr and 4.5 lb DPM/yr. Details of the calculation can be found in Section 3 of this report.

Hydrogen Fuel Costs: To determine the annualized unitary metric (AUM) for dispensed hydrogen, a back calculation was conducted based on the amount of regional NOx emissions:

Equation [6]:

$$\begin{aligned}
 \text{Total kg of Dispensed } H_2 &= 535 \left(\frac{lb}{yr} \right) \times 453.59 \left(\frac{gr}{lb} \right) \times \frac{1}{2.372 \left(\frac{g}{mi} \right) \times 16.63 \left(\frac{mi}{kg H_2} \right)} \\
 &= 6,152 \frac{kg}{yr}
 \end{aligned}$$

Where, 2.372 (g/mi) is the VMT weighted average of NOx running exhaust emission rate of Class 8 trucks considered in this analysis including T7 CAIRP, T7 NNOOS, T7 NOOS, T7 POLA and

³⁵ <https://ww3.arb.ca.gov/regact/2019/act2019/apph.pdf>

³⁶ <https://hdsam.es.anl.gov/index.php?content=hdrsam>

T7 Tractor. 16.63 (mi/kg) is the reported fuel economy for a class 8 fuel cell truck³⁷. Given the total kg of dispensed hydrogen calculated above and a retail price of \$10/kg, the annual cost will be \$61,520.

WAIRE Points for Dispensed Hydrogen: Based on the emission reductions stated above, 22 and 18 Points are earned respectively for regional NOx and local DPM. Cost Points would contribute another 3 Points, for a total of 43 Points for 6,152 kg of H₂ dispensed.

³⁷ <https://ww3.arb.ca.gov/regact/2019/act2019/appc.pdf>

SECTION 5) Zero Emissions Yard Truck Acquisition and Usage

Description: Yard trucks (also called yard tractors, terminal trucks, hostlers, yard jockeys, or yard goats) move trailers and containers around warehouse facilities. Most yard trucks at warehouse facilities are diesel fueled and emit NO_x, DPM, and other pollutants. Duty cycles for yard trucks vary depending on use, with heavier use at railyards and port facilities and lighter use typically at warehouses and manufacturing plants, as defined by hours of use and diesel consumption rates. CARB has limited population data for about 1,100 yard tractors operating statewide through its DOORS reporting program for off-road vehicles, but it is unclear how many of these operate at warehouses in South Coast AQMD. In addition, many yard tractors can be on-road vehicles, which are not required to be reported through the DOORS system. For example, about two thirds of the roughly 1,600 yard tractors at the ports of Los Angeles and Long Beach are on-road vehicles.

Commercial Availability: Many battery-electric yard tractor demonstration projects have taken place in the past several years, including in the South Coast AQMD. Following these efforts, multiple manufacturers have begun offering battery-electric ZE yard trucks for sale commercially including OrangeEV, Kalmar Ottawa, and BYD.

Operation: Operation of yard trucks can be tracked by hours of use, with hourly usage varying from <1,000 hours/year up to 6,000 hours/year. The diesel reductions were calculated by using the horse power, hours of use, the load factor, and the pollutant emission factor.

SECTION 5a) ZE Yard Truck Acquisition

WAIRE Points from ZE Yard Truck Acquisition: ZE yard trucks currently cost about \$310,000 while their diesel equivalent costs about \$100,000³⁸. This incremental cost of \$210,000 would earn nine WAIRE Points per ZE yard truck purchased. Similar to the methods used for on-road truck acquisitions, at \$100,000 per ton cost effectiveness, a ZE yard truck acquisition would earn 168 Points for regional emission reductions.

SECTION 5b) ZE Yard Truck Usage

Emissions: From the DOORS data, the most common yard trucks operate a 175 hp, Tier 3 engine. Table 21 below shows the emission factors from the Carl Moyer Guidelines³⁹ for this type of yard truck. Assuming that this type of yard truck operates 1,000 hours per year, and has operated for ten years, the emission reductions from switching to a ZE yard truck are shown in Equation 7 below.

Table 21. Emission Factors for a Tier 3 Yard Truck

Pollutant	Emission Factor (EF) g/hp-hr	Deterioration Rate (DR) g/hp-hr-hr	Load Factor (LF)
NO _x	2.32	0.00003	0.39
DPM	0.088	0.000044	

³⁸ <https://cleanairactionplan.org/documents/final-cargo-handling-equipment-che-feasibility-assessment.pdf/>

³⁹ <https://ww3.arb.ca.gov/msprog/moyer/guidelines/current.htm>

Equation [7]

$$\text{Emissions} = (hp) \times (LF) \times [((\text{total hrs of use}) \times (DR)) + (EF)] \times (\text{hrs of use}) \div 453.59 \left(\frac{g}{lb}\right)$$

$$\text{Equation 7 NOx: } 175 \times 0.39 \times [((10 \times 1,000) \times 0.00003) + 2.32] \times 1,000 \div 453.59 = 394 \text{ lbs}$$

$$\text{Equation 7 DPM: } 175 \times 0.39 \times [((10 \times 1,000) \times 0.0000044) + 0.088] \times 1,000 \div 453.59 = 19.9 \text{ lbs}$$

Costs: Although purchase prices for ZE yard trucks are higher than their diesel equivalent, once purchased the operational costs are expected to be lower. An analysis by the ports of Long Beach and Los Angeles evaluated the Total Cost of Ownership (TCO) for battery-electric ZE yard trucks in comparison to diesel⁴⁰. This analysis found a TCO for ZE yard trucks to be about \$450,000 (not including infrastructure costs) while equivalent diesel had a TCO of about \$375,000. Assuming a ~12,000 useful life of a yard truck, the annual incremental cost of operating a ZE yard truck for 1,000 hours is shown in Equation 8.

$$\text{Equation [8]: } (\$450,000 - \$375,000) \times 1,000 \text{ hrs} \div 12,000 \text{ hrs} = \$6,250$$

WAIRE Points from Using ZE Yard Trucks: Following the results from Equation 6, using a ZE yard truck would earn 16 Points for regional emission reductions and 80 Points for local emission reductions. One cost Point would be earned following the results of Equation 7. Similar to the approach for on-road truck visits, a multiplier of three is applied to the sum of cost, regional, and local Points. Therefore the total Points for 1,000 hours of ZE yard truck usage is: $(16 + 80 + 1) \times 3 = 291$ Points.

⁴⁰<https://cleanairactionplan.org/documents/final-cargo-handling-equipment-che-feasibility-assessment.pdf/>

SECTION 6) Transport Refrigeration Unit Plug (TRU) Acquisition and Usage

Description:

TRUs are truck or trailer installed refrigeration systems used at cold storage and distribution center warehouses to transport and temporarily store perishable goods and products. Most of the 7,400 truck and 166,000 trailer TRUs that operate in California are powered by diesel-fueled internal combustion engines (ICEs)⁴¹ which emit about 5.5 tons of NO_x and 0.2 tons of diesel particulate matter (DPM) daily⁴². Newer TRU technology allow zero emission operations by plugging hybrid and battery electric models into TRU charging infrastructure at warehouses and other destinations. CARB is currently developing a new truck TRU regulation as well as a separate trailer TRU regulation which, among other requirements, could mandate:

- installation of charging infrastructure, and
- truck TRU fleets to annually turn over a portion of their fleet to full ZE technology.

WAIRE Points may only be earned for actions beyond any adopted rules and regulations from U.S. EPA, CARB, or South Coast AQMD. If CARB's previously proposed truck TRU regulation is adopted in the coming years,⁴³ WAIRE Points could only be earned for the installation of TRU plug infrastructure and TRU plug usage beyond CARB requirements, or potentially through a Custom WAIRE Plan thereafter that would demonstrate how actions taken go beyond CARB rules.

Commercial Availability:

Current zero emission operation capable TRUs are: plug-in and hybrid (eTRU); battery-electric; cryogenic; and hydrogen fuel cell. All except the hydrogen fuel cell technologies are commercially available, and are offered for sale commercially by such manufacturers as Advanced Energy Machines, Air Liquide, Boreas, Carrier, Electric Reefer Solutions, and Thermo King. Additionally, there are manufacturers and firms that focus solely on the electric plug-in infrastructure such CleanFutures and Shorepower Technologies⁴⁴.

Operation: Electric zero emission trailer TRUs and truck TRUs operate using an onboard battery, or via power from the electrical grid if they are plugged into a charger. Hybrid trailer TRUs may operate via a diesel engine when in transit, and in zero emissions mode while plugged into a charger. Charger operators may claim LCFS credits for the electricity dispensed for TRUs, potentially at a level that fully offsets the cost of electricity.⁴⁵ Charger operators are therefore expected to track the total amount of kWh of charger usage for TRUs when they obtain LCFS credits. Plug usage can be tracked by hours of use, 1,460 hours of annual usage or approximately 4 hours per day of TRU plug usage was determined from the 2023 baseline of the TRU ATCM. The 4 hour average use is attributed to truck dwell time at warehouses or delivery destinations.

⁴¹ <https://ww2.arb.ca.gov/sites/default/files/classic/cc/cold-storage/documents/slidesworkshop82019.pdf>

⁴² <https://ww2.arb.ca.gov/resources/documents/2020-mobile-source-strategy>

⁴³ CARB has proposed bifurcating the TRU regulation, with rulemaking in 2021 focusing on TRU trucks, and new emission standards, and later rulemaking focusing on ZE trailers.

⁴⁴ https://ww2.arb.ca.gov/sites/default/files/classic/cc/cold-storage/documents/clean_tru_technology_webinar_slides_handout.pdf

⁴⁵ <https://ww2.arb.ca.gov/sites/default/files/2020-08/Preliminary%20TRU%20Cost%20Doc%20082020.pdf>

Diesel emission reductions were be calculated by using the horse power, annual hours of use, the load factor, and the pollutant emission factor⁴⁶.

SECTION 6a) TRU Plug Acquisition and Installation

WAIRE Points from TRU Plug Acquisition and Installation: A TRU plug installation costs approximately \$13,600 which includes a Level 2 charger, equipment, design, construction, and installation costs⁴⁷. Using a similar methodology as is described for installing chargers for vehicles in this document, acquisition and installation of a single TRU plug could earn a total of 15 WAIRE Points, with 1 Point for each TRU plug purchased, beginning construction, and receiving final permit sign-off/charger energization. Similar to truck acquisitions, regional emission Points are assigned at a \$100,000 per ton of NOx cost effectiveness, resulting in an additional 12 Points.

SECTION 6b) TRU Plug Usage

Emissions: The 2023 calendar year weighted average emission factors for the South Coast AQMD was used in Equation 1, to calculate the default annual NOx and DPM emission reductions from trailer and truck eTRUs plugging in. The AUM is set at 10,658 kWh, equal to an eTRU plugged in 4 hours per day for 365 days and drawing 7.3 kW of power.⁴⁸

Equation [1]

$$\text{Emissions} = (\text{annual hours of use}) \times (\text{Pollutant Emission factor}) \div 453.59 \left(\frac{g}{lb}\right)$$

Equation 1 NOx: $1,460 \times 12.60 \div 453.59 = 40.6 \text{ lbs}$

Equation 1 DPM: $1,460 \times 0.53 \div 453.59 = 1.7 \text{ lbs}$

Costs: Using the AUM of 10,658 kWh, and the \$0.18/kWh rate for electricity calculated for charging station usage in this document (and not considering any potential offset from LCFS credits), the average annual cost to operate a TRU plug is shown in Equation 2.

Equation [2]: $(\$0.21 / \text{kWh}) \times 10,658 \text{ kWh} = \$2,238.18$

WAIRE Points from Using ZE TRUs: Following the results from Equation 1, using a TRU plug would earn 2 Points for regional emission reductions and 7 Points for local emission reductions. One cost Point would be earned following the results of Equation 2. Similar to the approach for other WAIRE action usage or visits, for replacing diesel-fueled equipment/vehicles, a multiplier of three is applied to the sum of cost, regional, and local Points. Therefore, the total Points for 10,658 kWh from TRU charging is: $(2 + 7 + 1) = 10 \text{ Points}$.

⁴⁶ https://ww2.arb.ca.gov/sites/default/files/classic/cc/cold-storage/documents/tru_healthanalysisslidesworkshop10312019.pdf

⁴⁷ <https://ww2.arb.ca.gov/sites/default/files/2020-08/Preliminary%20TRU%20Cost%20Doc%2008202020.pdf>

⁴⁸ <https://ww2.arb.ca.gov/sites/default/files/2020-08/Preliminary%20TRU%20Cost%20Doc%2008202020.pdf>

SECTION 7) Solar Panel System Acquisition and Usage

Description:

Solar panel systems are electric energy generation systems that are composed of the solar panels which collect and convert solar radiation to direct current (DC) power, the racking system which mount the panels and equipment to a rooftop or carport, and the inverter which convert the DC power to alternating current (AC) power. The installations of solar panel systems on warehouse rooftops and carports is an increasing trend which provide renewable power for both warehouse usage and for sale back to the grid. Many commercial buildings with significant rooftop or parking area spaces are incorporating solar panel systems into their operations for financial savings. California is leading the nation with over 600,000 commercial buildings being equipped with solar panel systems, with a solar market penetration of about 2.5%⁴⁹. In the last several years, there have been many technology advancements in solar panels that have made them lighter, more efficient, and more flexible which allows for them to be installed in more applications that have led to a decrease in overall installation costs.

Commercial Availability:

Solar panel systems have wide commercially available throughout California with hundreds of manufacturers and installers who offer a range options for system sizes and component configurations.

Operation:

To analyze the installation and use of solar panel systems, the median solar panel system size was set at 100 kW based on a literature review of Lawrence Berkeley National Laboratory's (LBNL) annual Tracking the Sun Report⁵⁰. The 100 kW solar system parameter was inputted into the National Renewable Energy Laboratory's (NREL) PVWatts⁵¹ calculator specifying a region in the South Coast AQMD jurisdiction which resulted in an annual estimated electrical generation of 165,000 kWh. The 100 kW solar panel system and the 165,000 kWh estimated electrical generation serve as the annual unitary metric (AUM) for solar panel system installation and usage, respectively.

SECTION 7a) Solar Panel System Acquisition and Installation

WAIRE Points from Solar Panel System Acquisition and Installation: Based on LBNL's Tracking the Sun study⁵² the price per kW for a rooftop solar panel system was \$2.60 per kW and a carport solar panel system was estimated to cost \$3.74⁵³. Carport solar panel systems have higher costs due to structural costs to elevate the solar panels to provide the carport or truck shade structure. WAIRE Points are calculated based on the total cost of the installation of the 100 kW solar panel system. Applying the \$2.60 per Watt costs for rooftop installation for the 100 kW solar panel system results in a total acquisition and installation cost of \$260,000. For carport solar panel system installation, the \$3.74 per Watt for carport solar panel system installation for the 100 kW

⁴⁹ <https://emp.lbl.gov/webinar/commercial-rooftop-solar-energy-market>

⁵⁰ <https://emp.lbl.gov/tracking-the-sun>

⁵¹ <https://pvwatts.nrel.gov/>

⁵² https://eta-publications.lbl.gov/sites/default/files/tracking_the_sun_2018_briefing.pdf

⁵³ Based on a confidential data obtained from industry source that requested non-attribution.

solar panel system which results in a total acquisition and installation cost of \$374,000. Using a similar methodology as is described for installing chargers for vehicles in this document, acquisition and installation of a rooftop solar panel system could earn 15 WAIRE Points for a 100 kW rooftop solar panel system, and 19 WAIRE Points for a 100 kW carport solar panel systems.

SECTION 7b) Solar Panel System Usage

Emissions: Using emissions data from local power plants which potentially provide power to warehouses within the South Coast AQMD jurisdiction, a peak rate NOx emission factor of 0.087 lbs/MWh was calculated⁵⁴. The combustion of natural gas at the local power plants do not generate DPM so only NOx is considered in this analysis. The calculated NOx emission factor is used with the AUM of the estimated generation of 165,000 kWh for a 100 kW solar panel system installed on a structure in the South Coast AQMD jurisdiction. Equation 1 shows the calculated the default annual NOx emission reductions from solar panel system usage.

Equation [1]

Emissions = (Power Plant NOx Emission Factor lbs/MWh) × (Total Estimated KWh generated)/1,000

Equation 1 NOx: $0.087 \times 165,000 \div 1,000 = 14.3$ lbs

Costs: No cost is considered for the operation of the solar panel system. After the initial installation costs, the minimal maintenance costs are negligible considering the cost saving from solar electric power generation in comparison to purchasing grid power.

WAIRE Points from Solar Panel System Usage: Following the results from Equation 1, using a solar panel system would earn 1 Point for regional emission reductions. There are no cost or local benefit WAIRE Points contributions.

⁵⁴ Power plant emission calculations were derived from CEMS, eGRID, and EIA data to calculate for the South Coast AQMD jurisdiction

SECTION 8) Installation of Air Filter Systems or Air Filters in Community Facilities**Description:**

The installation of air filter systems or the installation/replacement of air filters is provided on the WAIRE Menu to provide a community benefit in reducing exposure for the communities near warehouses. Air filters have been shown to successfully remove black carbon (BC) and particulate matter (PM) which include ultrafine particles (UFP) (particles with a diameter < 0.1µm), diesel particulate matter (DPM), PM2.5 (particles with a diameter < 2.5µm), and PM10 (particles with a diameter < 10µm) of outdoor particles formed from the combustion of fossil fuels that permeate into the indoors.⁵⁵ Exposure to PM contaminants may lead to potential health hazards such as asthma, lung inflammation allergies, and other respiratory or cardiovascular problems⁵⁶. DPM is an air toxin and classified human carcinogen which account for more than 80% of the total cancer risk from air toxics in the south coast air basin (SCAB)⁵⁷. Air filters can be integrated to a heating, ventilation, and air conditioning (HVAC) system or standalone, where the use of high-performance panel filters (HP-PF) resulted in up to 90% removal of UFP, DPM, PM2.5, and PM10, where HP-PF used were minimum efficiency reporting value 16 (MERV 16) filters⁵⁸. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers defines MERV 16 as filters used for HVAC units that remove at least 95% of particles 0.3 microns or larger.

Commercial Availability:

Air filter systems and air filters have wide commercially available throughout California with numerous manufacturers and installers who offer a range options for system sizes and air filter types.

Operation:

Air filters can be installed on existing HVAC units or as standalone units at residences, schools, daycares, hospitals, community centers, and other community locations. The integration of air filters with HVAC units does lead to a decrease in the HVAC pressure as caused by the increased resistance of the filters that captures particles. In time the air filter media becomes saturated with particles leading to further HVAC pressure decreases and decreased particle capture efficiency. For standalone systems that uses its own fan the energy demand to operate at top speed is 100 watts/hr or about 5 kWh for 10 hours of operation for a 5 day week⁵⁹. General service maintenance on the air filters involves replacement, on a set interval period or depending on the activity at the location the filters are installed.

⁵⁵ Polidori A, Fine PM, White V, Kwon PS. Pilot study of high-performance air filtration for classroom applications. *Indoor Air*. 2013

⁵⁶ Liu, L., Poon, R., Chen, L., Frescura, A.M., Montuschi, P., Ciabattini, G., Wheeler, A. and Dales, R. (2009) Acute Effects of Air Pollution on Pulmonary Function, Airway Inflammation, and Oxidative Stress in Asthmatic Children, *Environ. Health Perspect.*, 117, 668–674.

⁵⁷ MATES III Study; South Coast Air Quality Management District, 2008

⁵⁸ Polidori A, Fine PM, White V, Kwon PS. Pilot study of high-performance air filtration for classroom applications. *Indoor Air*. 2013

⁵⁹ Energy draw is based on a vendor estimate for a school installation (Email dated October 11, 2019 to Victor Juan)

WAIRE Points from Air Filter or Air Filter System Installation:

With the emission reductions from the installation of air filter systems or the replacement of air filters being much less than the emission reductions associated with truck purchase, the regional WAIRE Points are related the cost effort considering the same cost effectiveness. The annual metric for the number of air filter systems with MERV 16 air filters installed is 25 systems, and the annual metric for the replacement of air filters is 200 MERV 16 air filters. With the annual metrics and the estimated emission reduction, the installation of 25 air filter systems with MERV 16 air filters equates to 55 WAIRE Points, and the installation/replacement of 200 MERV 16 air filters equates to 51 WAIRE Points.

Costs: The costs for air filter systems with MERV 16 air filters were obtained from vendors and contractors that South Coast AQMD has worked with to install air filter systems and air filters at schools and other facilities as part of mitigation and settlement projects. The estimated costs analyzed for the installation of 25 air filter systems with MERV 16 air filters is \$65,000 and cost for the replacement/installation of 200 MERV 16 air filters is \$60,000. Using the \$0.21 \$/kWh electricity rate that is used in other WAIRE Menu actions and assuming 10 hours of use each day for 365 days, the estimated electricity costs for a standalone air filter system for 365 kWh would be \$76.65.

Appendix C: WAREHOUSE POPULATION METHODOLOGY

The analysis of the population of warehouses subject to PR 2305 was compiled between February 2020 – October 2020. Sources for this population of PR 2305 warehouses include the datasets of: CoStar; Dun & Bradstreet (DNB); Fleetseek; InfoUSA; and Leonard’s List, as well as a visual review with Google Maps. CoStar was the primary dataset used to compile the population of PR 2305 warehouses;¹ this CoStar dataset was cross-referenced against the other datasets listed above, which offered additional warehouse information.

The population of PR 2305 warehouses described in this methodology is a snapshot in time, and is expected to update over time to adjust to changes such as warehouse operators moving in and out of warehouse facilities, operational changes, new warehouses construction, etc. Reporting requirements from PR 2305 will provide more detailed information about warehouse properties, operations, and their characteristics upon the adoption of PR 2305. Although there may be some differences between the statistics determined here and actual warehouse operations at every site, the analysis presented below is believed to provide a representative portrayal of the operators subject to PR 2305 and PR 316. The reporting requirements within PR 2305 will ensure that information used to ensure compliance is up to date and more accurate than can be provided from solely relying on third party commercial data products. The list of warehouses potentially subject to PR 2305 and PR 316 are included in the table following this methodology write-up. This list should not be considered exhaustive, as there may be a small number of additional warehouses that are subject to the requirements of PR 2305 that were not identified in this rulemaking analysis.

Total Population (3,320 warehouses are anticipated to submit a Warehouse Operations Notification Report)

CoStar is a subscription online database for commercial real estate information. According to CoStar data, the total number of industrial facilities potentially covered by PR 2305 could be up to 52,000 facilities, though the actual number that would be classified as warehouses is unclear. CoStar allows the user to utilize a search function to find properties, either through their “Property” search database or their “Tenant” search database. The dataset was exported from CoStar using the “Property” search. CoStar’s search function utilizes filters to help find properties or tenants with specific characteristics. The CoStar filters used to define the characteristics of warehouse facilities applicable to PR 2305’s warehouse inventory are: “Property Type” (industrial and flex), “Building Status” (existing and under renovation), Rentable Building Area, or “RBA” (greater than or equal to 100,000 square feet), “Secondary Type” (distribution, light distribution, light manufacturing, manufacturing, refrigeration/cold storage, truck terminal, and warehouse), and “Market Name” (Inland Empire (California), Orange County (California), and Los Angeles). The submarkets of Mojave River Valley, San Bernardino Outlying, Antelope Valley Industrial, East Los Angeles County Outlying Industrial, and North East Los Angeles County Outlying Industrial were excluded from the property search as they fall outside of South Coast AQMD’s jurisdiction.

¹ All CoStar data contained herein speaks only as of the date referenced, may have materially changed since such date, and was provided “as is” with no guarantee or warranty of any kind. CoStar has no obligation to update or verify any of the CoStar data contained herein. None of the CoStar data contained herein should be construed as investment, tax, accounting or legal advice from CoStar.

Tenants

The CoStar Tenant dataset was exported from CoStar using the “Tenant” search. This dataset was exported to assist in identifying operators at the 3,320 warehouses applicable to PR 2305. Filters used from CoStar to define the characteristics are the same as those selected for the “Property” search, as described above, for consistency. To the extent possible, the Tenant and Property datasets were cross-referenced with each other via the property address. Due to discrepancies and missing information (data provided in CoStar is based on reporting from brokers and researchers), not all the data from these two datasets were able to be matched.

Warehouse Operator Names

The warehouse operators for the 3,320 warehouses were derived from several data sources as each dataset provides different information on tenants, owners, businesses, and companies that differ in definition:

- “Owner Name”, “Property ID”, “Property Address”, “Property Name”, “Company Name”, “City”, and “Zip” from CoStar.
- “Company” from InfoUSA. This dataset is cross-referenced using property addresses.
- “Business Name” from DNB. This dataset is cross-referenced using property addresses.
- “Company” from Leonard’s List. This dataset is cross-referenced using property addresses.

Datasets were refined using the criteria below:

1. If CoStar had data for a property tenant, this was considered to be the correct operator name.
2. If CoStar did not have data for a property, multiple matches between InfoUSA, DNB, and Leonard’s List would be considered the correct operator name.
3. Absent CoStar property tenant data, and no matching data as described in step 2., InfoUSA, DNB, and Leonard’s List were considered the correct operator name in that order of priority.
4. CoStar “Owner Name” was considered the correct operator name if the above steps did not result in an operator.
5. If steps 1-4 did not yield an operator name, or yielded an operator name that appeared to not be a name for a company that would engage in warehousing activities (such as the name of a church), Staff used Google Maps to do a visual verification using Google Maps’ street view to determine an operator name by searching for signage with the operator name on the addressed property or building. If the Google Maps visual verification showed that the property was not for warehouse use (through the name of the property operator or the nature of the property itself, or was a vacant lot), this was considered a potentially inapplicable property for earning WAIRE Points and likely only subject to PR 2305 reporting.

Note that because this dataset was created in order to identify the single most correct operator for each warehouse, this process results in one warehouse operator identified per warehouse. Some warehouses may have multiple operators; identifying warehouses with multiple operators is discussed below.

Facilities Potentially Only Subject to Reporting Under PR 2305 (418 facilities from the total population of 3,320 warehouses)

247 facilities are expected to only need to satisfy PR 2305 reporting requirements because these facilities have less than 100,000 square feet of warehouse space in a single building after excluding CoStar-reported office space. An additional 171 facilities potentially may only be subject to reporting requirements in PR 2305 as visual review with Google Maps indicated that they may not conduct warehousing activities. For example, some facilities were considered inapplicable if they appeared to be mostly used for manufacturing, and unlikely to have 100,000 square feet dedicated to warehouse use.

To aid in this evaluation, only facilities with the “Secondary Type” column designation of “Manufacturing” and “Light Manufacturing” from CoStar were analyzed in this step. Buildings with less than one dock door per 10,000 square feet of building area were further screened out. These facilities with less than one loading docks per 10,000 square feet were visually reviewed with Google Maps to look for visual cues of warehousing use (such as dock doors) or lack thereof (such as manufacturing equipment taking up the majority of the site) to determine if on site warehousing use would be potentially applicable to PR 2305.

From the additional analysis described below, all applicable warehouse statistics considerations are out of the 2,902 applicable warehouses, unless stated otherwise.

Warehouses That Potentially Have Multiple Operators (1,093 warehouses)

CoStar identified the tenancy of warehouses as single, multiple, or unknown number of operators, and also in many cases identifies the last known tenant. However, the accuracy of the businesses identified as tenants within CoStar was not always considered reliable, as historical tenant data could not always be distinguished from multiple current tenants. Based on a review of all available information within CoStar, out of 2,902 warehouses potentially required to earn WAIRE Points, staff identified 1,093 warehouses that potentially have multiple operators, 1,777 potentially have single operators, and 32 are unknown.

Warehouses Whose Operators Potentially Own a Fleet (1,313 warehouses)

Staff identified 1,313 warehouses with operators that potentially own their own truck fleets. To determine this information, staff cross-referenced the warehouse operator names determined above with “Fleet Name” data from the Fleetseek dataset. Because the names of operators and fleets did not exactly match across the two datasets, a fuzzy lookup tool² was used that showed the similarity between operator name and fleet seek name. Operators’ potential fleet ownership was further verified by using data from the Federal Motor Carrier Safety Administration Company Snapshot tool³ and information from company websites. Examples of potential fleet matches that were excluded from the final tally include small fleets (e.g., <3 trucks) that are registered on the east coast who may only share a name with an operator of a warehouse, or fleets who carry cargo not considered likely for warehousing activities under PR 2305 (e.g., refuse).

Although this analysis shows that perhaps ~40% of warehouse operators own a fleet, it is not possible to determine the extent to which any operator’s fleet services a particular warehouse. The

² Source: <https://www.microsoft.com/en-us/download/details.aspx?id=15011>

³ <https://safer.fmcsa.dot.gov/CompanySnapshot.aspx>

reporting requirements under PR 2305 will provide additional information about warehouse operators who own or lease trucks that serve that warehouse.

Warehouses within Phases of Rule Implementation

PR 2305 would be implemented in three phases: warehouses larger than or equal to 250,000 square feet will be required to comply with PR 2305 in Phase 1; warehouses larger than or equal to 150,000 square feet and less than 250,000 square feet will be added in Phase 2; and warehouses larger than or equal to 100,000 square feet and less than 150,000 square feet will be added in Phase 3. Using the Rentable Building Area data from CoStar, of the 2,902 warehouse potentially required to earn WAIRE Points, 919 warehouses are in Phase 1, 931 warehouses are in Phase 2, and 1,052 warehouses are in Phase 3. For the 418 facilities that are potentially only subject to PR 2305 reporting requirements there are 37 warehouses in Phase 1, 57 warehouses in Phase 2, and 324 warehouses in Phase 3.

Owner-Operators (515 warehouses)

There are 515 warehouses potentially operated by the owners of the warehouse. The applicable warehouse operated by the owners was determined by cross-referencing CoStar warehouse “Owner Name” data with DNB’s “Business Name” data for that same address.

Warehouses Near Ports (202 warehouses)

Staff identified 202 warehouses that are located near the Ports of Los Angeles and Long Beach. Warehouses determined to be Warehouses Near Ports were designated on “Submarket Name” column of the CoStar property dataset as: Carson Industrial; Long Beach South East Industrial; Long Beach South West Industrial; Rancho Dominguez Industrial; San Pedro Industrial; and Wilmington Industrial.

Warehouses with Existing Solar Panels (214 warehouses)

Staff identified 214 applicable warehouses with solar panel systems installed. Google Maps satellite view was used to identify which applicable warehouses that had solar panels systems installed. “Property Address” data from the CoStar property search were searched in Google Maps to complete a visual review of each property to determine the presence of solar panel systems.

Facilities by Secondary Type

The CoStar property search data set provided a secondary industry type designation. These designations are provided under the “Secondary Type” column in the property search dataset. The following breakdown shows the “Secondary Type” designations for the 2,902 warehouses potentially required to earn WAIRE Points under PR 2305: Distribution: 824 facilities; Light Distribution: 5 facilities; Light Manufacturing: 13 facilities; Manufacturing: 419 facilities; Refrigeration/Cold Storage: 42 facilities; Truck Terminal: 33 facilities; and Warehouse: 1,566 facilities.⁴

⁴ These ‘Secondary Types’ were one of the parameters used by IEC in their study of warehouses that may relocate with PR 2305 (“Assessment of Warehouse Relocations Associated with the South Coast Air Quality Management District Warehouse Indirect Source Rule”). That study analyzed 2,638 warehouses that were considered most likely to relocate. The Technical Memorandum on Real Estate Markets Neighboring the South Coast AQMD Region from that study describes the methodology it used relative to these datasets.

Low Floor Area Ratio (FAR) (870 warehouses)

Staff identified 870 warehouses with FARs less than 0.45. The FAR describes the ratio of indoor floor area relative to the total square footage of a property. For single story buildings, lower FARs indicate a large outdoor area, which in the case of warehouses typically indicates a large yard for truck and trailer parking. The lower the FAR, the more likely it is that space could be identified onsite for larger scale ZE charging/fueling infrastructure installations. Warehouses with FARs <0.45 were identified as this is a common value used by local land use agencies for new warehouse developments. The FAR alone is not the sole determinant if a facility can install ZE charging/fueling infrastructure. Facilities with FARs higher than 0.45 may also have the ability to install ZE charging/fueling infrastructure, and conversely some facilities with FARs <0.45 may not have sufficient access to electrical utility infrastructure connections onsite or nearby.

List of Warehouse Addresses Potentially Subject to PR 2305

Property Address	City	State	Zip	Property Address	City	State	Zip
6100 S Wilmington Ave	Huntington Park	CA	90001	140 N Orange	City of Industry	CA	91744
914 E 59th St	Los Angeles	CA	90001	155 N Orange Ave	City Of Industry	CA	91744
1853 E 65th St	Los Angeles	CA	90001	15350 E Stafford St	City Of Industry	CA	91744
1016 E 59th St	Los Angeles	CA	90001	14736 Nelson Ave	City Of Industry	CA	91744
1711 E 58th Pl	Los Angeles	CA	90001	16195 E Stephens St	City Of Industry	CA	91745
8122 Maie Ave	Los Angeles	CA	90001	14625 E Clark Ave	City of Industry	CA	91745
7314 Maie Ave	Los Angeles	CA	90001	16639 E Gale Ave	City Of Industry	CA	91745
5901 Central Ave	Los Angeles	CA	90001	15541 E Gale Ave	City Of Industry	CA	91745
8801 S Alameda St	Los Angeles	CA	90002	16555 Gale Ave	City of Industry	CA	91745
5867 S Los Angeles St	Los Angeles	CA	90003	14425 E Clark Ave	City of Industry	CA	91745
5930 S Wall St	Los Angeles	CA	90003	16900 Chestnut St	Hacienda Heights	CA	91745
3401 S Grand Ave	Los Angeles	CA	90007	360 Parriott Pl W	City Of Industry	CA	91745
3751 S Hill St	Los Angeles	CA	90007	16040 Stephens St	City of Industry	CA	91745
3333 S Grand Ave	Los Angeles	CA	90007	918 S Stimson Ave	City of Industry	CA	91745
2250 Maple Ave	Los Angeles	CA	90011	16049 E Stephens St	City of Industry	CA	91745
900 E 29th St	Los Angeles	CA	90011	16150 E Stephens St	City of Industry	CA	91745
1100 N Main St	Los Angeles	CA	90012	333 S Turnbull Canyon Rd	City of Industry	CA	91745
900 E 3rd St	Los Angeles	CA	90013	15530 E Salt Lake Ave	City of Industry	CA	91745
500 S Central Ave	Los Angeles	CA	90013	15650 Salt Lake Ave	City of Industry	CA	91745
754 Wall St	Los Angeles	CA	90014	768 Turnbull Canyon Rd	City of Industry	CA	91745
808 Wall St	Los Angeles	CA	90014	15615 E Gale Ave	City of Industry	CA	91745
421 E 6th St	Los Angeles	CA	90014	17009 Green Dr	Hacienda Heights	CA	91745
1057 S San Pedro St	Los Angeles	CA	90015	15241 Don Julian Rd	City Of Industry	CA	91745
1816 Oak St	Los Angeles	CA	90015	620 S Hacienda Blvd	City of Industry	CA	91745
401 E Pico Blvd	Los Angeles	CA	90015	16950 Chestnut St	Hacienda Heights	CA	91745
940 W Washington Blvd	Los Angeles	CA	90015	218 S Turnbull Canyon Rd	City of Industry	CA	91745
1525 S Broadway	Los Angeles	CA	90015	17009 E Green Dr	City Of Industry	CA	91745
2340 S Fairfax Ave	Los Angeles	CA	90016	15343 E Proctor Ave	City of Industry	CA	91745
5716 W Jefferson Blvd	Los Angeles	CA	90016	14455 E Clark Ave	City Of Industry	CA	91745
799 Towne Ave	Los Angeles	CA	90021	16425 E Gale Ave	City of Industry	CA	91745
2415 E 15th St	Los Angeles	CA	90021	15450 E Salt Lake Ave	City of Industry	CA	91745
1340 E 6th St	Los Angeles	CA	90021	800 Turnbull Canyon Rd	City of Industry	CA	91745
2000 E 8th St	Los Angeles	CA	90021	15381 E Proctor Ave	City of Industry	CA	91745
1900 Sacramento St	Los Angeles	CA	90021	16253 Gale Ave	City of Industry	CA	91745
921 E Pico Blvd	Los Angeles	CA	90021	500 S Hacienda Blvd	City of Industry	CA	91745
1205 Wholesale St	Los Angeles	CA	90021	16175 E Stephens St	City Of Industry	CA	91745
1334 S Central Ave	Los Angeles	CA	90021	425 Turnbull Canyon Rd	Hacienda Heights	CA	91745
1226 Stanford Ave	Los Angeles	CA	90021	13285 E Temple Ave	City Of Industry	CA	91746
1050 S Stanford Ave	Los Angeles	CA	90021	14300 E Bonelli St	City Of Industry	CA	91746
2415 E 15th St	Los Angeles	CA	90021	14730 Don Julian Rd	City of Industry	CA	91746
1206 E 6th St	Los Angeles	CA	90021	220 S 6th Ave	City Of Industry	CA	91746
1800 Essex St	Los Angeles	CA	90021	14955 E Salt Lake Ave	City Of Industry	CA	91746
1208 Stanford Ave	Los Angeles	CA	90021	15110 E Don Julian Rd	La Puente	CA	91746
801 E 7th St	Los Angeles	CA	90021	13400 E Nelson Ave	City of Industry	CA	91746
1515 E 15th St	Los Angeles	CA	90021	320 S 6th Ave	City of Industry	CA	91746
1701 Bay St	Los Angeles	CA	90021	13170 E Temple Ave	City of Industry	CA	91746
2260 E 15th St	Los Angeles	CA	90021	14923 E Proctor Ave	City of Industry	CA	91746
1396 E 7th St	Los Angeles	CA	90021	14551 Bonelli St	City Of Industry	CA	91746
2045 E Washington Blvd	Los Angeles	CA	90021	13000 Temple Ave	City Of Industry	CA	91746
750 S Alameda St	Los Angeles	CA	90021	440 N Baldwin Park Blvd	City of Industry	CA	91746
1735 S Santa Fe Ave	Los Angeles	CA	90021	13890 E Nelson Ave	City of Industry	CA	91746
1601 E Olympic Blvd	Los Angeles	CA	90021	665 N Baldwin Park Blvd	City of Industry	CA	91746
670 Mesquit St	Los Angeles	CA	90021	13060 E Temple Ave	City of Industry	CA	91746
1444 S Alameda St	Los Angeles	CA	90021	14350 Lomitas Ave	City Of Industry	CA	91746
1807 E Olympic Blvd	Los Angeles	CA	90021	15125 Proctor Ave	City of Industry	CA	91746
800 McGarry St	Los Angeles	CA	90021	14829 Salt Lake Ave	City of Industry	CA	91746
5550 Ferguson Dr	Commerce	CA	90022	13085 E Temple Ave	City of Industry	CA	91746
5500 E Olympic Blvd	Commerce	CA	90022	415 S 7th Ave	City of Industry	CA	91746
5500 Ferguson Dr	Commerce	CA	90022	730 Baldwin Park Blvd	City of Industry	CA	91746
5605 Union Pacific Ave	Commerce	CA	90022	13111 E Temple Ave	City of Industry	CA	91746
5610 Union Pacific Ave	Commerce	CA	90022	15025 Proctor Ave	City of Industry	CA	91746

Property Address	City	State	Zip	Property Address	City	State	Zip
5000 Triggs St	Commerce	CA	90022	505 S 7th Ave	City Of Industry	CA	91746
5750 Grace Pl	Commerce	CA	90022	14438 E Don Julian Rd	City Of Industry	CA	91746
5631 Ferguson Dr	Commerce	CA	90022	14841 Don Julian Rd	City of Industry	CA	91746
5555 E Olympic Blvd	Commerce	CA	90022	200 N Willow Ave	City of Industry	CA	91746
5500 Union Pacific Ave	Commerce	CA	90022	14317 Don Julian Rd	City Of Industry	CA	91746
5600 E Olympic Blvd	Commerce	CA	90022	355 N Vineland Ave	City of Industry	CA	91746
4944 Triggs St	Commerce	CA	90022	705 N Baldwin Park Blvd	City of Industry	CA	91746
5510 Grace Pl	Commerce	CA	90022	14528 Bonelli Ave	City of Industry	CA	91746
5471 Ferguson Dr	Commerce	CA	90022	550 S 7th Ave	City Of Industry	CA	91746
2233 Jesse St	Los Angeles	CA	90023	245 N Baldwin Park Blvd	City of Industry	CA	91746
1400 Los Palos St	Los Angeles	CA	90023	315 S 7th Ave	City of Industry	CA	91746
1401 S Hicks Ave	Los Angeles	CA	90023	14850 E Don Julian Rd	City of Industry	CA	91746
1439 S Herbert Ave	Commerce	CA	90023	166 N Baldwin Park Blvd	City of Industry	CA	91746
1815 S Soto St	Los Angeles	CA	90023	14777 Don Julian Rd	City of Industry	CA	91746
2155 E 7th St	Los Angeles	CA	90023	15010 Don Julian Rd	City Of Industry	CA	91746
3600 E Olympic Blvd	Los Angeles	CA	90023	420 S 6th Ave	La Puente	CA	91746
2555 E Olympic Blvd	Los Angeles	CA	90023	14237 E Don Julian Rd	City Of Industry	CA	91746
1363 S Bonnie Beach Pl	Commerce	CA	90023	245 N Vineland Ave	City of Industry	CA	91746
3040 E 12th St	Los Angeles	CA	90023	14641 E Don Julian Rd	City of Industry	CA	91746
4209 E Noakes St	Commerce	CA	90023	14840 E Proctor Ave	City of Industry	CA	91746
4000 Union Pacific Ave	Commerce	CA	90023	300 N Baldwin Park Blvd	City Of Industry	CA	91746
4422 Dunham St	Los Angeles	CA	90023	14255 Lomitas Ave	City of Industry	CA	91746
3170 E Washington Blvd	Los Angeles	CA	90023	13155 E Railroad Ave	City of Industry	CA	91746
2901 E 12th St	Los Angeles	CA	90023	13255 E Amar Rd	City of Industry	CA	91746
3686 E Olympic Blvd	Los Angeles	CA	90023	13500 E Nelson Ave	City of Industry	CA	91746
1151 S Boyle Ave	Los Angeles	CA	90023	120 Puente Ave	City Of Industry	CA	91746
3700 E Olympic Blvd	Los Angeles	CA	90023	14505 E Proctor Ave	City of Industry	CA	91746
3900 Union Pacific Ave	Los Angeles	CA	90023	14840 Don Julian Rd	City Of Industry	CA	91746
1430 S Eastman Ave	Los Angeles	CA	90023	325 N Baldwin Park Blvd	City of Industry	CA	91746
3100 E Washington Blvd	Los Angeles	CA	90023	321 Vineland Ave	City Of Industry	CA	91746
3888 E Washington Blvd	Vernon	CA	90023	13007 Crossroads Parkway South	City Of Industry	CA	91746
4130 Noakes St	Commerce	CA	90023	14421 E Bonelli St	City Of Industry	CA	91746
2824 E 12th St	Los Angeles	CA	90023	14724 Proctor Ave	City of Industry	CA	91746
342 N San Fernando Rd	Los Angeles	CA	90031	111 N Baldwin Park Blvd	City of Industry	CA	91746
3880 N Mission Rd	Los Angeles	CA	90031	13110 Loudon Ln	City of Industry	CA	91746
210 N Ave. 21	Los Angeles	CA	90031	18111 E Railroad St	City of Industry	CA	91748
300 W Avenue 33	Los Angeles	CA	90031	19395 E Walnut Dr N	City of Industry	CA	91748
1731 Workman St	Los Angeles	CA	90031	717 S Nogales St	City Of Industry	CA	91748
1919 Vineburn Ave	Los Angeles	CA	90032	18669 San Jose Ave	City Of Industry	CA	91748
4121 Valley Blvd	Los Angeles	CA	90032	18401 E Arenth Ave	City Of Industry	CA	91748
2011 N Soto St	Los Angeles	CA	90032	18501 E San Jose Ave	City Of Industry	CA	91748
4335 Valley Blvd	Los Angeles	CA	90032	18215 E Rowland St	City of Industry	CA	91748
210 S Anderson St	Los Angeles	CA	90033	18400 E Gale Ave	City of Industry	CA	91748
5831 Santa Monica Blvd	Los Angeles	CA	90038	17531 Railroad St	City of Industry	CA	91748
4563 Colorado Blvd	Los Angeles	CA	90039	18901 E Railroad St	City of Industry	CA	91748
5067 W San Fernando Rd	Los Angeles	CA	90039	1110 S Fullerton Rd	City of Industry	CA	91748
4841 W San Fernando Rd	Los Angeles	CA	90039	18895 Arenth Ave	City Of Industry	CA	91748
2800 Casitas Ave	Los Angeles	CA	90039	1177 S Jellick Ave	City Of Industry	CA	91748
5431 W San Fernando Rd	Los Angeles	CA	90039	1070 Samuelson St	City Of Industry	CA	91748
5375 W San Fernando Rd	Los Angeles	CA	90039	888 S Azusa Ave	City Of Industry	CA	91748
4561 Colorado Blvd	Los Angeles	CA	90039	18505 E Gale Ave	City of Industry	CA	91748
4690 Colorado Blvd	Los Angeles	CA	90039	18383 E Railroad St	City of Industry	CA	91748
4841 W San Fernando Rd	Los Angeles	CA	90039	18175 E Rowland St	City Of Industry	CA	91748
1801 Blake Ave	Los Angeles	CA	90039	19101 E Walnut Dr N	City Of Industry	CA	91748
7261 E Slauson Ave	Commerce	CA	90040	18945 San Jose Ave	City of Industry	CA	91748
6100 S Malt Ave	Commerce	CA	90040	19545 San Jose Ave	La Puente	CA	91748
6100 Bandini Blvd	Commerce	CA	90040	17528 E Rowland St	City of Industry	CA	91748
5991 Bandini Blvd	Bell	CA	90040	19555 E Arenth Ave	City of Industry	CA	91748
2340 S Eastern Ave	Commerce	CA	90040	888 Kearn Creek Ct	City of Industry	CA	91748
5900 E Slauson Ave	Commerce	CA	90040	18051 E Arenth Ave	City of Industry	CA	91748
5300 Harbor St	Commerce	CA	90040	19317 E Arenth Ave	City of Industry	CA	91748
6605 Flotilla St	Commerce	CA	90040	17355 E Railroad St	City of Industry	CA	91748
6315 Bandini Blvd	Commerce	CA	90040	18501 E Arenth Ave	City of Industry	CA	91748

Property Address	City	State	Zip	Property Address	City	State	Zip
6000 Rickenbacker Rd	Commerce	CA	90040	16610 E Chestnut St	City of Industry	CA	91748
2131 Garfield Ave	Commerce	CA	90040	780 Nogales St	City of Industry	CA	91748
6000 Bandini Blvd	Commerce	CA	90040	19161 E Walnut Dr N	City Of Industry	CA	91748
2600 Commerce Way	Commerce	CA	90040	17708 Rowland St	City Of Industry	CA	91748
5835 S Eastern Ave	Commerce	CA	90040	17400 E Chestnut St	City of Industry	CA	91748
6393 E Washington Blvd	Commerce	CA	90040	18537 E Gale Ave	City Of Industry	CA	91748
6000 E Slauson Ave	Commerce	CA	90040	18689 Arenth Ave	Rowland Heights	CA	91748
6108 Peachtree St	Commerce	CA	90040	18551 E Arenth Ave	City of Industry	CA	91748
6453 Bandini Blvd	Commerce	CA	90040	18275 E Arenth Ave	City of Industry	CA	91748
2400 Yates Ave	Commerce	CA	90040	17560 Rowland St	City Of Industry	CA	91748
5500 Sheila St	Commerce	CA	90040	875 S Azusa Ave	City Of Industry	CA	91748
6027 Eastern Ave	Commerce	CA	90040	18045 E Rowland St	City of Industry	CA	91748
2930 Vail Ave	Commerce	CA	90040	17300 Chestnut St	City Of Industry	CA	91748
5424 E Slauson Ave	Commerce	CA	90040	825 Ajax Ave	City Of Industry	CA	91748
5811 E 61st St	Commerce	CA	90040	18835 E San Jose Ave	City of Industry	CA	91748
6505 Gayhart St	Commerce	CA	90040	801 Sentous St	City of Industry	CA	91748
6289 E Slauson Ave	Commerce	CA	90040	19430 E Arenth Ave	City of Industry	CA	91748
6443 E Slauson Ave	Commerce	CA	90040	18825 E San Jose Ave	City of Industry	CA	91748
6121 Randolph St	Commerce	CA	90040	918 Radecki Ct	Los Angeles	CA	91748
6001 Slauson Ave	Commerce	CA	90040	18639 Railroad St	City of Industry	CA	91748
6051 Telegraph Rd	Commerce	CA	90040	19545 San Jose Ave	City Of Industry	CA	91748
6541 E Washington Blvd	Commerce	CA	90040	18910 E San Jose Ave	City Of Industry	CA	91748
2501 Malt Ave	Commerce	CA	90040	880 S Azusa Ave	City Of Industry	CA	91748
3217 S Garfield Ave	Commerce	CA	90040	19301 E Walnut Dr	City of Industry	CA	91748
7400 Bandini Blvd	Commerce	CA	90040	18305 San Jose Ave	City of Industry	CA	91748
2500 S Atlantic Blvd	Commerce	CA	90040	2321 Arrow Hwy	La Verne	CA	91750
6213 Randolph St	Commerce	CA	90040	3401 Etiwanda Ave	Jurupa Valley	CA	91752
4901 Zambrano St	Commerce	CA	90040	3355 Dulles Dr	Jurupa Valley	CA	91752
5890 Sheila St	Commerce	CA	90040	11180 Cantu Galleano Ranch St	Jurupa Valley	CA	91752
6608 E 26th St	Commerce	CA	90040	11296 Harrell St	Jurupa Valley	CA	91752
2638 Yates Ave	Commerce	CA	90040	11600 Philadelphia St	Jurupa Valley	CA	91752
5560 E Slauson Ave	Commerce	CA	90040	12471 Riverside Dr	Eastvale	CA	91752
5945 S Malt Ave	Commerce	CA	90040	11041 Inland Ave	Jurupa Valley	CA	91752
6000 E Sheila St	Commerce	CA	90040	10900 San Sevaine Way	Jurupa Valley	CA	91752
2187 S Garfield Ave	Commerce	CA	90040	10980 Inland Ave	Jurupa Valley	CA	91752
6550 Washington Blvd	Commerce	CA	90040	4420 Serrano Dr	Jurupa Valley	CA	91752
6111 Bandini Blvd	Los Angeles	CA	90040	4560 Hammer Ave	Eastvale	CA	91752
5815 Smithway St	Commerce	CA	90040	4325 Etiwanda Ave	Jurupa Valley	CA	91752
2727 Malt Ave	Commerce	CA	90040	3401 Etiwanda Ave	Jurupa Valley	CA	91752
6687 Flotilla St	Commerce	CA	90040	4000 Hammer Ave	Eastvale	CA	91752
5353 Jillson St	Commerce	CA	90040	12087 Landon Dr	Jurupa Valley	CA	91752
4501 E Washington Blvd	Commerce	CA	90040	3650 Dulles Dr	Jurupa Valley	CA	91752
4901 Alexander Rd	Commerce	CA	90040	4250 Hammer Ave	Eastvale	CA	91752
2601 S Malt Ave	Commerce	CA	90040	3155 Universe Dr	Jurupa Valley	CA	91752
2425 S Malt Ave	Commerce	CA	90040	11600 Iberia St	Jurupa Valley	CA	91752
6015 Randolph St	Commerce	CA	90040	3790 De Forest Cir	Jurupa Valley	CA	91752
2600 Garfield Ave	Commerce	CA	90040	3810 Wabash Dr	Jurupa Valley	CA	91752
6130 E Sheila St	Commerce	CA	90040	12300 Riverside Dr	Eastvale	CA	91752
5959 Randolph St	Commerce	CA	90040	4345 Parkhurst St	Jurupa Valley	CA	91752
5500 E Slauson Ave	Commerce	CA	90040	5250 Goodman Way	Eastvale	CA	91752
3364 Garfield Ave	Commerce	CA	90040	11600 Riverside Dr	Jurupa Valley	CA	91752
6021 S Malt Ave	Commerce	CA	90040	11500 Philadelphia St	Jurupa Valley	CA	91752
3412 Garfield Ave	Commerce	CA	90040	3251 De Forest St	Jurupa Valley	CA	91752
5777 Smithway St	Commerce	CA	90040	11905 Landon Dr	Jurupa Valley	CA	91752
6100 Garfield Ave	Commerce	CA	90040	3401 Etiwanda Ave	Jurupa Valley	CA	91752
6150 Sheila St	Commerce	CA	90040	11888 Mission Blvd	Jurupa Valley	CA	91752
6100 E Slauson Ave	Commerce	CA	90040	4450 Wineville Ave	Jurupa Valley	CA	91752
6250 Bandini Blvd	Commerce	CA	90040	10800 San Sevaine Way	Jurupa Valley	CA	91752
5999 Bandini Blvd	Los Angeles	CA	90040	14909 Summit Dr	Eastvale	CA	91752
6300 Slauson Ave	Commerce	CA	90040	4550 Wineville Ave	Jurupa Valley	CA	91752
6141 Randolph St	Commerce	CA	90040	12510 Micro	Eastvale	CA	91752
7208 E Gage	Commerce	CA	90040	4100 Hammer Ave	Eastvale	CA	91752
6201 Randolph St	Commerce	CA	90040	3950 Hammer Ave	Eastvale	CA	91752
2100 Yates Ave	Commerce	CA	90040	12100 Riverside Dr	Jurupa Valley	CA	91752

Property Address	City	State	Zip	Property Address	City	State	Zip
2300 Yates Ave	Commerce	CA	90040	3100 Milliken Ave	Mira Loma	CA	91752
4542 Dunham St	Commerce	CA	90040	4950 Goodman Way	Eastvale	CA	91752
6430 E Slauson Ave	Commerce	CA	90040	12450 Philadelphia St	Eastvale	CA	91752
5770 Peachtree St	Commerce	CA	90040	11850 Riverside Dr	Jurupa Valley	CA	91752
7400 E Slauson Ave	Commerce	CA	90040	10888 San Sevaine Way	Jurupa Valley	CA	91752
4900 Alexander St	Commerce	CA	90040	5055 Goodman Way	Eastvale	CA	91752
5300 Sheila St	Commerce	CA	90040	11310 Harrell St	Jurupa Valley	CA	91752
2855 Vail Ave	Commerce	CA	90040	10220 San Sevaine Way	Jurupa Valley	CA	91752
4940 Sheila St	Commerce	CA	90040	3401 Etiwanda Ave	Jurupa Valley	CA	91752
7101 E Slauson Ave	Commerce	CA	90040	3401 Etiwanda Ave	Jurupa Valley	CA	91752
6446 E Washington Blvd	Commerce	CA	90040	12450 Harvest Dr	Eastvale	CA	91752
2222 Davie Ave	Commerce	CA	90040	4740 Hammer Ave	Eastvale	CA	91752
3525 S Garfield Ave	Commerce	CA	90040	11350 Riverside Dr	Mira Loma	CA	91752
6817 E Acco St	Commerce	CA	90040	3401 Etiwanda Ave	Jurupa Valley	CA	91752
1935 Tubeway Ave	Commerce	CA	90040	12400 Riverside Dr	Eastvale	CA	91752
7026 E Slauson Ave	Commerce	CA	90040	11640 Harrell St	Jurupa Valley	CA	91752
2200 Saybrook Ave	Commerce	CA	90040	3401 Etiwanda Ave	Jurupa Valley	CA	91752
2220 S Gaspar Ave	Commerce	CA	90040	11010 Hopkins St	Jurupa Valley	CA	91752
2211 S Tubeway Ave	Commerce	CA	90040	3590 De Forest Cir	Jurupa Valley	CA	91752
6000 Bandini Blvd	Commerce	CA	90040	11811 Landon Dr	Jurupa Valley	CA	91752
5804 E Slauson Ave	Commerce	CA	90040	11040 Inland Ave	Jurupa Valley	CA	91752
2650 Commerce Way	Commerce	CA	90040	4388 Serrano Dr	Jurupa Valley	CA	91752
3423 S Garfield Ave	Commerce	CA	90040	11280 Riverside Dr	Jurupa Valley	CA	91752
6400 E Washington Blvd	Commerce	CA	90040	11310 Cantu Galleano Ranch Rd	Jurupa Valley	CA	91752
6321 Chalet Dr	Commerce	CA	90040	12100 Riverside Dr	Jurupa Valley	CA	91752
6241 Telegraph Rd	Commerce	CA	90040	3450 Dulles Dr	Jurupa Valley	CA	91752
6101 Peachtree St	Commerce	CA	90040	11015 Hopkins St	Jurupa Valley	CA	91752
6501 Flotilla St	Commerce	CA	90040	3900 Hammer Ave	Eastvale	CA	91752
6023 Garfield Ave	Commerce	CA	90040	10225 San Sevaine Way	Jurupa Valley	CA	91752
6666 E Washington Blvd	Commerce	CA	90040	3198 Dulles Dr	Jurupa Valley	CA	91752
6349 E Slauson Ave	Commerce	CA	90040	3325 Space Center Ct	Jurupa Valley	CA	91752
6281 E Slauson Ave	Commerce	CA	90040	10395 Nobel Ct	Jurupa Valley	CA	91752
6033 Bandini Blvd	Los Angeles	CA	90040	4225 Etiwanda Ave	Jurupa Valley	CA	91752
4900 Zambrano St	Commerce	CA	90040	11145 Inland Ave	Jurupa Valley	CA	91752
4500 York Blvd	Los Angeles	CA	90041	11650 Venture Dr	Jurupa Valley	CA	91752
5758 W Century Blvd	Los Angeles	CA	90045	3401 Etiwanda Ave	Jurupa Valley	CA	91752
11101 Aviation Blvd	Los Angeles	CA	90045	11625 Venture Dr	Jurupa Valley	CA	91752
5600 W Century Blvd	Los Angeles	CA	90045	3401 Etiwanda Ave	Jurupa Valley	CA	91752
5353 W Imperial Hwy	Los Angeles	CA	90045	11900 Riverside Dr	Jurupa Valley	CA	91752
11201 Aviation Blvd	Los Angeles	CA	90045	10995 Inland Ave	Jurupa Valley	CA	91752
5720 Avion Dr	Los Angeles	CA	90045	11991 Landon Dr	Jurupa Valley	CA	91752
5343 W Imperial Hwy	Los Angeles	CA	90045	15640 Cantu-Galleano Ranch Rd	Eastvale	CA	91752
6041 W Imperial Hwy	Los Angeles	CA	90045	11450 Philadelphia St	Jurupa Valley	CA	91752
6040 Avion Dr	Los Angeles	CA	90045	12350 Philadelphia St	Eastvale	CA	91752
6007 S St Andrews Pl	Los Angeles	CA	90047	11455 Cantu Galleano Ranch Rd	Jurupa Valley	CA	91752
6100 S Gramercy Pl	Los Angeles	CA	90047	11865 Cantu-Galleano Ranch Rd	Jurupa Valley	CA	91752
4455 Fruitland Ave	Vernon	CA	90058	11290 Cantu Galleano Ranch Rd	Jurupa Valley	CA	91752
2957 46th St	Vernon	CA	90058	12400 Philadelphia St	Mira Loma	CA	91752
2700 Fruitland Ave	Vernon	CA	90058	3401 Etiwanda Ave	Jurupa Valley	CA	91752
3900 E 26th St	Los Angeles	CA	90058	11201 Iberia St	Jurupa Valley	CA	91752
3840 E 26th St	Vernon	CA	90058	11555 Iberia St	Jurupa Valley	CA	91752
1925 E Vernon Ave	Vernon	CA	90058	10810 Inland Ave	Jurupa Valley	CA	91752
2761 Fruitland Ave	Vernon	CA	90058	1700 S Baker Ave	Ontario	CA	91761
3333 Downey Rd	Los Angeles	CA	90058	2151 S Turner Ave	Ontario	CA	91761
2800 Sierra Pine Ave	Vernon	CA	90058	2151 Proforma Ave	Ontario	CA	91761
3280 E 26th St	Vernon	CA	90058	3655 E Philadelphia St	Ontario	CA	91761
2503 E Vernon Ave	Vernon	CA	90058	2551 E Philadelphia St	Ontario	CA	91761
2263 E Vernon Ave	Vernon	CA	90058	1801 S Archibald Ave	Ontario	CA	91761
3359 E 50th St	Vernon	CA	90058	1651 S Archibald Ave	Ontario	CA	91761
4100 Bandini Blvd	Vernon	CA	90058	3351 E Philadelphia St	Ontario	CA	91761
2200 E 55th St	Los Angeles	CA	90058	1510 Auto Center Dr	Ontario	CA	91761
4890 S Alameda St	Vernon	CA	90058	4651 E Francis St	Ontario	CA	91761
5215 S Boyle Ave	Vernon	CA	90058	5101 Airport Dr	Ontario	CA	91761
2050 E 49th St	Vernon	CA	90058	5815 Clark St	Ontario	CA	91761

Property Address	City	State	Zip	Property Address	City	State	Zip
2230 E 38th St	Los Angeles	CA	90058	3371 E Francis St	Ontario	CA	91761
4375 Bandini Blvd	Los Angeles	CA	90058	1000 S Cucamonga Ave	Ontario	CA	91761
3368 E Vernon Ave	Vernon	CA	90058	4250 Greystone Ave	Ontario	CA	91761
4380 Ayers Ave	Los Angeles	CA	90058	1550 S Archibald Ave	Ontario	CA	91761
2665 Leonis Blvd	Vernon	CA	90058	1175 E Francis St	Ontario	CA	91761
4700 S Boyle Ave	Vernon	CA	90058	5300 E Jurupa St	Ontario	CA	91761
4415 Bandini Blvd	Vernon	CA	90058	3790 E Jurupa St	Ontario	CA	91761
2025 E 55th St	Vernon	CA	90058	1150 S Milliken Ave	Ontario	CA	91761
4633 Downey Rd	Vernon	CA	90058	5351 Jurupa St	Ontario	CA	91761
5370 S Boyle Ave	Vernon	CA	90058	1670 Champagne Ave	Ontario	CA	91761
1901 E 55th St	Vernon	CA	90058	5590 E Francis St	Ontario	CA	91761
2900 Fruitland Ave	Los Angeles	CA	90058	2950 E Jurupa Ave	Ontario	CA	91761
6023 Alcoa Ave	Vernon	CA	90058	821 S Rockefeller Ave	Ontario	CA	91761
1791 E Martin Luther King Jr Blvd	Los Angeles	CA	90058	1500 S Dupont St	Ontario	CA	91761
3751 Seville Ave	Vernon	CA	90058	1990 S Vintage Ave	Ontario	CA	91761
4900 S Santa Fe Ave	Vernon	CA	90058	1391 S Vintage Ave	Ontario	CA	91761
3049 E Vernon Ave	Vernon	CA	90058	1750 S Archibald Ave	Ontario	CA	91761
5000 E District Blvd	Vernon	CA	90058	3855 E Jurupa St	Ontario	CA	91761
3155 Bandini Blvd	Los Angeles	CA	90058	1991 S Cucamonga Ave	Ontario	CA	91761
2522 S Soto St	Vernon	CA	90058	500 S Dupont Ave	Ontario	CA	91761
4170 Bandini Blvd	Los Angeles	CA	90058	5400 Shea Center Dr	Ontario	CA	91761
3200 E Slauson Ave	Vernon	CA	90058	5401 E Jurupa St	Ontario	CA	91761
4955 Maywood Ave	Vernon	CA	90058	5141 Santa Ana St	Ontario	CA	91761
6174 Boyle Ave	Vernon	CA	90058	1405 E Locust St	Ontario	CA	91761
3001 Sierra Pine Ave	Los Angeles	CA	90058	5600 E Francis St	Ontario	CA	91761
2221 E 49th St	Vernon	CA	90058	5772 Jurupa St	Ontario	CA	91761
2610 E 37th St	Vernon	CA	90058	4652 E Brickell St	Ontario	CA	91761
2045 E Vernon Ave	Vernon	CA	90058	5120 Santa Ana Ave	Ontario	CA	91761
4510 S Alameda St	Vernon	CA	90058	1600 S Baker Ave	Ontario	CA	91761
2380 E 57th St	Vernon	CA	90058	1801 S Carlos Ave	Ontario	CA	91761
4701 S Santa Fe Ave	Vernon	CA	90058	3800 E Philadelphia St	Ontario	CA	91761
2901 Fruitland Ave	Vernon	CA	90058	1643 S Parco Ave	Ontario	CA	91761
2640 E 45th St	Vernon	CA	90058	3550 E Francis Ave	Ontario	CA	91761
5008 S Boyle Ave	Vernon	CA	90058	3690 Jurupa St	Ontario	CA	91761
5685 Alcoa Ave	Los Angeles	CA	90058	5555 Jurupa St	Ontario	CA	91761
2600 S Soto St	Los Angeles	CA	90058	2090 S Etiwanda Ave	Ontario	CA	91761
2931 S Alameda St	Los Angeles	CA	90058	5750 Francis St	Ontario	CA	91761
4460 Pacific Blvd	Los Angeles	CA	90058	2110 S Parco Ave	Ontario	CA	91761
4270 S Maywood Ave	Vernon	CA	90058	3000 E Philadelphia St	Ontario	CA	91761
2801 S Santa Fe Ave	Vernon	CA	90058	1751 S Pointe St	Ontario	CA	91761
2001 S Alameda St	Los Angeles	CA	90058	5801 E Airport Dr	Ontario	CA	91761
1861 E 55th St	Los Angeles	CA	90058	5153 E Philadelphia St	Ontario	CA	91761
3305 Bandini Blvd	Vernon	CA	90058	1651 S Carlos Ave	Ontario	CA	91761
5175 S Soto St	Vernon	CA	90058	2041 S Turner Ave	Ontario	CA	91761
2050 E 55th St	Vernon	CA	90058	2151 S Vintage Ave	Ontario	CA	91761
2537 E 27th St	Vernon	CA	90058	989 S Cucamonga Ave	Ontario	CA	91761
2838 S Alameda St	Vernon	CA	90058	4641 E Guasti Rd	Ontario	CA	91761
4605 S Alameda St	Los Angeles	CA	90058	1310 S Cucamonga Ave	Ontario	CA	91761
6152 Boyle Ave	Vernon	CA	90058	2530 E Lindsay Privado	Ontario	CA	91761
2283 E 49th St	Vernon	CA	90058	102 S Wanamaker Ave	Ontario	CA	91761
5990 Malburg Way	Vernon	CA	90058	930 S Rockefeller Ave	Ontario	CA	91761
5119 District Blvd	Vernon	CA	90058	1041 S Mildred St	Ontario	CA	91761
4505 Bandini Blvd	Vernon	CA	90058	1150 Etiwanda Ave	Ontario	CA	91761
6250 S Boyle Ave	Los Angeles	CA	90058	2900 E Jurupa St	Ontario	CA	91761
5233 Alcoa Ave	Vernon	CA	90058	4455 E Philadelphia St	Ontario	CA	91761
4215 Exchange Ave	Vernon	CA	90058	2950 E Philadelphia St	Ontario	CA	91761
2707 S Alameda St	Los Angeles	CA	90058	1755 E Acacia St	Ontario	CA	91761
2801 E Vernon Ave	Vernon	CA	90058	3355 E Cedar St	Ontario	CA	91761
2034 E 27th St	Vernon	CA	90058	3625 Jurupa St	Ontario	CA	91761
4160 Bandini Blvd	Los Angeles	CA	90058	2191 S Burgundy Pl	Ontario	CA	91761
2890 E 54th St	Vernon	CA	90058	5100 Shea Center Dr	Ontario	CA	91761
4050 E 26th St	Los Angeles	CA	90058	1251 S Rockefeller Ave	Ontario	CA	91761
1820 E 27th St	Vernon	CA	90058	1455 E Francis St	Ontario	CA	91761

Property Address	City	State	Zip	Property Address	City	State	Zip
4177 Bandini Blvd	Los Angeles	CA	90058	5300 Shea Center Dr	Ontario	CA	91761
3033 Bandini Blvd	Los Angeles	CA	90058	2060 S Wineville Ave	Ontario	CA	91761
2300 E Vernon Ave	Vernon	CA	90058	1900 Lynx Pl	Ontario	CA	91761
2254 E 49th St	Vernon	CA	90058	3550 E Jurupa St	Ontario	CA	91761
5001 S Soto St	Vernon	CA	90058	4070 E Greystone Dr	Ontario	CA	91761
4400 Pacific Blvd	Vernon	CA	90058	1545 E Locust St	Ontario	CA	91761
2825 S Santa Fe Ave	Vernon	CA	90058	2650 E Lindsay Privado	Ontario	CA	91761
5401 S Soto St	Vernon	CA	90058	602 S Rockefeller Ave	Ontario	CA	91761
3260 E 26th St	Vernon	CA	90058	1950 S Vintage Ave	Ontario	CA	91761
5000 Long Beach Ave	Los Angeles	CA	90058	1950 Sterling Ave	Ontario	CA	91761
1938 E 46th St	Los Angeles	CA	90058	5110 E Jurupa St	Ontario	CA	91761
1937 E Vernon Ave	Vernon	CA	90058	200 E Main St	Ontario	CA	91761
4310 Bandini Blvd	Los Angeles	CA	90058	2600 E Francis St	Ontario	CA	91761
2726 Fruitland Ave	Vernon	CA	90058	701 Malaga Pl	Ontario	CA	91761
2825 E 44th St	Vernon	CA	90058	1290 E Elm St	Ontario	CA	91761
4440 E 26th St	Los Angeles	CA	90058	100 E Main St	Ontario	CA	91761
4651 Bandini Blvd	Los Angeles	CA	90058	1650 S Vintage Ave	Ontario	CA	91761
3663 Bandini Blvd	Vernon	CA	90058	2021 S Archibald Ave	Ontario	CA	91761
3163 E Vernon Ave	Vernon	CA	90058	1015 S Vintage Ave	Ontario	CA	91761
4900 Boyle Ave	Vernon	CA	90058	4000 E Mission Blvd	Ontario	CA	91761
2801 E 46th St	Vernon	CA	90058	820 S Vintage Ave	Ontario	CA	91761
5801 S 2nd St	Los Angeles	CA	90058	1460 S Hofer Ranch Rd	Ontario	CA	91761
4240 Bandini Blvd	Los Angeles	CA	90058	5650 E Santa Ana St	Ontario	CA	91761
4444 Ayers Ave	Los Angeles	CA	90058	1560 S Baker Ave	Ontario	CA	91761
2311 E 48th St	Vernon	CA	90058	5400 Shea Center Dr	Ontario	CA	91761
5525 S Soto St	Vernon	CA	90058	2095 S Archibald Ave	Ontario	CA	91761
2834 46th St	Vernon	CA	90058	3980 E Earlstone Dr	Ontario	CA	91761
3100 E 44th St	Vernon	CA	90058	1505 S Dupont Ave	Ontario	CA	91761
5215 S Boyle Ave	Vernon	CA	90058	1671 S Champagne Ave	Ontario	CA	91761
3001 Bandini Blvd	Los Angeles	CA	90058	4060 E Jurupa St	Ontario	CA	91761
2100 E 38th St	Vernon	CA	90058	3601 Jurupa St	Ontario	CA	91761
3425 E Vernon Ave	Vernon	CA	90058	3950 Airport Dr	Ontario	CA	91761
5700 Bickett St	Los Angeles	CA	90058	4450 E Lowell St	Ontario	CA	91761
3250 E 26th St	Vernon	CA	90058	601 Rockefeller Ave	Ontario	CA	91761
3851 S Santa Fe Ave	Vernon	CA	90058	5140 Santa Ana St	Ontario	CA	91761
4851 S Alameda St	Los Angeles	CA	90058	1900 S Rochester Ave	Ontario	CA	91761
2652 Long Beach Ave	Los Angeles	CA	90058	1851 S Cucamonga Ave	Ontario	CA	91761
2900 Fruitland Ave	Los Angeles	CA	90058	3940 Earlstone St	Ontario	CA	91761
3215 E Slauson Ave	Vernon	CA	90058	5490 E Francis St	Ontario	CA	91761
2131 E 52nd St	Vernon	CA	90058	2800 E Philadelphia St	Ontario	CA	91761
3030 S Atlantic Blvd	Vernon	CA	90058	4755 Zinfandel Ct	Ontario	CA	91761
1995 E 20th St	Los Angeles	CA	90058	3510 E Francis Ave	Ontario	CA	91761
5300 S Boyle Ave	Vernon	CA	90058	1923 E Avion St	Ontario	CA	91761
2825 E 54th St	Los Angeles	CA	90058	4001 Santa Ana St	Ontario	CA	91761
6062 Alcoa Ave	Vernon	CA	90058	2500 E Francis St	Ontario	CA	91761
2615 S Bonnie Beach Pl	Los Angeles	CA	90058	2539 E Philadelphia St	Ontario	CA	91761
5500 S Boyle Ave	Vernon	CA	90058	1400 S Campus Ave	Ontario	CA	91761
4715 S Alameda St	Vernon	CA	90058	5725 E Jurupa St	Ontario	CA	91761
5383 Alcoa Ave	Vernon	CA	90058	1040 S Vintage Ave	Ontario	CA	91761
5000 Pacific Blvd	Vernon	CA	90058	1521 E Francis St	Ontario	CA	91761
4507 Maywood Ave	Vernon	CA	90058	2155 S Excise Ave	Ontario	CA	91761
1801 E 50th St	Los Angeles	CA	90058	1392 Sarah Pl	Ontario	CA	91761
4900 E 50th St	Vernon	CA	90058	1600 Proforma Ave	Ontario	CA	91761
2501 W Rosecrans Ave	Los Angeles	CA	90059	1930 S Rochester Ave	Ontario	CA	91761
1430 N McKinley Ave	Los Angeles	CA	90059	2001 Burgundy Pl	Ontario	CA	91761
740 E 111th Pl	Los Angeles	CA	90059	1450 E Mission Blvd	Ontario	CA	91761
13344 S Main St	Los Angeles	CA	90061	1260 S Vintage Ave	Ontario	CA	91761
13900 S Broadway	Los Angeles	CA	90061	1425 Toyota Way	Ontario	CA	91761
13809 S Figueroa St	Gardena	CA	90061	2001 S Hellman Ave	Ontario	CA	91761
13217 S Figueroa St	Los Angeles	CA	90061	717 E State St	Ontario	CA	91761
13500 S Figueroa St	Los Angeles	CA	90061	225 S Wineville Ave	Ontario	CA	91761
13255 S Broadway	Los Angeles	CA	90061	3781 E Airport Dr	Ontario	CA	91761
12822 S Main St	Los Angeles	CA	90061	3095 E Cedar St	Ontario	CA	91761
13301 S Main St	Los Angeles	CA	90061	2019 S Business Pky	Ontario	CA	91761

Property Address	City	State	Zip	Property Address	City	State	Zip
4540 Worth St	Los Angeles	CA	90063	1051 S Rockefeller Ave	Ontario	CA	91761
1506 N Knowles Ave	Los Angeles	CA	90063	1000 S Etiwanda Ave	Ontario	CA	91761
3424 N San Fernando Rd	Los Angeles	CA	90065	5440 E Francis St	Ontario	CA	91761
2000 N San Fernando Rd	Los Angeles	CA	90065	5491 E Francis St	Ontario	CA	91761
12800 Culver Blvd	Los Angeles	CA	90066	1600 Milliken Ave	Ontario	CA	91761
12655 Beatrice St	Los Angeles	CA	90066	1500 S Hellman Ave	Ontario	CA	91761
5553 Bandini Blvd	Bell	CA	90201	2925 Jurupa St	Ontario	CA	91761
6511 Salt Lake Ave	Bell	CA	90201	1595 S Dupont Ave	Ontario	CA	91761
5350 Lindbergh Ln	Bell	CA	90201	1151 S Mildred St	Ontario	CA	91761
5391 Rickenbacker Rd	Bell	CA	90201	2501 E Guasti Rd	Ontario	CA	91761
5630 Bandini Blvd	Bell	CA	90201	2690 E Cedar St	Ontario	CA	91761
5555 Bandini Blvd	Bell Gardens	CA	90201	3140 Jurupa St	Ontario	CA	91761
8457 S Eastern Ave	Bell Gardens	CA	90201	2880 Jurupa St	Ontario	CA	91761
5400 Lindbergh Ln	Bell	CA	90201	4100 E Mission Blvd	Ontario	CA	91761
5300 Lindbergh Ln	Bell	CA	90201	2600 S Stanford Ave	Ontario	CA	91761
4700 Eastern Ave	Bell	CA	90201	4000 E Airport Dr	Ontario	CA	91761
5600 Lindbergh Ln	Bell	CA	90201	4750 Zinfandel Ct	Ontario	CA	91761
5500 Lindbergh Ln	Bell	CA	90201	1800 S Wineville Ave	Ontario	CA	91761
5651 Rickenbacker Rd	Bell	CA	90201	5005 E Philadelphia St	Ontario	CA	91761
4901 Bandini Blvd	Bell	CA	90201	2830 E Philadelphia St	Ontario	CA	91761
5630 Rickenbacker Rd	Bell	CA	90201	1930 S Parco Ave	Ontario	CA	91761
4900 Cecelia St	Cudahy	CA	90201	4850 E Airport Dr	Ontario	CA	91761
250 W Apra St	Compton	CA	90220	5151 E Philadelphia St	Ontario	CA	91761
1620 S Wilmington Ave	Compton	CA	90220	290 S Milliken Ave	Ontario	CA	91761
2101 E Via Arado	Rancho Dominguez	CA	90220	2055 S Haven Ave	Ontario	CA	91761
350 W Manville St	Compton	CA	90220	700 Malaga Pl	Ontario	CA	91761
500 W Victoria St	Compton	CA	90220	1100 S Etiwanda Ave	Ontario	CA	91761
18511 S Broadwick St	Rancho Dominguez	CA	90220	1495 E Francis St	Ontario	CA	91761
255 W Manville St	Compton	CA	90220	1790 Champagne Ave	Ontario	CA	91761
300 W Artesia Blvd	Compton	CA	90220	2030 S Lynx Pl	Ontario	CA	91761
355 W Carob St	Compton	CA	90220	1110 S Mildred Ave	Ontario	CA	91761
1200 W Artesia Blvd	Compton	CA	90220	1521 S Hellman Ave	Ontario	CA	91761
20212 S Rancho Way	Rancho Dominguez	CA	90220	5721 Santa Ana St	Ontario	CA	91761
2917 W Rosecrans Ave	Compton	CA	90220	4774 E Airport Dr	Ontario	CA	91761
18924 Laurel Park Rd	Rancho Dominguez	CA	90220	3971 Airport Dr	Ontario	CA	91761
1965 E Vista Bella Way	Rancho Dominguez	CA	90220	5700 E Airport Dr	Ontario	CA	91761
2301 E Pacifica Pl	Rancho Dominguez	CA	90220	5491 E Philadelphia St	Ontario	CA	91761
1931 E Vista Bella Way	Rancho Dominguez	CA	90220	715 E California St	Ontario	CA	91761
18553 Dominguez Hills Dr	Rancho Dominguez	CA	90220	5450 E Francis St	Ontario	CA	91761
2060 Via Arado	Rancho Dominguez	CA	90220	1710 E Cedar St	Ontario	CA	91761
601 W Walnut St	Compton	CA	90220	1375 E Locust St	Ontario	CA	91761
220 W Manville St	Compton	CA	90220	752 Campus Ave	Ontario	CA	91761
201 W Carob St	Compton	CA	90220	1670 Etiwanda Ave	Ontario	CA	91761
700 W Artesia Blvd	Compton	CA	90220	3120 E Mission Blvd	Ontario	CA	91761
20001 S Rancho Way	Rancho Dominguez	CA	90220	620 Wanamaker Ave	Ontario	CA	91761
1420 N Mckinley Ave	Compton	CA	90220	4083 E Airport Dr	Ontario	CA	91761
1825 Acacia Ave	Compton	CA	90220	5601 Santa Ana St	Ontario	CA	91761
2500 Edison Way	Compton	CA	90220	5431 E Philadelphia St	Ontario	CA	91761
2141 E Paulhan St	Rancho Dominguez	CA	90220	3100 E Cedar St	Ontario	CA	91761
220 W Victoria St	Compton	CA	90220	3070 E Cedar St	Ontario	CA	91761
201 W Manville St	Compton	CA	90220	5200 Shea Center Dr	Ontario	CA	91761
741 W Artesia Blvd	Compton	CA	90220	1555 S Dupont Ave	Ontario	CA	91761
775 W Manville St	Compton	CA	90220	1777 S Vintage Ave	Ontario	CA	91761
2140 E University Dr	Rancho Dominguez	CA	90220	4710 E Guasti Rd	Ontario	CA	91761
921 W Artesia Blvd	Compton	CA	90220	601 Kettering Dr	Ontario	CA	91761
1650 S Central Ave	Compton	CA	90220	2285 S Ponderosa Ave	Ontario	CA	91761
1860 Acacia Ave	Compton	CA	90220	1520 E Mission Blvd	Ontario	CA	91761
200 E Stanley St	Compton	CA	90220	4305 E Jurupa St	Ontario	CA	91761
350 W Apra St	Compton	CA	90220	1700 S Hellman Ave	Ontario	CA	91761
1707 W Compton Blvd	Compton	CA	90220	1900 S Proforma Ave	Ontario	CA	91761
18450 S Wilmington Ave	Rancho Dominguez	CA	90220	5500 E Francis St	Ontario	CA	91761
400 W Artesia Blvd	Compton	CA	90220	1990 S Cucamonga Ave	Ontario	CA	91761
1701 S Central Ave	Compton	CA	90220	1050 S Dupont Ave	Ontario	CA	91761

Property Address	City	State	Zip	Property Address	City	State	Zip
18615 S Ferris Pl	Rancho Dominguez	CA	90220	1001 Doubleday Ave	Ontario	CA	91761
19640 S Rancho Way	Compton	CA	90220	3655 E Airport Dr	Ontario	CA	91761
250 W Manville St	Compton	CA	90220	1650 S Archibald Ave	Ontario	CA	91761
711 W Walnut St	Compton	CA	90220	2560 E Philadelphia St	Ontario	CA	91761
15650 S Avalon Blvd	Compton	CA	90220	3551 E Francis St	Ontario	CA	91761
415 W Walnut St	Compton	CA	90220	1425 S Campus Ave	Ontario	CA	91761
18301 Broadwick St	Rancho Dominguez	CA	90220	3645 E Philadelphia St	Ontario	CA	91761
18410 S Broadwick St	Compton	CA	90220	3350 E Cedar St	Ontario	CA	91761
2576 E Victoria St	Compton	CA	90220	1090 E Belmont St	Ontario	CA	91761
18735 Ferris Pl	Rancho Dominguez	CA	90220	1900 Burgundy Pl	Ontario	CA	91761
660 W Artesia Blvd	Compton	CA	90220	4501 E Wall St	Ontario	CA	91761
2456 E Del Amo Blvd	Compton	CA	90220	900 S Dupont Ave	Ontario	CA	91761
1714 S Anderson Ave	Compton	CA	90220	5600 E Airport Dr	Ontario	CA	91761
675 W Manville St	Compton	CA	90220	4061 E Francis St	Ontario	CA	91761
19914 Via Baron	Rancho Dominguez	CA	90220	2521 E Francis St	Ontario	CA	91761
525 W Manville St	Compton	CA	90220	4060 E Francis St	Ontario	CA	91761
301 W Walnut St	Compton	CA	90220	13610 S Archibald Ave	Ontario	CA	91761
601 W Carob St	Compton	CA	90220	1291 S Vintage Ave	Ontario	CA	91761
303 W Artesia Blvd	Compton	CA	90220	4502 Airport Dr	Ontario	CA	91761
2511 S Edison Way	Compton	CA	90220	5400 E Francis St	Ontario	CA	91761
1055 W Victoria St	Compton	CA	90220	425 S Rockefeller Ave	Ontario	CA	91761
2331 E Pacifica Pl	Rancho Dominguez	CA	90220	5461 Santa Ana St	Ontario	CA	91761
18600 Broadwick St	Rancho Dominguez	CA	90220	1000 Sarah Pl	Ontario	CA	91761
2035 E Vista Bella Way	Rancho Dominguez	CA	90220	1901 Vineyard Ave	Ontario	CA	91761
175 E Manville St	Compton	CA	90220	1625 S Proforma Ave	Ontario	CA	91761
1935 Via Arado	Rancho Dominguez	CA	90220	2401 E Philadelphia St	Ontario	CA	91761
399 W Artesia Blvd	Compton	CA	90220	2825 Jurupa St	Ontario	CA	91761
550 W Artesia Blvd	Compton	CA	90220	820 S Wanamaker Ave	Ontario	CA	91761
19840 S Rancho Way	Compton	CA	90220	1540 Acacia Ct	Ontario	CA	91761
801 W Artesia Blvd	Compton	CA	90220	2590 E Lindsay Privado	Ontario	CA	91761
2361 E Pacifica Pl	Rancho Dominguez	CA	90220	1505 S Haven Ave	Ontario	CA	91761
425 W Carob St	Compton	CA	90220	4551 E Philadelphia St	Ontario	CA	91761
1600 S Anderson Ave	Compton	CA	90220	5501 Santa Ana St	Ontario	CA	91761
3000 E Via Mondo	Compton	CA	90221	5691 E Philadelphia St	Ontario	CA	91761
2960 E Victoria St	Rancho Dominguez	CA	90221	3951 E Earlstone St	Ontario	CA	91761
2850 E Del Amo Blvd	Carson	CA	90221	4290 E Brickell St	Ontario	CA	91761
2626 Vista Industria	Compton	CA	90221	1320 S Baker Ave	Ontario	CA	91761
18554 S Susana Rd	Rancho Dominguez	CA	90221	2400 E Francis St	Ontario	CA	91761
19067 S Reyes Ave	Rancho Dominguez	CA	90221	1930 S Vineyard Ave	Ontario	CA	91761
18626 S Reyes Ave	Compton	CA	90221	4495 E Wall St	Ontario	CA	91761
3104 E Ana St	Rancho Dominguez	CA	90221	2150 S Parco Ave	Ontario	CA	91761
3015 E Ana St	Compton	CA	90221	1495 E Locust St	Ontario	CA	91761
19201 S Reyes Ave	Compton	CA	90221	2260 S Haven Ave	Ontario	CA	91761
17707 S Santa Fe Ave	Compton	CA	90221	4651 E Brickell St	Ontario	CA	91761
19200 S Reyes Ave	Compton	CA	90221	4652 E Guasti Rd	Ontario	CA	91761
3040 E Ana St	Compton	CA	90221	1661 S Vintage Ave	Ontario	CA	91761
3136 E Victoria St	Compton	CA	90221	1220 S Baker Ave	Ontario	CA	91761
19119 S Reyes Ave	Compton	CA	90221	3900 E Philadelphia St	Ontario	CA	91761
19600 S Alameda St	Rancho Dominguez	CA	90221	5200 E Airport Dr	Ontario	CA	91761
19201 S Susana Rd	Compton	CA	90221	611 S Palmetto Ave	Ontario	CA	91762
2966 E Victoria St	Compton	CA	90221	5161 Richton Rd	Montclair	CA	91763
19007 S Reyes Ave	Rancho Dominguez	CA	90221	4545 Brooks St	Montclair	CA	91763
18111 S Santa Fe Ave	Rancho Dominguez	CA	90221	1050 N Vineyard Ave	Ontario	CA	91764
17707 S Santa Fe Ave	Compton	CA	90221	950 Barrington Ave	Ontario	CA	91764
20250 S Alameda St	Compton	CA	90221	5350 Ontario Mills Pky	Ontario	CA	91764
2910 Pacific Commerce Dr	Rancho Dominguez	CA	90221	853 Qvc Way	Ontario	CA	91764
2640 E Del Amo Blvd	Compton	CA	90221	751 Vintage Ave	Ontario	CA	91764
3025 Victoria St	Rancho Dominguez	CA	90221	5100 Ontario Mills Pkwy	Ontario	CA	91764
3020 E Victoria St	Compton	CA	90221	1051 N Wineville Ave	Ontario	CA	91764
2661 E Del Amo Blvd	Rancho Dominguez	CA	90221	5678 Concours	Ontario	CA	91764
18201 S Santa Fe Ave	Compton	CA	90221	990 Barrington Ave	Ontario	CA	91764
18221 S Susana Rd	Compton	CA	90221	5505 E Concours	Ontario	CA	91764
19615 S Susana Rd	Compton	CA	90221	5798 E Ontario Mills Pky	Ontario	CA	91764

Property Address	City	State	Zip	Property Address	City	State	Zip
2902 Val Verde Ct	Rancho Dominguez	CA	90221	5250 Ontario Mills Pky	Ontario	CA	91764
20100 S Alameda St	Rancho Dominguez	CA	90221	5400 Ontario Mills Pky	Ontario	CA	91764
2883 E Victoria St	Rancho Dominguez	CA	90221	2203 Jay St	Ontario	CA	91764
19801 S Santa Fe Ave	Rancho Dominguez	CA	90221	2004 Jay St	Ontario	CA	91764
2660 E Del Amo Blvd	Carson	CA	90221	4105 Inland Empire Blvd	Ontario	CA	91764
2300 N Alameda St	Compton	CA	90222	5576 Ontario Mills Pky	Ontario	CA	91764
419 E Euclid Ave	Compton	CA	90222	905 Wineville Ave	Ontario	CA	91764
1501 N Tamarind Ave	Compton	CA	90222	5300 E Concours St	Ontario	CA	91764
1700 N Alameda St	Compton	CA	90222	5125 Ontario Mills Pky	Ontario	CA	91764
12021 Woodruff Ave	Downey	CA	90241	2104 Jay St	Ontario	CA	91764
9300 Hall Rd	Downey	CA	90241	2053 E Jay St	Ontario	CA	91764
11634 Patton Rd	Downey	CA	90241	1904 Jay St	Ontario	CA	91764
9220 Hall Rd	Downey	CA	90241	740 Vintage Ave	Ontario	CA	91764
9400 Hall Rd	Downey	CA	90241	5200 Ontario Mills Pky	Ontario	CA	91764
7475 Flores St	Downey	CA	90242	5642 Ontario Mills Pky	Ontario	CA	91764
9151 Imperial Hwy	Downey	CA	90242	951 Etiwanda Ave	Ontario	CA	91764
7500 Amigos Ave	Downey	CA	90242	5678 Ontario Mills Pky	Ontario	CA	91764
7300 Flores Ave	Downey	CA	90242	5540 4th St	Ontario	CA	91764
200 N Nash St	El Segundo	CA	90245	800 Barrington Ave	Ontario	CA	91764
901 N Nash St	El Segundo	CA	90245	1060 S Wineville Ave	Ontario	CA	91764
2000 E Imperial Hwy	El Segundo	CA	90245	5525 E Concours	Ontario	CA	91764
202 N Nash St	El Segundo	CA	90245	5300 Ontario Mills Pky	Ontario	CA	91764
815 Lapham St	El Segundo	CA	90245	1315 E 3rd St	Pomona	CA	91766
2000 E El Segundo Blvd	El Segundo	CA	90245	1335 Philadelphia St	Pomona	CA	91766
268 Gardena Blvd	Carson	CA	90248	1201 E Lexington Ave	Pomona	CA	91766
14702 S Maple St	Gardena	CA	90248	1889 W Mission Blvd	Pomona	CA	91766
14439 S Avalon Blvd	Gardena	CA	90248	2849 Ficus St	Pomona	CA	91766
17110 S Main St	Gardena	CA	90248	1585 W Mission Blvd	Pomona	CA	91766
15913 S Main St	Gardena	CA	90248	2200 Reservoir St	Pomona	CA	91766
16920 S Main St	Gardena	CA	90248	2750 S Towne Ave	Pomona	CA	91766
14800 S Figueroa St	Gardena	CA	90248	1325 E Franklin Ave	Pomona	CA	91766
18620 S Broadway St	Carson	CA	90248	2801 S Towne Ave	Pomona	CA	91766
14527 S San Pedro St	Gardena	CA	90248	1040 Walnut Ave	Pomona	CA	91766
240 E Rosecrans Ave	Gardena	CA	90248	1301 E Lexington Ave	Pomona	CA	91766
100 W Alondra Blvd	Carson	CA	90248	1395 E Lexington Ave	Pomona	CA	91766
15100 S Figueroa St	Gardena	CA	90248	2800 S Reservoir St	Pomona	CA	91766
15100 S San Pedro St	Gardena	CA	90248	1885 W Mission Blvd	Pomona	CA	91766
261 E Redondo Beach Blvd	Gardena	CA	90248	1601 W Mission Blvd	Pomona	CA	91766
200 E Alondra Blvd	Gardena	CA	90248	1768 W 2nd St	Pomona	CA	91766
331 W Victoria St	Gardena	CA	90248	1350 E Lexington Ave	Pomona	CA	91766
17529 S Main St	Gardena	CA	90248	2855 S Reservoir St	Pomona	CA	91766
17226 S Main St	Gardena	CA	90248	1589 E 9th St	Pomona	CA	91766
151 W Rosecrans Ave	Gardena	CA	90248	1937 W Mission Blvd	Pomona	CA	91766
14725 S Broadway	Gardena	CA	90248	2200 S Reservoir St	Pomona	CA	91766
14300 S Main St	Gardena	CA	90248	2540 Fulton Rd	Pomona	CA	91767
17006 S Figueroa St	Gardena	CA	90248	159 San Antonio Ave	Pomona	CA	91767
15700 S Main St	Gardena	CA	90248	855 Towne Center Dr	Pomona	CA	91767
1855 W 139th St	Gardena	CA	90249	280 W Bonita Ave	Pomona	CA	91767
1720 W 135th St	Gardena	CA	90249	2655 Pine St	Pomona	CA	91767
1700 W 132nd St	Gardena	CA	90249	2743 Thompson Creek Rd	Pomona	CA	91767
1930 W 139th St	Gardena	CA	90249	1800 W Holt Ave	Pomona	CA	91768
1639 W Rosecrans Ave	Gardena	CA	90249	2205 Mt Vernon Ave	Pomona	CA	91768
2001 W Rosecrans Ave	Gardena	CA	90249	2883 Surveyor St	Pomona	CA	91768
1600 135th St	Gardena	CA	90249	3200 Pomona Blvd	Pomona	CA	91768
2002 W 139th St	Gardena	CA	90249	2875 Pomona Blvd	Pomona	CA	91768
13720 S Western Ave	Gardena	CA	90249	2303 Mount Vernon Ave	Pomona	CA	91768
12651 Crenshaw Blvd	Hawthorne	CA	90250	2887 Surveyor St	Pomona	CA	91768
12200 Wilkie Way	Hawthorne	CA	90250	1338 W Holt Ave	Pomona	CA	91768
2815 W El Segundo Blvd	Hawthorne	CA	90250	1320 W Holt Ave	Pomona	CA	91768
12525 Daphne Ave	Hawthorne	CA	90250	3255 Pomona Blvd	Pomona	CA	91768
5422 W Rosecrans Ave	Hawthorne	CA	90250	300 Enterprise Pl	Pomona	CA	91768
12600 Prairie Ave	Hawthorne	CA	90250	462 S Humane Way	Pomona	CA	91768
4926 Rosecrans Ave	Hawthorne	CA	90250	2861 Surveyor St	Pomona	CA	91768

Property Address	City	State	Zip	Property Address	City	State	Zip
12250 Crenshaw Blvd	Hawthorne	CA	90250	300 E Arrow Hwy	San Dimas	CA	91773
3901 Jack Northrop Ave	Hawthorne	CA	90250	420 E Arrow Hwy	San Dimas	CA	91773
1 Rocket Rd	Hawthorne	CA	90250	321 W Covina Blvd	San Dimas	CA	91773
2701 W El Segundo Blvd	Hawthorne	CA	90250	430 E 19th St	Upland	CA	91784
3901 Jack Northrop Ave	Hawthorne	CA	90250	1225 W 9th St	Upland	CA	91786
2805 W El Segundo Blvd	Hawthorne	CA	90250	2022 W 11th St	Upland	CA	91786
12524 Cerise Ave	Hawthorne	CA	90250	19705 Business Pky	City Of Industry	CA	91789
2040 Randolph St	Huntington Park	CA	90255	21908 Valley Blvd	Walnut	CA	91789
2224 E Slauson Ave	Huntington Park	CA	90255	21301 Ferrero Pky	City Of Industry	CA	91789
6230 S Alameda St	Huntington Park	CA	90255	433 Cheryl Ln	City Of Industry	CA	91789
2700 E Imperial Hwy	Lynwood	CA	90262	3880 Valley Blvd	Walnut	CA	91789
11840 Alameda St	Lynwood	CA	90262	21535 Baker Pky	City Of Industry	CA	91789
11852 Alameda St	Lynwood	CA	90262	408 Brea Canyon Rd	City of Industry	CA	91789
2588 Industry Way	Lynwood	CA	90262	20701 Currier Rd	Walnut	CA	91789
11600 Alameda St	Lynwood	CA	90262	368 Cheryl Ln	Walnut	CA	91789
2820 Butler Ave	Lynwood	CA	90262	611 Reyes Dr	City Of Industry	CA	91789
2520 Industry Way	Lynwood	CA	90262	22067 Ferrero	City Of Industry	CA	91789
10650 S Alameda St	Lynwood	CA	90262	21700 Baker Pky	City Of Industry	CA	91789
11711 S Alameda St	Lynwood	CA	90262	168 Brea Canyon Rd	City Of Industry	CA	91789
12150 S Alameda St	Lynwood	CA	90262	20301 E Walnut Dr N	Walnut	CA	91789
4020 Redondo Beach Ave	Redondo Beach	CA	90278	21733 Baker Pky	City Of Industry	CA	91789
4000 Redondo Beach Ave	Redondo Beach	CA	90278	20300 E Business Pky	Walnut	CA	91789
2819 182nd St	Redondo Beach	CA	90278	19465 E Walnut Dr N	City Of Industry	CA	91789
2425 Manhattan Beach Blvd	Redondo Beach	CA	90278	21481 Ferrero Pky	City of Industry	CA	91789
2411 Santa Fe Ave	Redondo Beach	CA	90278	318 Brea Canyon Rd	City Of Industry	CA	91789
3650 Redondo Beach Ave	Redondo Beach	CA	90278	20415 E Walnut Dr	Diamond Bar	CA	91789
2420 Santa Fe Ave	Redondo Beach	CA	90278	280 Machlin Ct	City Of Industry	CA	91789
4231 Liberty Blvd	South Gate	CA	90280	425 S Lemon Ave	City of Industry	CA	91789
4301 E Firestone Blvd	South Gate	CA	90280	21901 Ferrero Pky	City of Industry	CA	91789
2680 Sequoia Dr	South Gate	CA	90280	21415 Baker Pky	City Of Industry	CA	91789
2401 Firestone Blvd	South Gate	CA	90280	4200 W Valley Blvd	Walnut	CA	91789
8751 Rayo Ave	South Gate	CA	90280	19700 Business Pky	Walnut	CA	91789
4570 Ardine St	South Gate	CA	90280	179 S Grand Ave	City Of Industry	CA	91789
5321 E Firestone Blvd	South Gate	CA	90280	383 S Cheryl Ln	City Of Industry	CA	91789
9350 Rayo Ave	South Gate	CA	90280	20002 E Business Pky	City Of Industry	CA	91789
2601 Sequoia Dr	South Gate	CA	90280	19515 E Walnut Dr N	City Of Industry	CA	91789
4452 Ardine St	South Gate	CA	90280	3900 Valley Blvd	Walnut	CA	91789
5037 Patata St	South Gate	CA	90280	218 Machlin Ct	City of Industry	CA	91789
2323 Firestone Blvd	South Gate	CA	90280	223 Brea Canyon Rd	City of Industry	CA	91789
5625 E Firestone Blvd	South Gate	CA	90280	501 Cheryl Ln	City Of Industry	CA	91789
10240 Alameda St	South Gate	CA	90280	19850 E Business Pky	Walnut	CA	91789
4500 Ardine St	South Gate	CA	90280	21508 Baker Pky	City Of Industry	CA	91789
2610 Wisconsin Ave	South Gate	CA	90280	381 Brea Canyon Rd	City of Industry	CA	91789
8621 S Rayo Ave	South Gate	CA	90280	200 Old Ranch Rd	Walnut	CA	91789
5011 Firestone Pl	South Gate	CA	90280	108 S Mayo Ave	City Of Industry	CA	91789
4100 Ardmore Ave	South Gate	CA	90280	20275 Business Pky	Walnut	CA	91789
8616 Otis St	South Gate	CA	90280	20470 E Business Pky	City of Industry	CA	91789
2741 Seminole Dr	South Gate	CA	90280	21558 Ferrero Pky	City of Industry	CA	91789
9700 E Frontage Ave	South Gate	CA	90280	20595 Business Pky	Walnut	CA	91789
8990 S Atlantic Ave	South Gate	CA	90280	455 Brea Canyon Rd	City Of Industry	CA	91789
9301 S Garfield Ave	South Gate	CA	90280	19635 E Walnut Dr N	City Of Industry	CA	91789
4361 E Firestone Blvd	South Gate	CA	90280	535 S Brea Canyon Rd	Walnut	CA	91789
2641 Seminole Dr	South Gate	CA	90280	20435 E Business Pky	Walnut	CA	91789
8685 Bowers Ave	South Gate	CA	90280	680 S Lemon Ave	City Of Industry	CA	91789
261 W Beach Ave	Inglewood	CA	90302	515 S Lemon Ave	City of Industry	CA	91789
540 N Oak St	Inglewood	CA	90302	19901 Harrison Ave	City Of Industry	CA	91789
687 N Eucalyptus Ave	Inglewood	CA	90302	20405 Business Pky	Walnut	CA	91789
490 N Oak St	Inglewood	CA	90302	21003 Commerce Pointe Dr	City Of Industry	CA	91789
1100 Colorado Blvd	Santa Monica	CA	90401	21490 Baker Pky	City Of Industry	CA	91789
1540 Francisco St	Torrance	CA	90501	21508 Ferrero Pky	City Of Industry	CA	91789
19600 S Western Ave	Torrance	CA	90501	222 N Vincent Ave	West Covina	CA	91790
19321 S Harbortgate Way	Torrance	CA	90501	2801 W Mission Rd	Alhambra	CA	91803
2012 Abalone Ave	Torrance	CA	90501	1000 Meridian Ave	Alhambra	CA	91803

Property Address	City	State	Zip	Property Address	City	State	Zip
1331 W Torrance Blvd	Torrance	CA	90501	3201 W Mission Rd	Alhambra	CA	91803
19145 Gramercy Pl	Torrance	CA	90501	905 Westminster Ave	Alhambra	CA	91803
19400 S Western Ave	Torrance	CA	90501	82851 Avenue 45	Indio	CA	92201
1452 W Knox St	Torrance	CA	90501	82585 Showcase Pky	Indio	CA	92203
19400 Harborgate Way	Torrance	CA	90501	1777 W Lincoln St	Banning	CA	92220
20263 S Western Ave	Torrance	CA	90501	533 E 3rd St	Beaumont	CA	92223
1540 W 190th St	Torrance	CA	90501	415 Nicholas Rd	Beaumont	CA	92223
19200 S Western Ave	Torrance	CA	90501	862 W 4th St	Beaumont	CA	92223
19800 Van Ness Ave	Torrance	CA	90501	630 Nicholas Rd	Beaumont	CA	92223
1451 Knox St	Torrance	CA	90501	1010 W 4th St	Beaumont	CA	92223
1450 W 228th St	Torrance	CA	90501	920 W 4th St	Beaumont	CA	92223
19001 S Western Ave	Torrance	CA	90501	1020 Prosperity Way	Beaumont	CA	92223
20100 S Western Ave	Torrance	CA	90501	52200 Industrial Way	Coachella	CA	92236
2027 Harpers Way	Torrance	CA	90501	85901 Avenue 53	Coachella	CA	92236
19001 Harborgate Way	Torrance	CA	90501	85810 Peter Rabbit Ln	Coachella	CA	92236
1580 Francisco St	Torrance	CA	90501	Two Bunch Palms Trail	Desert Hot Springs	CA	92240
19900 Van Ness Ave	Torrance	CA	90501	411 W Garnet Ave	Palm Springs	CA	92263
1640 W 190th St	Torrance	CA	90501	54895 Fillmore St	Thermal	CA	92274
501 Van Ness Ave	Torrance	CA	90501	87500 Airport Blvd	Thermal	CA	92274
19561 Harborgate Way	Torrance	CA	90501	22069 Van Buren St	Grand Terrace	CA	92313
19600 Van Ness Ave	Torrance	CA	90501	3255 S Cactus Ave	Bloomington	CA	92316
2300 Crenshaw Blvd	Torrance	CA	90501	1551 S Lilac Ave	Bloomington	CA	92316
19700 Van Ness Ave	Torrance	CA	90501	11260 Cedar Ave	Bloomington	CA	92316
20000 S Western Ave	Torrance	CA	90501	18244 Valley Blvd	Bloomington	CA	92316
20100 S Vermont Ave	Torrance	CA	90502	305 W Resource Dr	Rialto	CA	92316
19901 Hamilton Ave	Torrance	CA	90502	315 W Resource Dr	Bloomington	CA	92316
19900 S Vermont Ave	Torrance	CA	90502	18750 Orange St	Bloomington	CA	92316
19310 Pacific Gateway Dr	Torrance	CA	90502	3520 S Cactus Ave	Bloomington	CA	92316
1000 190th St	Torrance	CA	90502	12050 Agua Mansa Rd	Bloomington	CA	92316
20051 S Vermont Ave	Torrance	CA	90502	3370 Enterprise Dr	Bloomington	CA	92316
19681 Pacific Gateway Dr	Torrance	CA	90502	1409 S Lilac Ave	Bloomington	CA	92316
19875 Pacific Gateway Dr	Torrance	CA	90502	3375 Enterprise Dr	Bloomington	CA	92316
19780 Pacific Gateway Dr	Torrance	CA	90502	330 Resource Dr	Bloomington	CA	92316
1000 Francisco St	Torrance	CA	90502	18012 Slover Ave	Bloomington	CA	92316
19301 Pacific Gateway Dr	Torrance	CA	90502	3350 S Enterprise Ave	Bloomington	CA	92316
19500 S Vermont Ave	Torrance	CA	90502	17820 Slover Ave	Bloomington	CA	92316
970 Francisco St	Torrance	CA	90502	18298 Slover Ave	Bloomington	CA	92316
20333 Normandie Ave	Torrance	CA	90502	127 W Jurupa Ave	Rialto	CA	92316
2727 Maricopa St	Torrance	CA	90503	3994 S Riverside Ave	Colton	CA	92324
301 Crenshaw Blvd	Torrance	CA	90503	2245 W Valley Blvd	Colton	CA	92324
2925 California St	Torrance	CA	90503	1801 E Cooley Dr	Colton	CA	92324
2700 California St	Torrance	CA	90503	330 W Citrus Ave	Colton	CA	92324
538 Crenshaw Blvd	Torrance	CA	90503	280 De Berry St	Colton	CA	92324
19200 Hawthorne Blvd	Torrance	CA	90503	12249 Holly St	Colton	CA	92324
588 Crenshaw Blvd	Torrance	CA	90503	3996 S Riverside Ave	Colton	CA	92324
525 Maple Ave	Torrance	CA	90503	2063 W Bustamante Pky	Colton	CA	92324
2610 Columbia St	Torrance	CA	90503	225 W Acacia Ave	Colton	CA	92324
4100 W 190th St	Torrance	CA	90504	3700 S Riverside Ave	Colton	CA	92324
4240 W 190th St	Torrance	CA	90504	1501 Cooley Dr	Colton	CA	92324
4302 W 190th St	Torrance	CA	90504	1601 E Steel Rd	Colton	CA	92324
18700 Crenshaw Blvd	Torrance	CA	90504	1601 Fairway Dr	Colton	CA	92324
2525 W 190th St	Torrance	CA	90504	2163 S Riverside Ave	Colton	CA	92324
3000 W Lomita Blvd	Torrance	CA	90505	1600 W Agua Mansa Rd	Colton	CA	92324
23540 Telo Ave	Torrance	CA	90505	1601 E Cooley Dr	Colton	CA	92324
2600 Skypark Dr	Torrance	CA	90505	2036 Miguel Bustamante Pky	Colton	CA	92324
2901 Airport Dr	Torrance	CA	90505	1603 Steel Rd	Colton	CA	92324
23215 Early Ave	Torrance	CA	90505	311 W Citrus St	Colton	CA	92324
3963 Workman Mill Rd	City Of Industry	CA	90601	21700 Barton Rd	Colton	CA	92324
3777 Workman Mill Rd	City Of Industry	CA	90601	2053 Miguel Bustamante Pky	Colton	CA	92324
2645 Pacific Park Dr	Whittier	CA	90601	1601 Ashley Way	Colton	CA	92324
2680 S Pellissier Pl	City Of Industry	CA	90601	10917 Cherry Ave	Fontana	CA	92331
3931 Workman Mill Rd	City Of Industry	CA	90601	13048 Valley Blvd	Fontana	CA	92335
2727 S Workman Mill Rd	City of Industry	CA	90601	10288 Calabash Ave	Fontana	CA	92335
2300 Pellissier Pl	City of Industry	CA	90601	13450 Napa St	Fontana	CA	92335

Property Address	City	State	Zip	Property Address	City	State	Zip
2225 Workman Mill Rd	City of Industry	CA	90601	13373 Napa St	Fontana	CA	92335
12031 Philadelphia St	Whittier	CA	90601	13232 Valley Blvd	Fontana	CA	92335
3737 Capitol Ave	City of Industry	CA	90601	13053 San Bernardino Ave	Fontana	CA	92335
3735 Workman Mill Rd	City Of Industry	CA	90601	9950 Calabash Ave	Fontana	CA	92335
12910 Mulberry Dr	Whittier	CA	90602	8375 Sultana Ave	Fontana	CA	92335
12352 Whittier Blvd	Whittier	CA	90602	9211 Kaiser Way	Fontana	CA	92335
12252 Whittier Blvd	Whittier	CA	90602	13600 Napa St	Fontana	CA	92335
8550 Chetle Ave	Whittier	CA	90606	13265 Valley Blvd	Fontana	CA	92335
12100 Rivera Rd	Whittier	CA	90606	9988 Redwood Ave	Fontana	CA	92335
8189 Byron Rd	Whittier	CA	90606	13055 Valley Blvd	Fontana	CA	92335
6311 Knott Ave	Buena Park	CA	90620	13369 Valley Blvd	Fontana	CA	92335
6261 Caballero Blvd	Buena Park	CA	90620	13310 Valley Blvd	Fontana	CA	92335
6600 Valley View St	Buena Park	CA	90620	9774 Calabash Ave	Fontana	CA	92335
6905 Aragon Cir	Buena Park	CA	90620	9415 Kaiser Way	Fontana	CA	92335
6388 Artesia Blvd	Buena Park	CA	90620	13649 Valley Blvd	Fontana	CA	92335
6363 Regio Ave	Buena Park	CA	90620	14000 San Bernardino Ave	Fontana	CA	92335
6900 Orangethorpe Ave	Buena Park	CA	90620	13550 Valley Blvd	Fontana	CA	92335
6800 Valley View St	Buena Park	CA	90620	13277 San Bernardino Ave	Fontana	CA	92335
6400 Valley View St	Buena Park	CA	90620	13230 San Bernardino Ave	Fontana	CA	92335
6101 Knott Ave	Buena Park	CA	90620	13479 Valley Blvd	Fontana	CA	92335
6300 Regio Ave	Buena Park	CA	90620	9687 Transportation Way	Fontana	CA	92335
6280 Artesia Blvd	Buena Park	CA	90620	15895 Valley Blvd	Fontana	CA	92335
6570 Altura Blvd	Buena Park	CA	90620	8432 Almeria Ave	Fontana	CA	92335
6300 Regio Ave	Buena Park	CA	90620	7801 Cherry Ave	Fontana	CA	92336
6485 Descanso Ave	Buena Park	CA	90620	7630 Cherry Ave	Fontana	CA	92336
6545 Caballero Blvd	Buena Park	CA	90620	14750 Miller Ave	Fontana	CA	92336
6700 Artesia Blvd	Buena Park	CA	90620	5565 Sierra Ave	Fontana	CA	92336
6230 Descanso Ave	Buena Park	CA	90620	14527 Baseline Ave	Fontana	CA	92336
6880 Caballero Blvd	Buena Park	CA	90620	14605 Miller Ave	Fontana	CA	92336
6450 Caballero Blvd	Buena Park	CA	90620	7551 Cherry Ave	Fontana	CA	92336
6270 Caballero Blvd	Buena Park	CA	90620	14600 Bar Harbor Rd	Fontana	CA	92336
6800 Artesia Blvd	Buena Park	CA	90620	14650 Miller Ave	Fontana	CA	92336
6660 Orangethorpe Ave	Buena Park	CA	90620	7953 Cherry Ave	Fontana	CA	92336
6201 Regio Ave	Buena Park	CA	90620	14780 Bar Harbor Rd	Fontana	CA	92336
6300 Valley View St	Buena Park	CA	90620	5885 Sierra Ave	Fontana	CA	92336
6250 Caballero Blvd	Buena Park	CA	90620	7351 McGuire Ave	Fontana	CA	92336
6565 Knott Ave	Buena Park	CA	90620	7875 Hemlock Ave	Fontana	CA	92336
6525 Caballero Blvd	Buena Park	CA	90620	14650 Meyer Canyon Rd	Fontana	CA	92336
6251 Regio Ave	Buena Park	CA	90620	14597 Baseline Ave	Fontana	CA	92336
6201 Knott Ave	Buena Park	CA	90620	6101 Sierra Ave	Fontana	CA	92336
5650 Dolly Ave	Buena Park	CA	90621	14613 Bar Harbor Rd	Fontana	CA	92336
7025 Firestone Blvd	Buena Park	CA	90621	14779 Bar Harbor Rd	Fontana	CA	92336
5600 Beach Blvd	Buena Park	CA	90621	16270 Jurupa Ave	Fontana	CA	92337
7221 Cate Dr	Buena Park	CA	90621	11127 Catawba Ave	Fontana	CA	92337
5600 Knott Ave	Buena Park	CA	90621	10730 Production Ave	Fontana	CA	92337
5609 River Way	Buena Park	CA	90621	11275 Banana Ave	Fontana	CA	92337
7220 Cate Dr	Buena Park	CA	90621	13397 Marlay Ave	Fontana	CA	92337
5911 Fresca Dr	La Palma	CA	90623	11880 Pacific Ave	Fontana	CA	92337
5593 Fresca Dr	La Palma	CA	90623	10681 Production Ave	Fontana	CA	92337
5692 Fresca Dr	La Palma	CA	90623	11695 Pacific Ave	Fontana	CA	92337
6565 Valley View St	La Palma	CA	90623	17300 Slover Ave	Fontana	CA	92337
14000 E 183rd St	La Palma	CA	90623	12060 Cabernet Dr	Fontana	CA	92337
6901 Marlin Cir	La Palma	CA	90623	15996 Jurupa Ave	Fontana	CA	92337
11130 Holder St	Cypress	CA	90630	11081 Banana Ave	Fontana	CA	92337
11411 Valley View St	Cypress	CA	90630	11440 Pacific Ave	Fontana	CA	92337
5560 Katella Ave	Cypress	CA	90630	11251 Beech Ave	Fontana	CA	92337
6200 Phyllis Dr	Cypress	CA	90630	13414 Slover Ave	Fontana	CA	92337
11251 Warland Dr	Cypress	CA	90630	11591 Etiwanda Ave	Fontana	CA	92337
11150 Hope St	Cypress	CA	90630	13083 Slover Ave	Fontana	CA	92337
6550 Katella Ave	Cypress	CA	90630	13231 Slover Ave	Fontana	CA	92337
5665 Corporate Ave	Cypress	CA	90630	10851 Sierra Ave	Fontana	CA	92337
6600 Katella Ave	Cypress	CA	90630	10613 Jasmine St	Fontana	CA	92337
6450 Katella Ave	Cypress	CA	90630	13169 Slover Ave	Fontana	CA	92337
11130 Warland Dr	Cypress	CA	90630	11001 Etiwanda Ave	Fontana	CA	92337

Property Address	City	State	Zip	Property Address	City	State	Zip
10800 Valley View St	Cypress	CA	90630	11016 Mulberry Ave	Fontana	CA	92337
10824 Hope St	Cypress	CA	90630	11751 Cabernet Dr	Fontana	CA	92337
5440 Cerritos Ave	Cypress	CA	90630	13472 Marlay Ave	Fontana	CA	92337
5757 Plaza Dr	Cypress	CA	90630	13521 S Santa Ana Ave	Fontana	CA	92337
6032 Katella Ave	Cypress	CA	90630	10727 Commerce Way	Fontana	CA	92337
600 S Harbor Blvd	La Habra	CA	90631	10700 Business Dr	Fontana	CA	92337
1111 S Harbor Blvd	La Habra	CA	90631	10746 Commerce Way	Fontana	CA	92337
777 S Harbor Blvd	La Habra	CA	90631	10837 Commerce Way	Fontana	CA	92337
15221 Canary Ave	La Mirada	CA	90638	11875 Cabernet Dr	Fontana	CA	92337
14501 Artesia Blvd	La Mirada	CA	90638	13204 Philadelphia Ave	Fontana	CA	92337
14405 Artesia Blvd	La Mirada	CA	90638	13201 Dahlia St	Fontana	CA	92337
14450 Industry Cir	La Mirada	CA	90638	10825 Beech Ave	Fontana	CA	92337
15500 Phoebe Ave	La Mirada	CA	90638	1200 S Etiwanda Ave	Fontana	CA	92337
14041 Rosecrans Ave	La Mirada	CA	90638	10825 Production Ave	Fontana	CA	92337
14950 Valley View Ave	La Mirada	CA	90638	12925 Marlay Ave	Fontana	CA	92337
14720 E Alondra Blvd	La Mirada	CA	90638	11900 Cabernet Dr	Fontana	CA	92337
16800 E Trojan Way	La Mirada	CA	90638	13489 Slover Ave	Fontana	CA	92337
16930 Valley View Ave	La Mirada	CA	90638	13508 Marlay Ave	Fontana	CA	92337
16222 Phoebe Ave	La Mirada	CA	90638	13512 Marlay Ave	Fontana	CA	92337
14445 Alondra Blvd	La Mirada	CA	90638	12903 Jurupa Ave	Fontana	CA	92337
16420 Valley View Ave	La Mirada	CA	90638	11070 Mulberry Ave	Fontana	CA	92337
14001 Rosecrans Ave	La Mirada	CA	90638	10721 Jasmine St	Fontana	CA	92337
14659 Alondra Blvd	La Mirada	CA	90638	13032 Slover Ave	Fontana	CA	92337
16200 Trojan Way	La Mirada	CA	90638	13052 Jurupa Ave	Fontana	CA	92337
16400 Trojan Way	La Mirada	CA	90638	SEC Oleander & Santa Ana Ave	Fontana	CA	92337
16050 Canary Ave	La Mirada	CA	90638	12005 Cabernet Dr	Fontana	CA	92337
14585 Industry Cir	La Mirada	CA	90638	13050 Marlay Ave	Fontana	CA	92337
15005 Northam St	La Mirada	CA	90638	11700 Industry Ave	Fontana	CA	92337
15910 Valley View Ave	La Mirada	CA	90638	15750 Jurupa Ave	Fontana	CA	92337
14647 Northam St	La Mirada	CA	90638	13204 Jurupa Ave	Fontana	CA	92337
16501 Trojan Way	La Mirada	CA	90638	10846 Commerce Way	Fontana	CA	92337
15155 Northam St	La Mirada	CA	90638	11101 Etiwanda Ave	Fontana	CA	92337
15500 Valley View Ave	La Mirada	CA	90638	10586 Tamarind Ave	Fontana	CA	92337
14221 Artesia Blvd	La Mirada	CA	90638	13611 Jurupa Ave	Fontana	CA	92337
14355 Industry Cir	La Mirada	CA	90638	15971 Santa Ana Ave	Fontana	CA	92337
14701 Industry Cir	La Mirada	CA	90638	11260 Elm Ave	Fontana	CA	92337
14930 Alondra Blvd	La Mirada	CA	90638	10651 Elm Ave	Fontana	CA	92337
15300 Desman Rd	La Mirada	CA	90638	13423 Santa Ana Ave	Fontana	CA	92337
14101 Rosecrans Blvd	La Mirada	CA	90638	15910 Jurupa Ave	Fontana	CA	92337
14407 Alondra Blvd	La Mirada	CA	90638	11001 Citrus Ave	Fontana	CA	92337
15090 Northam St	La Mirada	CA	90638	10886 S Citrus Ave	Fontana	CA	92337
15130 Northam St	La Mirada	CA	90638	11754 Cabernet Dr	Fontana	CA	92337
16301 Trojan Way	La Mirada	CA	90638	11100 Hemlock Ave	Fontana	CA	92337
16000 Heron Ave	La Mirada	CA	90638	14874 Jurupa Ave	Fontana	CA	92337
14380 Industry Cir	La Mirada	CA	90638	11250 Poplar Ave	Fontana	CA	92337
16400 Knott Ave	La Mirada	CA	90638	13489 Jurupa Ave	Fontana	CA	92337
14455 Industry Cir	La Mirada	CA	90638	10850 Business Dr	Fontana	CA	92337
16651 Knott Ave	La Mirada	CA	90638	15801 Santa Ana Ave	Fontana	CA	92337
6913 Acco St	Montebello	CA	90640	15101 Santa Ana Ave	Fontana	CA	92337
7227 Telegraph Rd	Montebello	CA	90640	10760 Tamarind Ave	Fontana	CA	92337
1221 Frankel Ave	Montebello	CA	90640	11618 Mulberry Ave	Fontana	CA	92337
1150 S Taylor Ave	Montebello	CA	90640	11751 Industry Ave	Fontana	CA	92337
1501 Greenwood Ave	Montebello	CA	90640	16171 Santa Ana Ave	Fontana	CA	92337
7301 Telegraph Rd	Montebello	CA	90640	13366 Philadelphia Ave	Fontana	CA	92337
1 Minson Way	Montebello	CA	90640	13367 Marlay Ave	Fontana	CA	92337
901 Union St	Montebello	CA	90640	10725 Sierra Ave	Fontana	CA	92337
7171 Telegraph Rd	Montebello	CA	90640	11895 Cabernet Dr	Fontana	CA	92337
1540 S Greenwood Ave	Montebello	CA	90640	10509 Business Dr	Fontana	CA	92337
1550 S Maple Ave	Montebello	CA	90640	10918 Cherry Ave	Fontana	CA	92337
1220 W Washington Blvd	Montebello	CA	90640	10798 Catawba Ave	Fontana	CA	92337
3579 Minson Ave	Montebello	CA	90640	11188 Citrus Ave	Fontana	CA	92337
1620 S Greenwood Ave	Montebello	CA	90640	13003 Slover Ave	Fontana	CA	92337
1620 S Maple Ave	Montebello	CA	90640	15889 Slover Ave	Fontana	CA	92337
825 S Vail Ave	Montebello	CA	90640	11281 Citrus Ave	Fontana	CA	92337

Property Address	City	State	Zip	Property Address	City	State	Zip
1520 Beach St	Montebello	CA	90640	10606 Commerce Way	Fontana	CA	92337
6905 Acco St	Montebello	CA	90640	10661 Etiwanda Ave	Fontana	CA	92337
1515 Gage Rd	Montebello	CA	90640	13500 Marlay Ave	Fontana	CA	92337
1501 Date St	Montebello	CA	90640	10545 Production Ave	Fontana	CA	92337
7107 Telegraph Rd	Montebello	CA	90640	13170 Marlay Ave	Fontana	CA	92337
666 Union St	Montebello	CA	90640	11800 Industry Ave	Fontana	CA	92337
800 Union St	Montebello	CA	90640	13379 Jurupa Ave	Fontana	CA	92337
2101 W Flotilla St	Montebello	CA	90640	15816 Santa Ana Ave	Fontana	CA	92337
14405 Best Ave	Norwalk	CA	90650	9441 N Opal Ave	Mentone	CA	92359
15301 Shoemaker Ave	Norwalk	CA	90650	801 Opal Ave	Mentone	CA	92359
15505 Shoemaker Ave	Norwalk	CA	90650	490 Nevada St	Redlands	CA	92373
12851 Leyva St	Norwalk	CA	90650	2125 San Bernardino Ave	Redlands	CA	92373
14820 Carmenita Rd	Norwalk	CA	90650	1675 W Park Ave	Redlands	CA	92373
12840 E Leyva St	Norwalk	CA	90650	301 Tennessee St	Redlands	CA	92373
11100 Firestone Blvd	Norwalk	CA	90650	27352 River Bluff Ave	Redlands	CA	92374
4700 Gregg Rd	Pico Rivera	CA	90660	2456 W Lugonia Ave	Redlands	CA	92374
4741 S Durfee Ave	Pico Rivera	CA	90660	9724 Alabama St	Redlands	CA	92374
8800 Rex Rd	Pico Rivera	CA	90660	2200 W San Bernardino Ave	Redlands	CA	92374
8500 Rex Rd	Pico Rivera	CA	90660	2255 W Lugonia Ave	Redlands	CA	92374
9935 Beverly Blvd	Pico Rivera	CA	90660	2459 Almond Ave	Redlands	CA	92374
8500 Mercury Ln	Pico Rivera	CA	90660	26940 Palmetto Ave	Redlands	CA	92374
8625 Rex Rd	Pico Rivera	CA	90660	27573 River Bluff Ave	Redlands	CA	92374
8460 E Whittier Blvd	Pico Rivera	CA	90660	26525 Pioneer Ave	Redlands	CA	92374
5102 Industry Ave	Pico Rivera	CA	90660	1897 E Colton Ave	Redlands	CA	92374
4800 Gregg Rd	Pico Rivera	CA	90660	26763 San Bernardino Ave	Redlands	CA	92374
8820 Mercury Ln	Pico Rivera	CA	90660	26871 San Bernardino Ave	Redlands	CA	92374
8900 Rex Rd	Pico Rivera	CA	90660	2301 W San Bernardino Ave	Redlands	CA	92374
8320 Rex Rd	Pico Rivera	CA	90660	9425 California St	Redlands	CA	92374
4901 Gregg Rd	Pico Rivera	CA	90660	2501 W San Bernardino Ave	Redlands	CA	92374
8525 Rex Rd	Pico Rivera	CA	90660	26950 San Bernardino Ave	Redlands	CA	92374
8321 Canford St	Pico Rivera	CA	90660	1651 California St	Redlands	CA	92374
8905 Rex Rd	Pico Rivera	CA	90660	2200 Palmetto Ave	Redlands	CA	92374
8570 Mercury Ln	Pico Rivera	CA	90660	27223 Pioneer Ave	Redlands	CA	92374
8350 Rex Rd	Pico Rivera	CA	90660	27334 San Bernardino Ave	Redlands	CA	92374
8001 Telegraph Rd	Pico Rivera	CA	90660	27517 Pioneer Ave	Redlands	CA	92374
8700 Rex Rd	Pico Rivera	CA	90660	27582 Pioneer Ave	Redlands	CA	92374
7185 Rosemead Blvd	Pico Rivera	CA	90660	26875 Pioneer Ave	Redlands	CA	92374
8200 E Slauson Ave	Pico Rivera	CA	90660	9712 Alabama St	Redlands	CA	92374
7860 Paramount Blvd	Pico Rivera	CA	90660	1251 Research Dr	Redlands	CA	92374
8700 Mercury Ln	Pico Rivera	CA	90660	1300 California St	Redlands	CA	92374
7255 Rosemead Blvd	Pico Rivera	CA	90660	26881 Palmetto Ave	Redlands	CA	92374
7875 Telegraph Rd	Pico Rivera	CA	90660	26682 Almond Ave	Redlands	CA	92374
11204 Norwalk Blvd	Santa Fe Springs	CA	90670	9425 Nevada St	Redlands	CA	92374
13220 Molette St	Santa Fe Springs	CA	90670	1455 Research Dr	Redlands	CA	92374
13408 Orden Dr	Santa Fe Springs	CA	90670	1730 Marigold Ave	Redlands	CA	92374
13415 Carmenita Rd	Santa Fe Springs	CA	90670	2300 W San Bernardino Ave	Redlands	CA	92374
15015 Valley View Ave	Santa Fe Springs	CA	90670	26635 Pioneer Ave	Redlands	CA	92374
8945 Dice Rd	Santa Fe Springs	CA	90670	26681 San Bernardino Ave	Redlands	CA	92374
9211 Norwalk Blvd	Santa Fe Springs	CA	90670	1898 Marigold Ave	Redlands	CA	92374
12801 Excelsior Dr	Santa Fe Springs	CA	90670	1480 Mountain View Ave	Redlands	CA	92374
9206 Santa Fe Springs Rd	Santa Fe Springs	CA	90670	1950 Palmetto Ave	Redlands	CA	92374
11688 Greenstone Ave	Santa Fe Springs	CA	90670	1901 California St	Redlands	CA	92374
15120 Marquardt Ave	Santa Fe Springs	CA	90670	27040 San Bernardino Ave	Redlands	CA	92374
9501 Norwalk Blvd	Santa Fe Springs	CA	90670	2185 Lugonia Ave	Redlands	CA	92374
12202 E Slauson Ave	Santa Fe Springs	CA	90670	26759 Almond Ave	Redlands	CA	92374
10035 Geary Ave	Santa Fe Springs	CA	90670	9375 Alabama St	Redlands	CA	92374
12320 Bloomfield Ave	Santa Fe Springs	CA	90670	26717 Palmetto Ave	Redlands	CA	92374
13438 Foster Rd	Santa Fe Springs	CA	90670	26597 San Bernardino Ave	Redlands	CA	92374
13225 Alondra Blvd	Santa Fe Springs	CA	90670	9889 Almond Ave	Redlands	CA	92374
11333 Greenstone Ave	Santa Fe Springs	CA	90670	27081 Almond Ave	Redlands	CA	92374
10900 Painter Ave	Santa Fe Springs	CA	90670	2470 W Lugonia Ave	Redlands	CA	92374
10628 Fulton Wells Ave	Santa Fe Springs	CA	90670	2255 W San Bernardino Ave	Redlands	CA	92374
9700 Bell Ranch Dr	Santa Fe Springs	CA	90670	1895 Marigold Ave	Redlands	CA	92374
13607 Orden Dr	Santa Fe Springs	CA	90670	1898 E Colton Ave	Redlands	CA	92374

Property Address	City	State	Zip	Property Address	City	State	Zip
15700 Shoemaker Ave	Santa Fe Springs	CA	90670	2290 Palmetto Ave	Redlands	CA	92374
12935 Leffingwell Ave	Santa Fe Springs	CA	90670	2250 W Lugonia Ave	Redlands	CA	92375
11925 E Pike St	Santa Fe Springs	CA	90670	1450 Alder Ave	Rialto	CA	92376
12928 Sandoval St	Santa Fe Springs	CA	90670	1552 N Alder Ave	Rialto	CA	92376
11600 Los Nietos Rd	Santa Fe Springs	CA	90670	1371 N Laurel Ave	Rialto	CA	92376
13409 Orden Dr	Santa Fe Springs	CA	90670	2625 W Renaissance Pky	Rialto	CA	92376
13500 Foster Rd	Santa Fe Springs	CA	90670	1979 W Renaissance Pky	Rialto	CA	92376
8834 Millergrrove Dr	Santa Fe Springs	CA	90670	360 S Lilac Ave	Rialto	CA	92376
13225 Marquardt Ave	Santa Fe Springs	CA	90670	1660 N Linden Ave	Rialto	CA	92376
15510 Carmenita Rd	Santa Fe Springs	CA	90670	1314 W Merrill Ave	Rialto	CA	92376
10805 Painter Ave	Santa Fe Springs	CA	90670	1568 N Linden Ave	Rialto	CA	92376
12235 Bell Ranch Dr	Santa Fe Springs	CA	90670	1710 W Base Line Rd	Rialto	CA	92376
14141 Alondra Blvd	Santa Fe Springs	CA	90670	1364 W Rialto Ave	Rialto	CA	92376
9601 John St	Santa Fe Springs	CA	90670	1221 Alder Ave	Rialto	CA	92376
13227 Orden Dr	Santa Fe Springs	CA	90670	1998 W Baseline Rd	Rialto	CA	92376
12065 Pike St	Santa Fe Springs	CA	90670	1464 W Merrill Ave	Rialto	CA	92376
9200 Sorensen Ave	Santa Fe Springs	CA	90670	300 S Cedar Ave	Rialto	CA	92376
12418 Florence Ave	Santa Fe Springs	CA	90670	1401 Alder Ave	Rialto	CA	92376
12828 Carmenita Rd	Santa Fe Springs	CA	90670	1920 W Baseline Rd	Rialto	CA	92376
12318 Florence Ave	Santa Fe Springs	CA	90670	450 S Cactus Ave	Rialto	CA	92376
12301 Hawkins St	Santa Fe Springs	CA	90670	1110 W Merrill Ave	Rialto	CA	92376
9830 Norwalk Blvd	Santa Fe Springs	CA	90670	2510 W Walnut Ave	Rialto	CA	92376
13113 Adler Rd	Santa Fe Springs	CA	90670	562 W Santa Ana Ave	Rialto	CA	92376
13132 Lakeland Rd	Santa Fe Springs	CA	90670	2450 W Walnut Ave	Rialto	CA	92376
8808 Pioneer Blvd	Santa Fe Springs	CA	90670	1686 W Base Line Rd	Rialto	CA	92376
12034 Greenstone Ave	Santa Fe Springs	CA	90670	2245 Renaissance Pkwy	Rialto	CA	92376
10715 Shoemaker Ave	Santa Fe Springs	CA	90670	1543 Alder Ave	Rialto	CA	92376
8110 Sorensen Ave	Santa Fe Springs	CA	90670	1590 N Tamarind Ave	Rialto	CA	92376
12012 Burke St	Santa Fe Springs	CA	90670	371 S Cactus Ave	Rialto	CA	92376
15160 Spring Ave	Santa Fe Springs	CA	90670	1642 W Miro Way	Rialto	CA	92376
10506 Shoemaker Ave	Santa Fe Springs	CA	90670	1495 Tamarind Ave	Rialto	CA	92376
11650 Burke St	Santa Fe Springs	CA	90670	1420 N Tamarind Ave	Rialto	CA	92376
11529 Greenstone Ave	Santa Fe Springs	CA	90670	1750 Miro Way	Rialto	CA	92376
12827 E Imperial Hwy	Santa Fe Springs	CA	90670	120 S Cedar Ave	Rialto	CA	92376
11320 Bloomfield Ave	Santa Fe Springs	CA	90670	548 W Merrill Ave	Rialto	CA	92376
14027 Borate St	Santa Fe Springs	CA	90670	1960 W Miro Way	Rialto	CA	92376
12310 E Slauson Ave	Santa Fe Springs	CA	90670	181 S Larch Ave	Rialto	CA	92376
12330 Lakeland Rd	Santa Fe Springs	CA	90670	2225 Alder Ave	Rialto	CA	92377
14066 Borate St	Santa Fe Springs	CA	90670	2602 N Locust Ave	Rialto	CA	92377
13827 Carmenita Rd	Santa Fe Springs	CA	90670	2180 N Locust Ave	Rialto	CA	92377
13642 Orden Dr	Santa Fe Springs	CA	90670	1508 W Casmalia St	Rialto	CA	92377
10107 Norwalk Blvd	Santa Fe Springs	CA	90670	2415 N Locust Ave	Rialto	CA	92377
9306 Sorensen Ave	Santa Fe Springs	CA	90670	3196 N Locust Ave	Rialto	CA	92377
8724 Millergrrove Dr	Santa Fe Springs	CA	90670	3105 N Alder Ave	Rialto	CA	92377
12681 Corral Pl	Santa Fe Springs	CA	90670	3110 N Alder Ave	Rialto	CA	92377
12311 Shoemaker Ave	Santa Fe Springs	CA	90670	1850 Vineyard Ave	Rialto	CA	92377
13901 Carmenita Rd	Santa Fe Springs	CA	90670	4982 Hallmark Pky	San Bernardino	CA	92407
13012 Molette St	Santa Fe Springs	CA	90670	2552 W Shenandoah Way	San Bernardino	CA	92407
12500 E Slauson Ave	Santa Fe Springs	CA	90670	5454 A Industrial Park	San Bernardino	CA	92407
12866 Ann St	Santa Fe Springs	CA	90670	7140 N Cajon Blvd	San Bernardino	CA	92407
13861 Rosecrans Ave	Santa Fe Springs	CA	90670	2765 Lexington Way	San Bernardino	CA	92407
13833 Borate St	Santa Fe Springs	CA	90670	6010 N Cajon Blvd	San Bernardino	CA	92407
11811 E Florence Ave	Santa Fe Springs	CA	90670	3454 Mike Daley Dr	San Bernardino	CA	92407
9101 Sorensen Ave	Santa Fe Springs	CA	90670	5685 Industrial Pky	San Bernardino	CA	92407
15614 Shoemaker Ave	Santa Fe Springs	CA	90670	2705 Lexington Way	San Bernardino	CA	92407
9630 Norwalk Blvd	Santa Fe Springs	CA	90670	7010 N Cajon Blvd	San Bernardino	CA	92407
12816 Adler Dr	Santa Fe Springs	CA	90670	3372 N Mike Daley Dr	San Bernardino	CA	92407
13220 Orden Dr	Santa Fe Springs	CA	90670	4472 Georgia Blvd	San Bernardino	CA	92407
9400 Santa Fe Springs Rd	Santa Fe Springs	CA	90670	4162 Georgia Blvd	San Bernardino	CA	92407
13530 Rosecrans Ave	Santa Fe Springs	CA	90670	5080 Hallmark Pky	San Bernardino	CA	92407
10006 Santa Fe Springs Rd	Santa Fe Springs	CA	90670	5415 N Industrial Pky	San Bernardino	CA	92407
12821 Carmenita Rd	Santa Fe Springs	CA	90670	5959 Palm Ave	San Bernardino	CA	92407
12801 Excelsior Dr	Santa Fe Springs	CA	90670	5990 N Cajon Blvd	San Bernardino	CA	92407

Property Address	City	State	Zip	Property Address	City	State	Zip
13325 Molette St	Santa Fe Springs	CA	90670	5404 Industrial Pky	San Bernardino	CA	92407
13833 Freeway Dr	Santa Fe Springs	CA	90670	1761 Interchange Dr	San Bernardino	CA	92407
13146 Firestone Blvd	Santa Fe Springs	CA	90670	3525 N Mike Daley Dr	San Bernardino	CA	92407
11130 Bloomfield Ave	Santa Fe Springs	CA	90670	6227 Cajon Blvd	San Bernardino	CA	92407
14911 Valley View Ave	Santa Fe Springs	CA	90670	4010 Georgia Blvd	San Bernardino	CA	92407
12850 E Florence Ave	Santa Fe Springs	CA	90670	4382 N Georgia Blvd	San Bernardino	CA	92407
12935 Imperial Hwy	Santa Fe Springs	CA	90670	4382 Georgia Blvd	San Bernardino	CA	92407
12241 Florence Ave	Santa Fe Springs	CA	90670	7250 Cajon Blvd	San Bernardino	CA	92407
12909 Sandoval St	Santa Fe Springs	CA	90670	2612 W Shenandoah Way	San Bernardino	CA	92407
13545 Larwin Cir	Santa Fe Springs	CA	90670	1651 Interchange Dr	San Bernardino	CA	92407
12623 Cisneros Ln	Santa Fe Springs	CA	90670	5690 Industrial Pky	San Bernardino	CA	92407
12380 Clark St	Santa Fe Springs	CA	90670	19949 Kendall Dr	San Bernardino	CA	92407
12005 Pike St	Santa Fe Springs	CA	90670	17335 Glen Helen Pky	San Bernardino	CA	92407
15050 Shoemaker Ave	Santa Fe Springs	CA	90670	6207 Cajon Blvd	San Bernardino	CA	92407
15225 Bonavista Ave	Santa Fe Springs	CA	90670	5405 Industrial Pky	San Bernardino	CA	92407
12991 Marquardt Ave	Santa Fe Springs	CA	90670	1592 E San Bernardino Ave	San Bernardino	CA	92408
12588 Florence Ave	Santa Fe Springs	CA	90670	125 E Club Center Dr	San Bernardino	CA	92408
12802 Leffingwell Rd	Santa Fe Springs	CA	90670	1050 E Orange Show Rd	San Bernardino	CA	92408
12540 Slauson Ave	Santa Fe Springs	CA	90670	945 S Sunnyside Ave	San Bernardino	CA	92408
11954 Washington Blvd	Santa Fe Springs	CA	90670	980 E Mill St	San Bernardino	CA	92408
12801 Excelsior Dr	Santa Fe Springs	CA	90670	270 E Central Ave	San Bernardino	CA	92408
12009 Telegraph Rd	Santa Fe Springs	CA	90670	555 E Orange Show Rd	San Bernardino	CA	92408
13527 Orden Dr	Santa Fe Springs	CA	90670	1454 S Sunnyside Ave	San Bernardino	CA	92408
14044 Freeway Dr	Santa Fe Springs	CA	90670	701 S Arrowhead Ave	San Bernardino	CA	92408
11500 Los Nietos Rd	Santa Fe Springs	CA	90670	1295 E Central Ave	San Bernardino	CA	92408
11211 Greenstone Ave	Santa Fe Springs	CA	90670	1400 E Victoria Ave	San Bernardino	CA	92408
12801 Ann St	Santa Fe Springs	CA	90670	1089 E Mill St	San Bernardino	CA	92408
10810 Painter Ave	Santa Fe Springs	CA	90670	1350 N Waterman Ave	San Bernardino	CA	92408
12825 Leffingwell Rd	Santa Fe Springs	CA	90670	1410 E Central Ave	San Bernardino	CA	92408
14088 Borate St	Santa Fe Springs	CA	90670	300 S Tippecanoe Ave	San Bernardino	CA	92408
13635 E Freeway Dr	Santa Fe Springs	CA	90670	1470 S Tippecanoe Ave	San Bernardino	CA	92408
14404 Best Ave	Santa Fe Springs	CA	90670	675 E Central Ave	San Bernardino	CA	92408
9747 S Norwalk Blvd	Santa Fe Springs	CA	90670	1910 E Central Ave	San Bernardino	CA	92408
13341 Cambridge St	Santa Fe Springs	CA	90670	1456 E Harry Sheppard Blvd	San Bernardino	CA	92408
13700 Firestone Blvd	Santa Fe Springs	CA	90670	890 E Mill St	San Bernardino	CA	92408
12601 Shoemaker Ave	Santa Fe Springs	CA	90670	990 E Mill St	San Bernardino	CA	92408
10205 Painter Ave	Santa Fe Springs	CA	90670	1905 Riverview Dr	San Bernardino	CA	92408
12907 Imperial Hwy	Santa Fe Springs	CA	90670	570 E Mill St	San Bernardino	CA	92408
15415 Marquardt Ave	Santa Fe Springs	CA	90670	786 E Central Ave	San Bernardino	CA	92408
10747 Patterson Pl	Santa Fe Springs	CA	90670	520 E Orange Show Rd	San Bernardino	CA	92408
15305 Valley View Ave	Santa Fe Springs	CA	90670	736 W Inland Center Dr	San Bernardino	CA	92408
10521 Dale Ave	Stanton	CA	90680	825 E Central Ave	San Bernardino	CA	92408
14014 Arbor Pl	Cerritos	CA	90703	1445 Riverview Dr	San Bernardino	CA	92408
16012 Arthur St	Cerritos	CA	90703	1650 E Central Ave	San Bernardino	CA	92408
13012 Midway Pl	Cerritos	CA	90703	258 E Commercial Dr	San Bernardino	CA	92408
14101 Park Pl	Cerritos	CA	90703	255 S Waterman Ave	San Bernardino	CA	92408
14121 Artesia Blvd	Cerritos	CA	90703	Tippecanoe Ave	San Bernardino	CA	92408
16000 Carmenita Rd	Cerritos	CA	90703	750 S Valley View Ave	San Bernardino	CA	92408
15928 Commerce Way	Cerritos	CA	90703	2505 Steele St	San Bernardino	CA	92408
12836 Alondra Blvd	Cerritos	CA	90703	343 S Lena Rd	San Bernardino	CA	92408
12889 Moore St	Cerritos	CA	90703	301 S Tippecanoe Ave	San Bernardino	CA	92408
16069 Shoemaker Ave	Cerritos	CA	90703	631 S Waterman Ave	San Bernardino	CA	92408
16110 Carmenita Rd	Cerritos	CA	90703	1445 S Tippecanoe Ave	San Bernardino	CA	92408
14171 Park Pl	Cerritos	CA	90703	311 S Doolittle Ave	San Bernardino	CA	92408
17211 Valley View Ave	Cerritos	CA	90703	1494 S Waterman Ave	San Bernardino	CA	92408
16010 Shoemaker Ave	Cerritos	CA	90703	1393 E San Bernardino Ave	San Bernardino	CA	92408
12850 Midway Pl	Cerritos	CA	90703	1050 W Rialto Ave	San Bernardino	CA	92410
15905 Commerce Way	Cerritos	CA	90703	1500 W Rialto Ave	San Bernardino	CA	92410
18021 Valley View Ave	Cerritos	CA	90703	7776 Tippecanoe Ave	San Bernardino	CA	92410
15950 Bloomfield Ave	Cerritos	CA	90703	927 E 9th St	San Bernardino	CA	92410
12851 Midway Pl	Cerritos	CA	90703	3512 14th St	Riverside	CA	92501
17101 Valley View Ave	Cerritos	CA	90703	9700 Indiana Ave	Riverside	CA	92503
15959 Pioma Ave	Cerritos	CA	90703	8200 Arlington Ave	Riverside	CA	92503
13226 Alondra Blvd	Cerritos	CA	90703	12000 Magnolia Ave	Riverside	CA	92503

Property Address	City	State	Zip	Property Address	City	State	Zip
17817 Valley View Ave	Cerritos	CA	90703	7145 Arlington Ave	Riverside	CA	92503
13950 Cerritos Corporate Dr	Cerritos	CA	90703	7337 Central Ave	Riverside	CA	92504
13233 Moore St	Cerritos	CA	90703	8000 Lincoln Ave	Riverside	CA	92504
12928 Midway Pl	Cerritos	CA	90703	5825 Jasmine St	Riverside	CA	92504
14100 Vine Pl	Cerritos	CA	90703	2950 Jefferson St	Riverside	CA	92504
16028 Marquardt Ave	Cerritos	CA	90703	7809 Lincoln Ave	Riverside	CA	92504
16200 Carmenita Rd	Cerritos	CA	90703	7227 Central Ave	Riverside	CA	92504
13140 Midway Pl	Cerritos	CA	90703	16833 Krameria Ave	Riverside	CA	92504
13131 166th St	Cerritos	CA	90703	3100 Jefferson St	Riverside	CA	92504
15927 Distribution Way	Cerritos	CA	90703	1080 Mount Vernon Ave	Riverside	CA	92507
16290 Shoemaker Ave	Cerritos	CA	90703	797 Palmyrita Ct	Riverside	CA	92507
10811 Bloomfield	Los Alamitos	CA	90720	545 Columbia Ave	Riverside	CA	92507
10681 Calle Lee	Los Alamitos	CA	90720	705 Columbia Ave	Riverside	CA	92507
4411 Katella Ave	Los Alamitos	CA	90720	800 E La Cadena Dr	Riverside	CA	92507
7210 Alondra Blvd	Paramount	CA	90723	3080 12th St	Riverside	CA	92507
14350 Garfield Ave	Paramount	CA	90723	1001 Columbia Ave	Riverside	CA	92507
16706 Garfield Ave	Paramount	CA	90723	1495 Columbia Ave	Riverside	CA	92507
14001 S Garfield Ave	Paramount	CA	90723	6860 Sycamore Canyon Blvd	Riverside	CA	92507
14900 Garfield Ave	Paramount	CA	90723	875 Michigan Ct	Riverside	CA	92507
7743 Adams St	Paramount	CA	90723	1560 Sierra Ridge Dr	Riverside	CA	92507
14001 Orange Ave	Paramount	CA	90723	795 Columbia Ave	Riverside	CA	92507
15701 Minnesota Ave	Paramount	CA	90723	555 Palmyrita Ave	Riverside	CA	92507
350 Westmont Dr	San Pedro	CA	90731	6681 River Run Dr	Riverside	CA	92507
401 Westmont Ave	San Pedro	CA	90731	800 Iowa Ave	Riverside	CA	92507
300 Westmont Dr	San Pedro	CA	90731	6721 Sycamore Canyon Blvd	Riverside	CA	92507
111 E 22nd St	San Pedro	CA	90731	475 Palmyrita Ave	Riverside	CA	92507
901 New Dock St	Wilmington	CA	90731	6275 Lance Dr	Riverside	CA	92507
301 Westmont Dr	San Pedro	CA	90731	6150 Sycamore Canyon Blvd	Riverside	CA	92507
1710 Apollo Ct	Seal Beach	CA	90740	1730 Eastridge Ave	Riverside	CA	92507
1770 Saturn Way	Seal Beach	CA	90740	1651 Eastridge Ave	Riverside	CA	92507
1700 Saturn Way	Seal Beach	CA	90740	935 Palmyrita Ave	Riverside	CA	92507
2401 E Pacific Coast Hwy	Wilmington	CA	90744	1111 Citrus St	Riverside	CA	92507
909 Colon St	Wilmington	CA	90744	6688 Box Springs Blvd	Riverside	CA	92507
900 E M St	Wilmington	CA	90744	1580 Eastridge Ave	Riverside	CA	92507
901 E E St	Wilmington	CA	90744	780 Columbia Ave	Riverside	CA	92507
920 E Pacific Coast Hwy	Wilmington	CA	90744	3087 12th St	Riverside	CA	92507
301 N Figueroa St	Wilmington	CA	90744	6335 Sycamore Canyon Blvd	Riverside	CA	92507
990 E 233rd St	Carson	CA	90745	333 Palmyrita Ave	Riverside	CA	92507
901 E 233rd St	Carson	CA	90745	1850 Atlanta Ave	Riverside	CA	92507
900 Watson Center Rd	Carson	CA	90745	500 Palmyrita Ave	Riverside	CA	92507
1111 E Watson Center Rd	Carson	CA	90745	6250 Sycamore Canyon Blvd	Riverside	CA	92507
1145 E 233rd St	Carson	CA	90745	6075 Lance Dr	Riverside	CA	92507
1071 E 233rd St	Carson	CA	90745	6255 Sycamore Canyon Blvd	Riverside	CA	92507
1710 E Sepulveda Blvd	Carson	CA	90745	6400 Sycamore Canyon Blvd	Riverside	CA	92507
810 E 233rd St	Carson	CA	90745	6711 Sycamore Canyon Blvd	Riverside	CA	92507
23610 S Banning Blvd	Carson	CA	90745	1155 Mount Vernon Ave	Riverside	CA	92507
800 E 230th St	Carson	CA	90745	6125 Sycamore Canyon Blvd	Riverside	CA	92507
24760 S Main St	Carson	CA	90745	1200 Columbia Ave	Riverside	CA	92507
22941 S Wilmington Ave	Carson	CA	90745	6975 Sycamore Canyon Blvd	Riverside	CA	92507
22673 S Wilmington Ave	Carson	CA	90745	6677 Box Spring Blvd	Riverside	CA	92507
809 E 236th St	Carson	CA	90745	1100 Citrus St	Riverside	CA	92507
21175 S Main St	Carson	CA	90745	490 Columbia Ave	Riverside	CA	92507
1113 E 230th St	Carson	CA	90745	1660 Iowa Ave	Riverside	CA	92507
1015 E 236th St	Carson	CA	90745	2727 Kansas Ave	Riverside	CA	92507
22707 S Wilmington Ave	Carson	CA	90745	2111 Eastridge Ave	Riverside	CA	92507
1035 Watson Center Rd	Carson	CA	90745	2321 3rd St	Riverside	CA	92507
1610 E Sepulveda Blvd	Carson	CA	90745	1680 Eastridge Ave	Riverside	CA	92507
1241 Watson Center Rd	Carson	CA	90745	1455 Citrus Ave	Riverside	CA	92507
1040 E Watson Center Rd	Carson	CA	90745	1601 Iowa Ave	Riverside	CA	92507
909 E 236th St	Carson	CA	90745	1500 Eastridge Ave	Riverside	CA	92507
22560 Lucerne St	Carson	CA	90745	6980 Sycamore Canyon Blvd	Riverside	CA	92507
1058 E 230th St	Carson	CA	90745	1455 Columbia Ave	Riverside	CA	92507
851 Watson Center Rd	Carson	CA	90745	6659 Sycamore Canyon Blvd	Riverside	CA	92507

Property Address	City	State	Zip	Property Address	City	State	Zip
23011 S Wilmington Ave	Carson	CA	90745	1995 3rd St	Riverside	CA	92507
1031 Watson Center Rd	Carson	CA	90745	7295 San Gorgonio Dr	Riverside	CA	92508
1165 E 230th St	Carson	CA	90745	7345 Sycamore Canyon Blvd	Riverside	CA	92508
1041 E 230th St	Carson	CA	90745	7105 Old 215 Frontage Rd	Riverside	CA	92508
720 Watson Center Rd	Carson	CA	90745	7350 San Gorgonio Dr	Riverside	CA	92508
989 E 233rd St	Carson	CA	90745	2325 Cottonwood Ave	Riverside	CA	92508
23000 Avalon Blvd	Carson	CA	90745	2325 Cottonwood Ave	Riverside	CA	92508
1130 Watson Center Rd	Carson	CA	90745	12246 Holly St	Riverside	CA	92509
1231 E 230th St	Carson	CA	90745	10045 Limonite Ave	Jurupa Valley	CA	92509
1021 E 233rd St	Carson	CA	90745	9670 Galena St	Jurupa Valley	CA	92509
23601 S Wilmington Ave	Carson	CA	90745	1135 Hall Ave	Jurupa Valley	CA	92509
1000 E 223rd St	Carson	CA	90745	4851 Felspar St	Jurupa Valley	CA	92509
24700 S Main St	Carson	CA	90745	6510 General Dr	Jurupa Valley	CA	92509
1350 E 223rd St	Carson	CA	90745	4510 Rutile St	Jurupa Valley	CA	92509
1240 E 230th St	Carson	CA	90745	5300 Via Ricardo	Jurupa Valley	CA	92509
22351 Wilmington Ave	Carson	CA	90745	6580 General Rd	Jurupa Valley	CA	92509
1118 E 223rd St	Carson	CA	90745	2356 Fleetwood Dr	Jurupa Valley	CA	92509
1130 E 230th St	Carson	CA	90745	2345 Fleetwood Dr	Jurupa Valley	CA	92509
24600 S Main St	Carson	CA	90745	1755 Brown Ave	Riverside	CA	92509
21023 S Main St	Carson	CA	90745	12215 Holly St	Riverside	CA	92509
23301 S Wilmington Ave	Carson	CA	90745	2350 Fleetwood Dr	Jurupa Valley	CA	92509
22600 S Bonita Ave	Carson	CA	90745	2100 Avalon St	Jurupa Valley	CA	92509
771 Watson Center Rd	Carson	CA	90745	14600 Innovation Dr	Riverside	CA	92518
1220 Watson Center Rd	Carson	CA	90745	14950 Meridian Pky	March Air Reserve Base	CA	92518
17145 S Margay Ave	Carson	CA	90746	15750 Meridian Pky	Riverside	CA	92518
18420 Harmon Ave	Carson	CA	90746	14605 Innovation Dr	Riverside	CA	92518
18655 S Bishop Ave	Carson	CA	90746	14855 Innovation Dr	Riverside	CA	92518
18300 Central Ave	Carson	CA	90746	14540 Innovation Dr	Riverside	CA	92518
18055 Harmon Ave	Carson	CA	90746	21800 Authority Way	Riverside	CA	92518
1535 E Beachey Pl	Carson	CA	90746	22000 Opportunity Way	Riverside	CA	92518
1501 E Victoria St	Carson	CA	90746	14751 Meridian Pky	Riverside	CA	92518
18431 S Wilmington Ave	Carson	CA	90746	20801 Krameria Ave	Riverside	CA	92518
18120 Bishop Ave	Carson	CA	90746	22280 Opportunity Way	Riverside	CA	92518
1500 E Glenn Curtiss St	Carson	CA	90746	22220 Opportunity Way	Riverside	CA	92518
1371 Charles Willard St	Carson	CA	90746	14813 Meridian Pky	Riverside	CA	92518
1725 Charles Willard St	Carson	CA	90746	20901 Krameria Ave	Riverside	CA	92518
16525 S Avalon Blvd	Carson	CA	90746	15801 Meridian Pky	Riverside	CA	92518
1380 Charles Willard St	Carson	CA	90746	15001 Meridian Pky	Riverside	CA	92518
1450 Glenn Curtiss St	Carson	CA	90746	14350 Meridian Pky	Riverside	CA	92518
1550 Charles Willard St	Carson	CA	90746	21822 Opportunity Way	Riverside	CA	92518
1650 E Glenn Curtiss St	Carson	CA	90746	5733 W Whittier Ave	Hemet	CA	92545
16325 S Avalon Blvd	Carson	CA	90746	17350 Perris Blvd	Moreno Valley	CA	92551
1651 E Glenn Curtiss St	Carson	CA	90746	24950 Grove View Rd	Moreno Valley	CA	92551
966 E Sandhill Ave	Carson	CA	90746	16875 Heacock St	Moreno Valley	CA	92551
1460 Beachey Pl	Carson	CA	90746	24960 San Michele Rd	Moreno Valley	CA	92551
1065 E Walnut St	Carson	CA	90746	17500 N Perris Blvd	Moreno Valley	CA	92551
17000 Kingsview Ave	Carson	CA	90746	24520 San Michele Rd	Moreno Valley	CA	92551
3201 Walnut Ave	Signal Hill	CA	90755	16901 San Celeste	Moreno Valley	CA	92551
3366 E Willow St	Signal Hill	CA	90755	17101 Heacock St	Moreno Valley	CA	92551
1281 Pier G Way	Long Beach	CA	90802	16110 Cosmos St	Moreno Valley	CA	92551
Pier F	Long Beach	CA	90802	24600 Nandina Ave	Moreno Valley	CA	92551
2500 E Thompson St	Long Beach	CA	90805	24300 Nandina Ave	Moreno Valley	CA	92551
6375 Paramount Blvd	Long Beach	CA	90805	24870 Nandina Ave	Moreno Valley	CA	92551
2201 E Market St	Long Beach	CA	90805	25300 Globe St	Moreno Valley	CA	92551
105 W Victoria St	Long Beach	CA	90805	17300 Perris Blvd	Moreno Valley	CA	92551
105 W Victoria St	Long Beach	CA	90805	17825 Indian St	Moreno Valley	CA	92551
6925 N Paramount Blvd	Long Beach	CA	90805	24103 San Michele Rd	Moreno Valley	CA	92551
6979 Cherry Ave	Long Beach	CA	90805	24975 Nandina Ave	Moreno Valley	CA	92551
100 W Victoria St	Long Beach	CA	90805	16850 Heacock St	Moreno Valley	CA	92551
3333 Airport Way	Long Beach	CA	90806	16415 Cosmos St	Moreno Valley	CA	92551
3500 E Willow St	Long Beach	CA	90806	24101 Iris Ave	Moreno Valley	CA	92551
2600 Temple Ave	Long Beach	CA	90806	17800 Perris Blvd	Moreno Valley	CA	92551
2401 E Wardlow Rd	Long Beach	CA	90807	17791 Perris Blvd	Moreno Valley	CA	92551

Property Address	City	State	Zip	Property Address	City	State	Zip
2400 E Wardlow Rd	Long Beach	CA	90807	24901 San Michele Rd	Moreno Valley	CA	92551
1800 E Wardlow Rd	Long Beach	CA	90807	17783 Indian St	Moreno Valley	CA	92551
4800 Conant St	Long Beach	CA	90808	24385 Nandina Ave	Moreno Valley	CA	92551
4001 Worsham Ave	Long Beach	CA	90808	15810 Heacock St	Moreno Valley	CA	92551
4501 E Conant St	Long Beach	CA	90808	17100 Perris Blvd	Moreno Valley	CA	92551
3701 Conant St	Long Beach	CA	90808	24208 San Michele Rd	Moreno Valley	CA	92551
3700 Cover St	Long Beach	CA	90808	25100 Globe St	Moreno Valley	CA	92551
3205 N Lakewood Blvd	Long Beach	CA	90808	23400 Cactus Ave	Moreno Valley	CA	92553
4175 E Conant St	Long Beach	CA	90808	14300 Graham St	Moreno Valley	CA	92553
3855 N Lakewood Blvd	Long Beach	CA	90808	14255 Elsworth St	Moreno Valley	CA	92553
2300 Redondo Ave	Long Beach	CA	90809	23700 Cactus Ave	Moreno Valley	CA	92553
3600 E Burnett Ave	Long Beach	CA	90809	23800 Cactus Ave	Moreno Valley	CA	92553
2211 E Carson St	Carson	CA	90810	23360 Cactus Ave	Moreno Valley	CA	92553
2320 E Dominguez St	Carson	CA	90810	22150 Goldencrest Dr	Moreno Valley	CA	92553
2839 El Presidio St	Carson	CA	90810	23650 Brodiaea Ave	Moreno Valley	CA	92553
2807 El Presidio St	Carson	CA	90810	22135 Alessandro Blvd	Moreno Valley	CA	92553
1483 W Via Plata St	Long Beach	CA	90810	22750 Cactus Ave	Moreno Valley	CA	92553
20500 S Alameda St	Carson	CA	90810	23400 Cactus Ave	Moreno Valley	CA	92553
2161 E Dominguez St	Long Beach	CA	90810	22705 Newhope St	Moreno Valley	CA	92553
2201 E Carson St	Carson	CA	90810	23532 Brodiaea Ave	Moreno Valley	CA	92553
2630 E El Presidio St	Carson	CA	90810	28020 Eucalyptus Ave	Moreno Valley	CA	92555
2220 E Carson St	Carson	CA	90810	28010 Eucalyptus Ave	Moreno Valley	CA	92555
2270 E 220th St	Carson	CA	90810	28025 Eucalyptus Ave	Moreno Valley	CA	92555
21950 Arnold Center Rd	Carson	CA	90810	28015 Eucalyptus Ave	Moreno Valley	CA	92555
2155 E 220th St	Carson	CA	90810	12661 Aldi Pl	Moreno Valley	CA	92555
2132 E Dominguez St	Carson	CA	90810	29800 Eucalyptus Ave	Moreno Valley	CA	92555
21136 S Wilmington Ave	Carson	CA	90810	25720 Jefferson Ave	Murrieta	CA	92562
2000 E Carson St	Carson	CA	90810	38655 Sky Canyon Dr	Murrieta	CA	92563
21906 Arnold Center Rd	Carson	CA	90810	30590 Cochise Cir	Murrieta	CA	92563
20633 S Fordyce Ave	Carson	CA	90810	19940 Hansen Ave	Nuevo	CA	92567
1665 Hughes Way	Long Beach	CA	90810	24312 Daytona Cove	Perris	CA	92570
20974 S Santa Fe Ave	Long Beach	CA	90810	24195 Orange Ave	Perris	CA	92570
20488 Reeves Ave	Carson	CA	90810	17618 Harvill Ave	Perris	CA	92570
21900 S Wilmington Ave	Carson	CA	90810	18810 Harvill Ave	Perris	CA	92570
20355 Reeves Ave	Carson	CA	90810	23129 Cajalco Rd	Perris	CA	92570
2649 E Dominguez St	Long Beach	CA	90810	17789 Old Oleander Blvd	Perris	CA	92570
2131 W Willow St	Long Beach	CA	90810	707 E 4th St	Perris	CA	92570
2711 E Dominguez St	Long Beach	CA	90810	23123 Cajalco Rd	Perris	CA	92570
1500 W Dominguez St	Long Beach	CA	90810	24201 Orange Ave	Perris	CA	92570
21750 S Arnold Center Dr	Carson	CA	90810	145 Malbert St	Perris	CA	92570
3025 E Dominguez St	Carson	CA	90810	18310 Harvill Ave	Perris	CA	92570
2011 E Carson St	Carson	CA	90810	22780 Harley Knox Blvd	Perris	CA	92570
20600 S Alameda St	Carson	CA	90810	3350 Redlands Ave	Perris	CA	92571
20801 S Santa Fe Ave	Carson	CA	90810	4413 Patterson Ave	Perris	CA	92571
2116 E 220th St	Carson	CA	90810	375 Markham St	Perris	CA	92571
2200 Technology Pl	Long Beach	CA	90810	4565 Redlands Ave	Perris	CA	92571
2888 E El Presidio St	Carson	CA	90810	3100 N Perris Blvd	Perris	CA	92571
2230 E Carson St	Carson	CA	90810	4555 Redlands Ave	Perris	CA	92571
20642 S Fordyce Ave	Carson	CA	90810	251 E Rider St	Perris	CA	92571
2417 E Carson St	Carson	CA	90810	290 W Markham St	Perris	CA	92571
2250 E 220th St	Carson	CA	90810	657 Nance St	Perris	CA	92571
20444 Reeves Ave	Carson	CA	90810	100 W Sinclair St	Perris	CA	92571
20499 Reeves Ave	Carson	CA	90810	4323 Indian Ave	Perris	CA	92571
1925 E Dominguez St	Carson	CA	90810	400 Harley Knox Blvd	Perris	CA	92571
2001 E Dominguez St	Long Beach	CA	90810	4150 Patterson Ave	Perris	CA	92571
3900 Via Oro	Long Beach	CA	90810	3411 N Perris Blvd	Perris	CA	92571
20943 S Maciel Ave	Carson	CA	90810	3700 Indian Ave	Perris	CA	92571
2400 E Dominguez St	Long Beach	CA	90810	4378 N Perris Blvd	Perris	CA	92571
1431 W Via Plata St	Long Beach	CA	90810	353 Perry St	Perris	CA	92571
20434 S Santa Fe Ave	Carson	CA	90810	4100 N Webster Ave	Perris	CA	92571
1981 E 213th St	Carson	CA	90810	3500 Indian Ave	Perris	CA	92571
2255 E 220th St	Carson	CA	90810	3300 Indian Ave	Perris	CA	92571
1901 W Pacific Coast Hwy	Long Beach	CA	90810	501 Harley Knox Blvd	Perris	CA	92571

Property Address	City	State	Zip	Property Address	City	State	Zip
20821 S Santa Fe Ave	Carson	CA	90810	2830 Barrett Ave	Perris	CA	92571
2575 El Presidio St	Carson	CA	90810	3984 Indian Ave	Perris	CA	92571
20639 S Fordyce Ave	Carson	CA	90810	278 W Markham St	Perris	CA	92571
2201 E Dominguez St	Carson	CA	90810	22722 Harley Knox Blvd	Perris	CA	92571
625 W Anaheim St	Long Beach	CA	90813	4120 Indian St	Perris	CA	92571
1710 Pier B St	Long Beach	CA	90813	3691 N Perris Blvd	Perris	CA	92571
1711 Harbor Ave	Long Beach	CA	90813	4120 Indian St	Perris	CA	92571
3500 E Burnett Ave	Long Beach	CA	90815	3411 N Perris Blvd	Perris	CA	92571
4184 Conant St	Long Beach	CA	90846	3900 Indian Ave	Perris	CA	92571
3788 Conant St	Long Beach	CA	90846	3404 Indian Ave	Perris	CA	92571
4022 Conant St	Long Beach	CA	90846	350 W Markham St	Perris	CA	92571
4600 Conant St	Long Beach	CA	90846	1320 S Buena Vista St	San Jacinto	CA	92583
4350 Conant St	Long Beach	CA	90846	41573 Dendy Pky	Temecula	CA	92590
12321 Lower Azusa Rd	Arcadia	CA	91006	28820 Single Oak Dr	Temecula	CA	92590
12389 Lower Azusa Rd	Arcadia	CA	91006	43044 Business Park Dr	Temecula	CA	92590
12359 Lower Azusa Rd	Arcadia	CA	91006	42375 Remington Ave	Temecula	CA	92590
12339 Lower Azusa Rd	Arcadia	CA	91006	42301 Bostik Ct	Temecula	CA	92590
1700 Business Center Dr	Duarte	CA	91010	26879 Diaz Rd	Temecula	CA	92590
1801 Highland Ave	Duarte	CA	91010	27565 Diaz Rd	Temecula	CA	92590
2310 Central Ave	Duarte	CA	91010	43085 Business Park Dr	Temecula	CA	92590
801 Royal Oaks Dr	Monrovia	CA	91016	28381 Vincent Moraga Dr	Temecula	CA	92590
9545 Wentworth St	Sunland	CA	91040	43195 Business Park Dr	Temecula	CA	92590
1015 S Arroyo Pky	Pasadena	CA	91105	42301 Zevo Dr	Temecula	CA	92590
26801 Agoura Rd	Calabasas	CA	91301	41995 Zevo Dr	Temecula	CA	92590
6633 Canoga Ave	Canoga Park	CA	91303	41980 Winchester Rd	Temecula	CA	92590
8901 Canoga Ave	Canoga Park	CA	91304	41915 Business Park Dr	Temecula	CA	92590
8900 De Soto Ave	Canoga Park	CA	91304	27719 Diaz Rd	Temecula	CA	92590
8900 De Soto Ave	Canoga Park	CA	91304	42500 Winchester Rd	Temecula	CA	92590
9401 De Soto Ave	Chatsworth	CA	91311	43225 Business Park Dr	Temecula	CA	92590
8900 De Soto Ave	Canoga Park	CA	91311	40750 County Center Dr	Temecula	CA	92591
9409 Owensmouth Ave	Chatsworth	CA	91311	26040 Ynez Rd	Temecula	CA	92591
9109 Mason Ave	Chatsworth	CA	91311	40610 County Center Dr	Temecula	CA	92591
20000 Prairie St	Chatsworth	CA	91311	26201 Ynez Rd	Temecula	CA	92591
9631 De Soto Ave	Chatsworth	CA	91311	40761 County Center Dr	Temecula	CA	92591
20730 Prairie St	Chatsworth	CA	91311	26531 Ynez Rd	Temecula	CA	92591
20400 Plummer St	Chatsworth	CA	91311	3660 Brennan Ave	Perris	CA	92599
9419 Mason Ave	Chatsworth	CA	91311	14370 Myford Rd	Irvine	CA	92606
21701 Prairie St	Chatsworth	CA	91311	14600 Myford Rd	Irvine	CA	92606
20525 Nordhoff St	Chatsworth	CA	91311	14350 Myford Rd	Irvine	CA	92606
9120 Mason Ave	Chatsworth	CA	91311	1452 Alton Pky	Irvine	CA	92606
9140 Lurline Ave	Chatsworth	CA	91311	14524 Myford Rd	Irvine	CA	92606
21314 Lassen St	Chatsworth	CA	91311	16700 Red Hill Ave	Irvine	CA	92606
21350 Lassen St	Chatsworth	CA	91311	2815 Warner Ave	Irvine	CA	92606
9700 Independence Ave	Chatsworth	CA	91311	2152 Alton Pky	Irvine	CA	92606
9301 Mason Ave	Chatsworth	CA	91311	1601 Alton Pkwy	Irvine	CA	92606
20701 Plummer St	Chatsworth	CA	91311	1600 Barranca Pky	Irvine	CA	92606
21605 Plummer St	Chatsworth	CA	91311	1 Icon	Foothill Ranch	CA	92610
8900 De Soto Ave	Canoga Park	CA	91311	80 Icon	Foothill Ranch	CA	92610
9453 Owensmouth Ave	Chatsworth	CA	91311	50 Icon	Foothill Ranch	CA	92610
20650 Prairie St	Chatsworth	CA	91311	20131 Ellipse	Foothill Ranch	CA	92610
8900 De Soto Ave	Canoga Park	CA	91311	19511 Pauling	Foothill Ranch	CA	92610
18537 Parthenia St	Northridge	CA	91324	26972 Burbank Ave	Foothill Ranch	CA	92610
19901 Nordhoff St	Northridge	CA	91324	25892 Towne Centre Dr	Foothill Ranch	CA	92610
8500 Balboa Blvd	Northridge	CA	91329	19531 Pauling	Foothill Ranch	CA	92610
12708 Branford St	Pacoima	CA	91331	20 Icon	Foothill Ranch	CA	92610
10865 Sutter Ave	Pacoima	CA	91331	25861 Wright St	Foothill Ranch	CA	92610
12224 Montague St	Pacoima	CA	91331	20081 Ellipse	Foothill Ranch	CA	92610
10241 Norris Ave	Pacoima	CA	91331	20001 Ellipse Dr	Foothill Ranch	CA	92610
12878 Pierce St	Pacoima	CA	91331	1062 McGaw Ave	Irvine	CA	92614
13592 Desmond St	Pacoima	CA	91331	17482 Pullman St	Irvine	CA	92614
12450 Branford St	Pacoima	CA	91331	2323 Main St	Irvine	CA	92614
12820 Pierce St	Pacoima	CA	91331	17352 Derian Ave	Irvine	CA	92614
12154 Montague St	Pacoima	CA	91331	17352 Armstrong Ave	Irvine	CA	92614
675 Glenoaks Blvd	San Fernando	CA	91340	1 Edwards Way	Irvine	CA	92614

Property Address	City	State	Zip	Property Address	City	State	Zip
1150 Aviation Pl	San Fernando	CA	91340	17421 Von Karman Ave	Irvine	CA	92614
13571 Vaughn St	San Fernando	CA	91340	2026 McGaw Ave	Irvine	CA	92614
1245 Aviation Pl	San Fernando	CA	91340	121 Waterworks Way	Irvine	CA	92618
1145 Arroyo Ave	San Fernando	CA	91340	5 Marconi	Irvine	CA	92618
13207 Bradley Ave	Sylmar	CA	91342	20 Goodyear	Irvine	CA	92618
13259 Ralston Ave	Sylmar	CA	91342	9750 Irvine Blvd	Irvine	CA	92618
15180 Bledsoe St	Sylmar	CA	91342	9401 Toledo Way	Irvine	CA	92618
13100 Telfair Ave	Sylmar	CA	91342	1 Holland	Irvine	CA	92618
12780 San Fernando Rd	Sylmar	CA	91342	34 Parker	Irvine	CA	92618
15624 Roxford St	Sylmar	CA	91342	7000 Barranca Pky	Irvine	CA	92618
13291 Ralston Ave	Sylmar	CA	91342	117 Waterworks Way	Irvine	CA	92618
13235 Golden State Rd	Sylmar	CA	91342	9500 Jeronimo Rd	Irvine	CA	92618
12744 San Fernando Rd	Sylmar	CA	91342	6001 Oak Canyon	Irvine	CA	92618
12745 Arroyo St	Sylmar	CA	91342	6489 Oak Canyon	Irvine	CA	92618
13287 Ralston Ave	Sylmar	CA	91342	14300 Alton Pky	Irvine	CA	92618
15825 Roxford St	Sylmar	CA	91342	15800 Laguna Canyon Rd	Irvine	CA	92618
15860 Olden St	Sylmar	CA	91342	9400 Jeronimo Rd	Irvine	CA	92618
15648 Roxford St	Sylmar	CA	91342	5 Pasteur	Irvine	CA	92618
12975 Bradley Ave	Sylmar	CA	91342	9271 Jeronimo Rd	Irvine	CA	92618
14093 Balboa Blvd	Sylmar	CA	91342	67 Fairbanks	Irvine	CA	92618
12740 Arroyo St	Sylmar	CA	91342	9650 Jeronimo Rd	Irvine	CA	92618
15853 Olden St	Sylmar	CA	91342	8014 Marine Way	Irvine	CA	92618
13943 Balboa Blvd	Sylmar	CA	91342	15041 Bake Pky	Irvine	CA	92618
15148 Bledsoe St	Sylmar	CA	91342	9300 Toledo Way	Irvine	CA	92618
15900 Valley View Ct	Sylmar	CA	91342	76 Fairbanks	Irvine	CA	92618
16450 Foothill Blvd	Sylmar	CA	91342	9300 Toledo Way	Irvine	CA	92618
16633 Schoenborn St	North Hills	CA	91343	6485 Oak Canyon	Irvine	CA	92618
16719 Schoenborn St	North Hills	CA	91343	14155 Bake Pky	Irvine	CA	92618
16689 Schoenborn St	North Hills	CA	91343	10 Whatney	Irvine	CA	92618
25655 Springbrook Ave	Santa Clarita	CA	91350	9 Holland St	Irvine	CA	92618
25655 Springbrook Ave	Santa Clarita	CA	91350	9801 Muirlands Blvd	Irvine	CA	92618
20705 Centre Pointe Pky	Santa Clarita	CA	91350	1585 MacArthur Blvd	Costa Mesa	CA	92626
9545 San Fernando Rd	Sun Valley	CA	91352	1650 Sunflower Ave	Costa Mesa	CA	92626
7900 San Fernando Rd	Sun Valley	CA	91352	1660 Scenic Ave	Costa Mesa	CA	92626
7608 N Clybourn Ave	Sun Valley	CA	91352	1683 Sunflower Ave	Costa Mesa	CA	92626
9800 Glenoaks Blvd	Sun Valley	CA	91352	1701 Placentia Ave	Costa Mesa	CA	92627
10635 Stagg St	Sun Valley	CA	91352	20200 Windrow Dr	Lake Forest	CA	92630
9171 San Fernando Rd	Sun Valley	CA	91352	25392 Commercentre Dr	Lake Forest	CA	92630
12250 Montague St	Sun Valley	CA	91352	25952 Commercentre Dr	Lake Forest	CA	92630
10947 Pendleton St	Sun Valley	CA	91352	25862 Commercentre Dr	Lake Forest	CA	92630
11308 Penrose St	Sun Valley	CA	91352	14520 Delta Ln	Huntington Beach	CA	92647
9210 San Fernando Rd	Sun Valley	CA	91352	17311 Nichols Ln	Huntington Beach	CA	92647
10671 Lanark St	Sun Valley	CA	91352	5701 Skylab Rd	Huntington Beach	CA	92647
29115 Avenue Valleyview	Valencia	CA	91355	5800 Skylab Rd	Huntington Beach	CA	92647
24903 Avenue Kearny	Valencia	CA	91355	5700 Skylab Rd	Huntington Beach	CA	92647
29010 Avenue Paine	Valencia	CA	91355	7391 Heil Ave	Huntington Beach	CA	92647
28104 Witherspoon Pky	Valencia	CA	91355	14505 Astronautics Dr	Huntington Beach	CA	92647
27712 Avenue Mentry	Valencia	CA	91355	5901 Bolsa Ave	Huntington Beach	CA	92647
28901 N Avenue Paine	Valencia	CA	91355	5601 Skylab Rd	Huntington Beach	CA	92647
27811 Hancock Pky	Valencia	CA	91355	5951 Skylab Rd	Huntington Beach	CA	92647
28939 Avenue Williams	Valencia	CA	91355	5801 Skylab Rd	Huntington Beach	CA	92647
28355 Witherspoon Pky	Valencia	CA	91355	16350 Gothard St	Huntington Beach	CA	92647
25045 Avenue Tibbitts	Valencia	CA	91355	5900 Skylab Rd	Huntington Beach	CA	92647
29125 Avenue Paine	Valencia	CA	91355	7601 Clay Ave	Huntington Beach	CA	92648
28751 Witherspoon Pky	Valencia	CA	91355	5551 McFadden Ave	Huntington Beach	CA	92649
29120 Commerce Center Dr	Valencia	CA	91355	15342 Graham St	Huntington Beach	CA	92649
28936 Avenue Williams	Valencia	CA	91355	15400 Graham St	Huntington Beach	CA	92649
28470 Witherspoon Pky	Valencia	CA	91355	5600 Argosy Cir	Huntington Beach	CA	92649
27420 Avenue Scott	Valencia	CA	91355	22 Brookline	Aliso Viejo	CA	92656
28305 W Livingston Ave	Valencia	CA	91355	33608 Ortega Hwy	San Juan Capistrano	CA	92675
26121 Avenue Hall	Valencia	CA	91355	30800 Rancho Viejo Rd	San Juan Capistrano	CA	92675
25145 Anza Dr	Valencia	CA	91355	7400 Hazard Ave	Westminster	CA	92683
27680 Avenue Mentry	Valencia	CA	91355	15172 Goldenwest Cir	Westminster	CA	92683

Property Address	City	State	Zip	Property Address	City	State	Zip
28624 Witherspoon Pky	Valencia	CA	91355	29947 Avenida De Las Banderas	Rancho Santa Margarita	CA	92688
29010 Commerce Center Dr	Valencia	CA	91355	30200 Avenida De Las Banderas	Rancho Santa Margarita	CA	92688
28545 Livingston Ave W	Valencia	CA	91355	22591 Avenida Empresa	Rancho Santa Margarita	CA	92688
28909 Avenue Williams	Valencia	CA	91355	30322 Esperanza	Rancho Santa Margarita	CA	92688
28101 Industry Dr	Valencia	CA	91355	625 N Grand Ave	Santa Ana	CA	92701
25200 Rye Canyon Rd	Valencia	CA	91355	511 N Fairview St	Santa Ana	CA	92703
28150 Industry Dr	Valencia	CA	91355	3100 S Susan St	Santa Ana	CA	92704
27772 Avenue Scott	Santa Clarita	CA	91355	3441 W MacArthur Blvd	Santa Ana	CA	92704
27727 Avenue Scott	Valencia	CA	91355	3100 W Segerstrom Ave	Santa Ana	CA	92704
27801 Avenue Scott	Valencia	CA	91355	2811 S Harbor Blvd	Santa Ana	CA	92704
28455 Livingston Ave	Valencia	CA	91355	2701 S Harbor Blvd	Santa Ana	CA	92704
29040 Avenue Valleyview	Valencia	CA	91355	2700 S Fairview St	Santa Ana	CA	92704
28454 Livingston Ave	Valencia	CA	91355	4041 W Garry Ave	Santa Ana	CA	92704
28680 Braxton Ave	Valencia	CA	91355	3300 W Segerstrom Ave	Santa Ana	CA	92704
28210 Avenue Stanford	Valencia	CA	91355	3731 Warner Ave	Santa Ana	CA	92704
27911 W Franklin Pky	Valencia	CA	91355	4042 W Garry Ave	Santa Ana	CA	92704
29125 Avenue Valley View	Valencia	CA	91355	3300 S Fairview St	Santa Ana	CA	92704
28145 W Harrison Pky	Valencia	CA	91355	3030 S Susan St	Santa Ana	CA	92704
28310 W Livingston Ave	Valencia	CA	91355	3330 S Harbor	Santa Ana	CA	92704
28361 Constellation Rd	Valencia	CA	91355	3323 W Warner Ave	Santa Ana	CA	92704
29011 Commerce Center Dr	Valencia	CA	91355	2801 S Yale St	Santa Ana	CA	92704
24800 Avenue Rockefeller	Valencia	CA	91355	3201 S Susan St	Santa Ana	CA	92704
21200 Victory Blvd	Woodland Hills	CA	91367	3400 W Garry Ave	Santa Ana	CA	92704
21240 Burbank Blvd	Woodland Hills	CA	91367	1929 E Saint Andrew Pl	Santa Ana	CA	92705
14000 Arminta St	Panorama City	CA	91402	2400 S Grand Ave	Santa Ana	CA	92705
14400 Arminta St	Panorama City	CA	91402	2001 E Carnegie Ave	Santa Ana	CA	92705
7860 Nelson Rd	Van Nuys	CA	91402	2801 Catherine Way	Santa Ana	CA	92705
7900 Nelson Rd	Panorama City	CA	91402	2040 E Dyer Rd	Santa Ana	CA	92705
7651 Woodman Ave	Panorama City	CA	91402	2036 E Dyer Rd	Santa Ana	CA	92705
14200 Arminta St	Panorama City	CA	91402	1800 E Dyer Rd	Santa Ana	CA	92705
7865 Nelson Rd	Panorama City	CA	91402	1800 E Saint Andrew Pl	Santa Ana	CA	92705
7519 Woodman Ave	Van Nuys	CA	91405	3030 Red Hill Ave	Santa Ana	CA	92705
15800 Roscoe Blvd	Van Nuys	CA	91406	2525 Pullman St	Santa Ana	CA	92705
8201 Woodley Ave	Van Nuys	CA	91406	1951 Carnegie Ave	Santa Ana	CA	92705
15903 Strathern St	Van Nuys	CA	91406	1395 S Lyon St	Santa Ana	CA	92705
15330 Raymer St	Van Nuys	CA	91406	1224 E Warner Ave	Santa Ana	CA	92705
15853 Strathern St	Van Nuys	CA	91406	2601 S Garnsey St	Santa Ana	CA	92707
7855 Hayvenhurst Ave	Van Nuys	CA	91406	1801 S Standard Ave	Santa Ana	CA	92707
7800 Woodley Ave	Van Nuys	CA	91406	2400 S Garnsey St	Santa Ana	CA	92707
15955 Strathern St	Van Nuys	CA	91406	2526 S Birch St	Santa Ana	CA	92707
7943 Woodley Ave	Van Nuys	CA	91406	302 E Goetz Ave	Santa Ana	CA	92707
15500 Erwin St	Van Nuys	CA	91411	515 E Dyer Rd	Santa Ana	CA	92707
820 S Flower St	Burbank	CA	91502	1217 E Saint Gertrude Pl	Santa Ana	CA	92707
2980 N San Fernando Blvd	Burbank	CA	91504	601 W Dyer Rd	Santa Ana	CA	92707
3000 Winona Ave	Burbank	CA	91504	500 W Warner Ave	Santa Ana	CA	92707
4510 W Vanowen St	Burbank	CA	91505	11488 Slater Ave	Fountain Valley	CA	92708
960 Chestnut St	Burbank	CA	91506	17595 Mount Herrmann St	Fountain Valley	CA	92708
7306 Laurel Canyon Blvd	North Hollywood	CA	91605	17235 Newhope St	Fountain Valley	CA	92708
6904 Tujunga Ave	North Hollywood	CA	91605	17665 Newhope St	Fountain Valley	CA	92708
11651 Hart St	North Hollywood	CA	91605	1123 Warner Ave	Tustin	CA	92780
11500 Sherman Way	North Hollywood	CA	91605	1200 Valencia Ave	Tustin	CA	92780
11330 Sherman Way	North Hollywood	CA	91605	1111 Bell Ave	Tustin	CA	92780
7100 Tujunga Ave	North Hollywood	CA	91605	1382 Bell Ave	Tustin	CA	92780
11211 Vanowen St	North Hollywood	CA	91605	1201 Bell Ave	Tustin	CA	92780
11428 Sherman Way	North Hollywood	CA	91605	1231 Warner Ave	Tustin	CA	92780
1100 W Hollyvale St	Azusa	CA	91702	2721 Michelle Dr	Tustin	CA	92780
6230 N Irwindale Ave	Azusa	CA	91702	1101 Bell Ave	Tustin	CA	92780

Property Address	City	State	Zip	Property Address	City	State	Zip
1017 W 5th St	Azusa	CA	91702	3101 W Sunflower Ave	Santa Ana	CA	92799
1344 W Foothill Blvd	Azusa	CA	91702	353 N Euclid Way	Anaheim	CA	92801
823 W 8th St	Azusa	CA	91702	1256 N Magnolia Ave	Anaheim	CA	92801
16100 E Foothill Blvd	Irwindale	CA	91702	1160 N Anaheim Blvd	Anaheim	CA	92801
970 W Sierra Madre Ave	Azusa	CA	91702	1201 N Magnolia Ave	Anaheim	CA	92801
311 Aerojet Ave	Azusa	CA	91702	1415 N Raymond Ave	Anaheim	CA	92801
1223 W 10th Ave	Azusa	CA	91702	400 E Orangethorpe Ave	Anaheim	CA	92801
1000 W Sierra Madre Ave	Azusa	CA	91702	1212 N Hubbell Way	Anaheim	CA	92801
601 S Vincent Ave	Azusa	CA	91702	1226 N Olive St	Anaheim	CA	92801
1055 W 8th St	Azusa	CA	91702	500 E Orangethorpe Ave	Anaheim	CA	92801
500 W Danlee Dr	Azusa	CA	91702	1111 N Brookhurst St	Anaheim	CA	92801
975 W 8th St	Azusa	CA	91702	295 E Orangethorpe Ave	Anaheim	CA	92801
1100 Baldwin Park Blvd	Baldwin Park	CA	91706	1765 Penhall Way	Anaheim	CA	92801
5082 4th St	Irwindale	CA	91706	1515 S Manchester Ave	Anaheim	CA	92802
13502 Virginia Ave	Baldwin Park	CA	91706	2114 W Ball Rd	Anaheim	CA	92804
5793 Martin Rd	Irwindale	CA	91706	1500 S Anaheim Blvd	Anaheim	CA	92805
15761 Tapia St	Irwindale	CA	91706	1620 S Lewis St	Anaheim	CA	92805
13245 Los Angeles St	Baldwin Park	CA	91706	1331 S Vernon St	Anaheim	CA	92805
600 Live Oak Ave	Irwindale	CA	91706	901 E Ball Rd	Anaheim	CA	92805
5091 4th St	Irwindale	CA	91706	1400 S Allec St	Anaheim	CA	92805
16033 Arrow Hwy	Irwindale	CA	91706	1001 E Ball Rd	Anaheim	CA	92805
1450 Virginia Ave	Baldwin Park	CA	91706	1501 E Cerritos Ave	Anaheim	CA	92805
5400 N Irwindale Ave	Irwindale	CA	91706	1201 E Cerritos Ave	Anaheim	CA	92805
5300 Irwindale Ave	Irwindale	CA	91706	1000 E Ball Rd	Anaheim	CA	92805
16180 Ornelas St	Irwindale	CA	91706	929 E South St	Anaheim	CA	92805
5301 Rivergrade Rd	Irwindale	CA	91706	1771 S Lewis St	Anaheim	CA	92805
4826 4th St	Irwindale	CA	91706	1730 S Anaheim Way	Anaheim	CA	92805
4889 4th St	Irwindale	CA	91706	1051 S East St	Anaheim	CA	92805
4414 Azusa Canyon Rd	Irwindale	CA	91706	1515 E Winston Rd	Anaheim	CA	92805
5555 N Irwindale Ave	Irwindale	CA	91706	601 E Ball Rd	Anaheim	CA	92805
4800 Azusa Canyon Rd	Irwindale	CA	91706	710 E Ball Rd	Anaheim	CA	92805
15601 Cypress Ave	Irwindale	CA	91706	500 E Cerritos Ave	Anaheim	CA	92805
4401 Foxdale St	Irwindale	CA	91706	1625 S Lewis St	Anaheim	CA	92805
4981 4th St	Irwindale	CA	91706	1045 S East St	Anaheim	CA	92805
4775 Irwindale Ave	Irwindale	CA	91706	1455 S Allec St	Anaheim	CA	92805
16142 Fern Ave	Chino	CA	91708	3356 E La Palma Ave	Anaheim	CA	92806
15989 Cypress Ave	Chino	CA	91708	1423 S State College Blvd	Anaheim	CA	92806
8601 Merrill Ave	Chino	CA	91708	1600 N Kraemer Blvd	Anaheim	CA	92806
15820 Euclid Ave	Chino	CA	91708	1206 N Miller St	Anaheim	CA	92806
16043 El Prado	Chino	CA	91708	1440 N Kraemer Blvd	Anaheim	CA	92806
6720 Kimball Ave	Chino	CA	91708	2121 E Winston Rd	Anaheim	CA	92806
6911 Bickmore Ave	Chino	CA	91708	2201 E Cerritos Ave	Anaheim	CA	92806
16388 Fern Ave	Chino	CA	91708	3130 Miraloma Ave	Anaheim	CA	92806
6509 Kimball Ave	Chino	CA	91708	2891 E Miraloma Ave	Anaheim	CA	92806
15710 San Antonio Ave	Chino	CA	91708	1200 N Miller St	Anaheim	CA	92806
15785 Mountain Ave	Chino	CA	91708	1919 S State College Blvd	Anaheim	CA	92806
16300 Fern Ave	Chino	CA	91708	3190 Miraloma Ave	Anaheim	CA	92806
6720 Kimball Ave	Chino	CA	91708	3310 E Miraloma Ave	Anaheim	CA	92806
8646 Enterprise Way	Chino Hills	CA	91708	1231 N Miller St	Anaheim	CA	92806
15835 San Antonio Ave	Chino	CA	91708	1211 N Miller St	Anaheim	CA	92806
6750 Kimball Ave	Chino	CA	91708	1151 N Ocean Cir	Anaheim	CA	92806
15780 El Prado Rd	Chino	CA	91708	1650 N Kraemer Blvd	Anaheim	CA	92806
15970 Mountain Ave	Chino	CA	91708	1540 S Page Ct	Anaheim	CA	92806
16380 Euclid Ave	Chino	CA	91708	3125 E Coronado St	Anaheim	CA	92806
6377 Kimball Ave	Chino	CA	91708	3335 E La Palma Ave	Anaheim	CA	92806
15704 Mountain Ave	Chino	CA	91708	1204 N Miller St	Anaheim	CA	92806
15578 Hellman Ave	Chino	CA	91708	1202 N Miller St	Anaheim	CA	92806
15730 Mountain Ave	Chino	CA	91708	1150 N Red Gum St	Anaheim	CA	92806
16081 S Fern Ave	Chino	CA	91708	1000 N Edward Ct	Anaheim	CA	92806
15913 Mountain Ave	Chino	CA	91708	2040 S State College Blvd	Anaheim	CA	92806
8719 Enterprise Way	Chino	CA	91708	3340 E La Palma Ave	Anaheim	CA	92806
16045 Mountain Ave	Chino	CA	91708	1153 N Ocean Cir	Anaheim	CA	92806
6716 Bickmore Ave	Chino	CA	91708	3454 E Miraloma Ave	Anaheim	CA	92806
16133 Fern Ave	Chino	CA	91708	3845 E Coronado St	Anaheim	CA	92807

Property Address	City	State	Zip	Property Address	City	State	Zip
15910 Euclid Ave	Chino	CA	91708	5455 E La Palma Ave	Anaheim	CA	92807
6711 Bickmore Ave	Chino	CA	91708	5115 E La Palma Ave	Anaheim	CA	92807
15207 Flight Ave	Chino	CA	91708	4875 E Hunter Ave	Anaheim	CA	92807
15702 Cypress Ave	Chino	CA	91708	1230 N Tustin Ave	Anaheim	CA	92807
6725 Kimball Ave	Chino	CA	91708	5235 E Hunter Ave	Anaheim	CA	92807
15221 Fairfield Ranch Rd	Chino Hills	CA	91709	4633 E La Palma Ave	Anaheim	CA	92807
15291 Fairfield Ranch Rd	Chino Hills	CA	91709	1275 N Manassero St	Anaheim	CA	92807
15271 Fairfield Ranch Rd	Chino Hills	CA	91709	5425 E La Palma Ave	Anaheim	CA	92807
13775 Magnolia Ave	Chino	CA	91710	5325 E Hunter Ave	Anaheim	CA	92807
13445 12th St	Chino	CA	91710	5001 E La Palma Ave	Anaheim	CA	92807
13602 12th St	Chino	CA	91710	1265 N Van Buren St	Anaheim	CA	92807
13925 Pipeline Ave	Chino	CA	91710	5200 E La Palma Ave	Anaheim	CA	92807
15559 Flight Ave	Chino	CA	91710	105 S Puente St	Brea	CA	92821
15097 Van Vliet Ave	Chino	CA	91710	2701 E Imperial Hwy	Brea	CA	92821
13799 Monte Vista Ave	Chino	CA	91710	114 S Berry St	Brea	CA	92821
13931 Yorba Ave	Chino	CA	91710	408 Saturn St	Brea	CA	92821
4450 Edison Ave	Chino	CA	91710	3200 Enterprise St	Brea	CA	92821
5400 Alton St	Chino	CA	91710	300 E Cypress St	Brea	CA	92821
14101 Pipeline Ave	Chino	CA	91710	205 S Puente St	Brea	CA	92821
5085 Schaefer Ave	Chino	CA	91710	113 Viking Ave	Brea	CA	92821
13824 Yorba Ave	Chino	CA	91710	3300 E Birch St	Brea	CA	92821
13880 Monte Vista Ave	Chino	CA	91710	895 Columbia St	Brea	CA	92821
13780 Central Ave	Chino	CA	91710	630 E Lambert Rd	Brea	CA	92821
4091 E Francis Ave	Ontario	CA	91710	200 N Berry St	Brea	CA	92821
14701 Yorba Ave	Chino	CA	91710	2830 Orbiter St	Brea	CA	92821
15065 Flight Ave	Chino	CA	91710	350 Ranger Ave	Brea	CA	92821
13950 Norton Ave	Chino	CA	91710	100 S Puente St	Brea	CA	92821
4340 Eucalyptus Ave	Chino	CA	91710	200 N Puente St	Brea	CA	92821
14680 Monte Vista Ave	Chino	CA	91710	250 S Kraemer Blvd	Brea	CA	92821
6910 Bickmore Ave	Chino	CA	91710	3172 Nasa St	Brea	CA	92821
4626 Eucalyptus Ave	Chino	CA	91710	2750 Orbiter St	Brea	CA	92821
4681 Edison Ave	Chino	CA	91710	1225 W Imperial Hwy	Brea	CA	92821
4361 Edison Ave	Chino	CA	91710	2650 Orbiter St	Brea	CA	92821
13725 Pipeline Ave	Chino	CA	91710	566 Vanguard Way	Brea	CA	92821
4950 Edison Ave	Chino	CA	91710	675 S Placentia Ave	Fullerton	CA	92831
14430 Monte Vista Ave	Chino	CA	91710	1400 S Manhattan Ave	Fullerton	CA	92831
5521 Schaefer Ave	Chino	CA	91710	2020 E Orangethorpe Ave	Fullerton	CA	92831
4271 Edison Ave	Chino	CA	91710	2100 E Valencia Dr	Fullerton	CA	92831
14425 Yorba Ave	Chino	CA	91710	1030 E Valencia Dr	Fullerton	CA	92831
13950 Ramona Ave	Chino	CA	91710	1600 E Valencia Dr	Fullerton	CA	92831
12851 Reservoir St	Chino	CA	91710	700 S Raymond Ave	Fullerton	CA	92831
8986 Remington Ave	Chino	CA	91710	315 S Hale Ave	Fullerton	CA	92831
14035 Pipeline Ave	Chino	CA	91710	1335 S Acacia Ave	Fullerton	CA	92831
5150 Eucalyptus Ave	Chino	CA	91710	601 S Acacia Ave	Fullerton	CA	92831
13770 Norton Ave	Chino	CA	91710	1820 E Valencia Dr	Fullerton	CA	92831
15616 Euclid Ave	Chino	CA	91710	1500 E Valencia Dr	Fullerton	CA	92831
13860 Ramona Ave	Chino	CA	91710	1415 S Acacia St	Fullerton	CA	92831
5150 Edison Ave	Chino	CA	91710	1610 E Orangethorpe Ave	Fullerton	CA	92831
14210 Telephone Ave	Chino	CA	91710	800 S State College Blvd	Fullerton	CA	92831
13851 Ramona Ave	Chino	CA	91710	1500 E Walnut Ave	Fullerton	CA	92831
13771 Norton Ave	Chino	CA	91710	800 S Raymond Ave	Fullerton	CA	92831
8985 Merrill Ave	Chino	CA	91710	1551 E Orangethorpe Ave	Fullerton	CA	92831
5026 Chino Hills Pky	Chino	CA	91710	1424 S Raymond Ave	Fullerton	CA	92831
4640 Vinita Ct	Chino	CA	91710	667 S State College Blvd	Fullerton	CA	92831
14275 Telephone Ave	Chino	CA	91710	1401 E Orangethorpe Ave	Fullerton	CA	92831
5045 Eucalyptus Ave	Chino	CA	91710	350 S Raymond Ave	Fullerton	CA	92831
13850 Central Ave	Chino	CA	91710	2001 E Orangethorpe Ave	Fullerton	CA	92831
13875 Ramona Ave	Chino	CA	91710	701 S Sally Pl	Fullerton	CA	92831
4980 Eucalyptus Ave	Chino	CA	91710	1050 S State College Blvd	Fullerton	CA	92831
4250 Eucalyptus Ave	Chino	CA	91710	1901 E Rossllynn Ave	Fullerton	CA	92831
13950 Mountain Ave	Chino	CA	91710	2501 E Orangethorpe Ave	Fullerton	CA	92831
13404 Monte Vista Ave	Chino	CA	91710	2441 Cypress Way	Fullerton	CA	92831
13941 Norton Ave	Chino	CA	91710	1800 E Orangethorpe Ave	Fullerton	CA	92831
5116 Chino Hills Pky	Chino	CA	91710	2340 E Walnut Ave	Fullerton	CA	92831

Property Address	City	State	Zip	Property Address	City	State	Zip
14525 Monte Vista Ave	Chino	CA	91710	2325 Moore Ave	Fullerton	CA	92833
14207 Monte Vista Ave	Chino	CA	91710	2330 Raymer Ave	Fullerton	CA	92833
4651 Schaefer Ave	Chino	CA	91710	2009 Raymer Ave	Fullerton	CA	92833
14141 Yorba Ave	Chino	CA	91710	560 N Gilbert St	Fullerton	CA	92833
Monte Vista Ave	Chino	CA	91710	1920 Malvern St	Fullerton	CA	92833
8721 Merrill Ave	Chino	CA	91710	2425 W Commonwealth Ave	Fullerton	CA	92833
14310 Ramona Ave	Chino	CA	91710	570 N Gilbert St	Fullerton	CA	92833
4451 Eucalyptus Ave	Chino	CA	91710	2430 W Artesia Blvd	Fullerton	CA	92833
13971 Norton Ave	Chino	CA	91710	2750 W Moore Ave	Fullerton	CA	92833
13950 Yorba Ave	Chino	CA	91710	1930 Malvern St	Fullerton	CA	92833
14510 Monte Vista Ave	Chino	CA	91710	691 Burning Tree Rd	Fullerton	CA	92833
14725 Monte Vista Ave	Chino	CA	91710	1881 W Malvern Ave	Fullerton	CA	92833
5125 Schaefer Ave	Chino	CA	91710	1901 Raymer Ave	Fullerton	CA	92833
14120 Ramona Ave	Chino	CA	91710	4225 N Palm St	Fullerton	CA	92835
14326 Monte Vista Ave	Chino	CA	91710	4260 N Harbor Blvd	Fullerton	CA	92835
6185 Kimball Ave	Chino	CA	91710	458 E Lambert Rd	Fullerton	CA	92835
14651 Yorba Ave	Chino	CA	91710	4250 N Harbor Blvd	Fullerton	CA	92835
13775 Ramona Ave	Chino	CA	91710	210 E Lambert Rd	Fullerton	CA	92835
14000 Monte Vista Ave	Chino	CA	91710	4201 Bonita Pl	Fullerton	CA	92835
5151 Eucalyptus Ave	Chino	CA	91710	4150 N Palm St	Fullerton	CA	92835
15245 Van Vliet Ave	Chino	CA	91710	4278 N Harbor Blvd	Fullerton	CA	92835
14286 Monte Vista Ave	Chino	CA	91710	7421 Chapman Ave	Garden Grove	CA	92841
13975 Monte Vista Ave	Chino	CA	91710	12122 Western Ave	Garden Grove	CA	92841
4775 Eucalyptus Ave	Chino	CA	91710	7571 Lampson Ave	Garden Grove	CA	92841
5051 Edison Ave	Chino	CA	91710	12752 Monarch St	Garden Grove	CA	92841
13428 Benson Ave	Chino	CA	91710	12131 Western Ave	Garden Grove	CA	92841
13770 Ramona Ave	Chino	CA	91710	12101 Western Ave	Garden Grove	CA	92841
14720 Monte Vista Ave	Chino	CA	91710	11955 Monarch St	Garden Grove	CA	92841
8599 Rochester Ave	Rancho Cucamonga	CA	91730	7301 Orangewood Ave	Garden Grove	CA	92841
9409 Buffalo Ave	Rancho Cucamonga	CA	91730	12571 Western Ave	Garden Grove	CA	92841
10299 6th St	Rancho Cucamonga	CA	91730	12821 Knott St	Garden Grove	CA	92841
8949 Buffalo Ave	Rancho Cucamonga	CA	91730	12570 Knott St	Garden Grove	CA	92841
10621 6th St	Rancho Cucamonga	CA	91730	7361 Doig Dr	Garden Grove	CA	92841
11711 Arrow Route	Rancho Cucamonga	CA	91730	11700 Monarch St	Garden Grove	CA	92841
11335 Jersey Blvd	Rancho Cucamonga	CA	91730	7372 Doig Dr	Garden Grove	CA	92841
9160 N Buffalo Ave	Rancho Cucamonga	CA	91730	7366 Orangewood Ave	Garden Grove	CA	92841
10865 Jersey Blvd	Rancho Cucamonga	CA	91730	7300 Chapman Ave	Garden Grove	CA	92841
12155 6th St	Rancho Cucamonga	CA	91730	1900 2nd St	Norco	CA	92860
11081 Tacoma Dr	Rancho Cucamonga	CA	91730	3390 Horseless Carriage Dr	Norco	CA	92860
11701 6th St	Rancho Cucamonga	CA	91730	1300 W Taft Ave	Orange	CA	92865
10680 Acacia St	Rancho Cucamonga	CA	91730	2060 N Batavia St	Orange	CA	92865
10660 Acacia St	Rancho Cucamonga	CA	91730	2164 N Batavia St	Orange	CA	92865
11600 Millenium Ct	Rancho Cucamonga	CA	91730	615 N Grove Ave	Orange	CA	92865
10670 6th St	Rancho Cucamonga	CA	91730	230 W Blueridge Ave	Orange	CA	92865
11600 Dayton Dr	Rancho Cucamonga	CA	91730	2079 N Glassell St	Orange	CA	92865
11167 White Birch Dr	Rancho Cucamonga	CA	91730	2095 N Batavia St	Orange	CA	92865
8595 Milliken Ave	Rancho Cucamonga	CA	91730	1481 N Main St	Orange	CA	92867
9150 Hermosa Ave	Rancho Cucamonga	CA	91730	833 N Elm St	Orange	CA	92867
11555 Arrow Route	Rancho Cucamonga	CA	91730	750 N Main St	Orange	CA	92868
9292 9th St	Rancho Cucamonga	CA	91730	759 N Eckhoff St	Orange	CA	92868
9449 8th St	Rancho Cucamonga	CA	91730	625 W Palm Ave	Orange	CA	92868
10808 6th St	Rancho Cucamonga	CA	91730	190 W Crowther Ave	Placentia	CA	92870
11530 6th St	Rancho Cucamonga	CA	91730	355 S Melrose St	Placentia	CA	92870
9345 Santa Anita Ave	Rancho Cucamonga	CA	91730	200 Boysenberry Ln	Placentia	CA	92870
9560 Buffalo Ave	Rancho Cucamonga	CA	91730	1575 Magnolia Ave	Corona	CA	92878
8901 Arrow Route	Rancho Cucamonga	CA	91730	150 E Radio Rd	Corona	CA	92879
9545 Santa Anita Ave	Rancho Cucamonga	CA	91730	1375 Sampson Ave	Corona	CA	92879
9325 Santa Anita Ave	Rancho Cucamonga	CA	91730	1001 El Camino Ave	Corona	CA	92879
10667 Jersey Blvd	Rancho Cucamonga	CA	91730	300 E Parkridge Ave	Corona	CA	92879
9000 9th St	Rancho Cucamonga	CA	91730	1283 Sherborn St	Corona	CA	92879
8858 Rochester Ave	Rancho Cucamonga	CA	91730	515 S Promenade Ave	Corona	CA	92879
10650 4th St	Rancho Cucamonga	CA	91730	1223 Sherborn St	Corona	CA	92879
11246 Jersey Blvd	Rancho Cucamonga	CA	91730	2553 Sampson Ave	Corona	CA	92879
9101 Hermosa Ave	Rancho Cucamonga	CA	91730	1560 E 6th St	Corona	CA	92879

Property Address	City	State	Zip	Property Address	City	State	Zip
8449 Milliken Ave	Rancho Cucamonga	CA	91730	555 S Promenade Ave	Corona	CA	92879
10404 6th St	Rancho Cucamonga	CA	91730	222 S Promenade Ave	Corona	CA	92879
8400 Milliken Ave	Rancho Cucamonga	CA	91730	353 Meyer Cir	Corona	CA	92879
9471 Buffalo Ave	Rancho Cucamonga	CA	91730	1470 E 6th St	Corona	CA	92879
11096 Jersey Blvd	Rancho Cucamonga	CA	91730	1660 Leeson Ln	Corona	CA	92879
10013 8th St	Rancho Cucamonga	CA	91730	265 Radio Rd	Corona	CA	92879
9333 Hermosa Ave	Rancho Cucamonga	CA	91730	264 Mariah Cir	Corona	CA	92879
8369 Milliken Ave	Rancho Cucamonga	CA	91730	1550 Magnolia Ave	Corona	CA	92879
9363 Lucas Ranch Rd	Rancho Cucamonga	CA	91730	1235 E Quarry St	Corona	CA	92879
12434 4th St	Rancho Cucamonga	CA	91730	725 E Harrison St	Corona	CA	92879
11599 Arrow Rt	Rancho Cucamonga	CA	91730	1493 E Bentley Dr	Corona	CA	92879
9678 Utica Ave	Rancho Cucamonga	CA	91730	580 E Harrison St	Corona	CA	92879
9189 Utica Ave	Rancho Cucamonga	CA	91730	395 Smitty Way	Corona	CA	92879
9059 Hermosa Ave	Rancho Cucamonga	CA	91730	2571 Sampson Ave	Corona	CA	92879
8535 Oakwood Pl	Rancho Cucamonga	CA	91730	235 Radio Rd	Corona	CA	92879
8865 Utica Ave	Rancho Cucamonga	CA	91730	1275 Quarry St	Corona	CA	92879
9133 Center Ave	Rancho Cucamonga	CA	91730	375 TRM Cir	Corona	CA	92879
9120 Center Ave	Rancho Cucamonga	CA	91730	545 Alcoa Cir	Corona	CA	92880
10750 7th St	Rancho Cucamonga	CA	91730	550 Monica Cir	Corona	CA	92880
11400 Newport Dr	Rancho Cucamonga	CA	91730	2380 Railroad St	Corona	CA	92880
9168 Hermosa Ave	Rancho Cucamonga	CA	91730	1692 Jenks Dr	Corona	CA	92880
11655 Jersey Blvd	Rancho Cucamonga	CA	91730	1990 Pomona Rd	Corona	CA	92880
8825 Boston Pl	Rancho Cucamonga	CA	91730	451 N Cota St	Corona	CA	92880
9141 Arrow Hwy	Rancho Cucamonga	CA	91730	220 Klug Cir	Corona	CA	92880
8291 Milliken Ave	Rancho Cucamonga	CA	91730	250 Airport Cir	Corona	CA	92880
9180 Center Ave	Rancho Cucamonga	CA	91730	475 N Sheridan St	Corona	CA	92880
8840 Flower Rd	Rancho Cucamonga	CA	91730	150 S Maple St	Corona	CA	92880
10401 7th St	Rancho Cucamonga	CA	91730	299 N Smith Ave	Corona	CA	92880
9448 Richmond Pl	Rancho Cucamonga	CA	91730	132 Business Center Dr	Corona	CA	92880
10825 7th St	Rancho Cucamonga	CA	91730	14969 Summit Dr	Eastvale	CA	92880
9650 9th St	Rancho Cucamonga	CA	91730	250 Klug Cir	Corona	CA	92880
9041 Pittsburgh Ave	Rancho Cucamonga	CA	91730	150 N Maple St	Corona	CA	92880
9050 Hermosa Ave	Rancho Cucamonga	CA	91730	1400 W Rincon St	Corona	CA	92880
11355 Arrow Route	Rancho Cucamonga	CA	91730	1160 W Rincon St	Corona	CA	92880
11601 Dayton Dr	Rancho Cucamonga	CA	91730	311 Cessna Cir	Corona	CA	92880
11200 Arrow Route	Rancho Cucamonga	CA	91730	6300 Providence Way	Eastvale	CA	92880
9393 Arrow Route	Rancho Cucamonga	CA	91730	14940 Summit Dr	Eastvale	CA	92880
12320 4th St	Rancho Cucamonga	CA	91730	450 N Sheridan St	Corona	CA	92880
9060 Rochester Ave	Rancho Cucamonga	CA	91730	341 Bonnie Cir	Corona	CA	92880
10655 E 7th St	Rancho Cucamonga	CA	91730	311 Bonnie Cir	Corona	CA	92880
8784 Rochester Ave	Rancho Cucamonga	CA	91730	1000 W Rincon St	Corona	CA	92880
8950 Toronto Ave	Rancho Cucamonga	CA	91730	14939 Summit Dr	Eastvale	CA	92880
9408 Richmond Pl	Rancho Cucamonga	CA	91730	345 Cessna Cir	Corona	CA	92880
12320 4th St	Rancho Cucamonga	CA	91730	185 N Smith Ave	Corona	CA	92880
10220 4th St	Rancho Cucamonga	CA	91730	2455 Wardlow Rd	Corona	CA	92880
9955 6th St	Rancho Cucamonga	CA	91730	1170 W Rincon St	Corona	CA	92880
9000 Rochester Ave	Rancho Cucamonga	CA	91730	1150 W Rincon St	Corona	CA	92880
8950 Rochester Ave	Rancho Cucamonga	CA	91730	1295 E Ontario Ave	Corona	CA	92881
10955 Arrow Rt	Rancho Cucamonga	CA	91730	1851 California Ave	Corona	CA	92881
9089 8th St	Rancho Cucamonga	CA	91730	1930 California Ave	Corona	CA	92881
11190 White Birch Dr	Rancho Cucamonga	CA	91730	1241 Old Temescal Rd	Corona	CA	92881
9520 Santa Anita Ave	Rancho Cucamonga	CA	91730	1161 Olympic Dr	Corona	CA	92881
9100 9th St	Rancho Cucamonga	CA	91730	1346 Railroad St	Corona	CA	92882
9275 Buffalo Ave	Rancho Cucamonga	CA	91730	909 W Railroad St	Corona	CA	92882
8998 Hyssop Ave	Rancho Cucamonga	CA	91730	1010 Railroad St	Corona	CA	92882
9282 Pittsburgh Ave	Rancho Cucamonga	CA	91730	1351 Railroad St	Corona	CA	92882
11195 Eucalyptus St	Rancho Cucamonga	CA	91730	2621 Research Dr	Corona	CA	92882
9121 Pittsburgh Ave	Rancho Cucamonga	CA	91730	2616 Research Dr	Corona	CA	92882
12250 E 4th St	Rancho Cucamonga	CA	91730	22324 Temescal Canyon Rd	Corona	CA	92883
9199 Cleveland Ave	Rancho Cucamonga	CA	91730	22420 Temescal Canyon Rd	Corona	CA	92883
9595 Utica Ave	Rancho Cucamonga	CA	91730	21937 Knabe Rd	Corona	CA	92883
8886 White Oak Ave	Rancho Cucamonga	CA	91730	22705 Savi Ranch Pky	Yorba Linda	CA	92887
4501 Arden Dr	El Monte	CA	91731				
9320 Telstar Ave	El Monte	CA	91731				

Property Address	City	State	Zip	Property Address	City	State	Zip
4187 Temple City Blvd	El Monte	CA	91731				
9860 Gidley St	El Monte	CA	91731				
4189 Temple City Blvd	El Monte	CA	91731				
3136 Rosemead Blvd	El Monte	CA	91731				
4250 Shirley Ave	El Monte	CA	91731				
4350 Temple City Blvd	El Monte	CA	91731				
10511 Valley Blvd	El Monte	CA	91731				
4300 Baldwin Ave	El Monte	CA	91731				
4300 Shirley Ave	El Monte	CA	91731				
9700 Factorial Way	South El Monte	CA	91733				
11077 Rush St	South El Monte	CA	91733				
1886 Santa Anita Ave	South El Monte	CA	91733				
1747 Tyler Ave	South El Monte	CA	91733				
12465 6th St	Rancho Cucamonga	CA	91739				
12455 Arrow Hwy	Rancho Cucamonga	CA	91739				
12521 Arrow Rte	Rancho Cucamonga	CA	91739				
12400 Arrow Rt	Rancho Cucamonga	CA	91739				
8939 Etiwanda Ave	Rancho Cucamonga	CA	91739				
8570 Hickory Ave	Rancho Cucamonga	CA	91739				
8728 Etiwanda Ave	Rancho Cucamonga	CA	91739				
12200 Arrow Rt	Rancho Cucamonga	CA	91739				
8925 Santa Anita Ave	Rancho Cucamonga	CA	91739				
2001 E Gladstone St	Glendora	CA	91740				
139 N Sunset Blvd	City Of Industry	CA	91744				
14750 Nelson Ave	City of Industry	CA	91744				
16017 E Valley Blvd	City of Industry	CA	91744				
15000 Nelson Ave	City of Industry	CA	91744				
14500 Nelson Ave	City of Industry	CA	91744				
17637 E Valley Blvd	City of Industry	CA	91744				
15930 Valley Blvd	City Of Industry	CA	91744				
15801 E Valley Blvd	City of Industry	CA	91744				
17411 Valley Blvd	City of Industry	CA	91744				
14380 E Nelson Ave	City of Industry	CA	91744				
15620 E Valley Blvd	City of Industry	CA	91744				
15929 E Valley Blvd	City of Industry	CA	91744				
347 S Stimson Ave	City of Industry	CA	91744				

Appendix D: POTENTIAL SIP CREDIT APPROACH FOR PR 2305

Introduction

What is the purpose of PR 2305?

As stated in PR 2305, its purpose is to reduce local and regional emissions, and to facilitate local and regional emission reductions associated with warehouses and the mobile sources attracted to warehouses in order to help achieve state and federal ambient air quality standards and to reduce exposure to diesel particulate matter.

What is the State Implementation Plan?

The federal Clean Air Act requires areas with levels of ozone, particulate matter, and other pollutants that exceed National Ambient Air Quality Standards (NAAQS) to develop State Implementation Plans (SIPs). SIPs are comprehensive plans that describe how an area will attain the NAAQS. SIPs are not single documents. They are a compilation of new and previously submitted plans, programs (such as monitoring, incentives, permitting, emissions inventory, etc.), local air district rules, state regulations, and federal controls. State law makes CARB the lead agency for all purposes related to the SIP. Local air districts prepare SIP elements and submit them to CARB for review and approval. CARB then forwards these SIP revisions to the EPA for approval.

What is 'SIP credit'?

SIP credit is the general term given for emission reductions that are creditable towards commitments in the SIP.

Why is SIP Credit needed?

The SIP contains a detailed accounting of the expected emissions inventory in future milestone years with Clean Air Act deadlines. This emissions inventory includes a baseline scenario (i.e. business-as-usual) and a control scenario (if the SIP's proposed measures are all adopted). The 2016 AQMP from South Coast AQMD and the companion State SIP Strategy from CARB includes substantial emission reductions tied to 'further deployment of cleaner technologies' control measures that are not yet fully defined. Emission reductions from these control measures are needed to both meet the NAAQS and to ensure that federal sanctions are not imposed under the federal Clean Air Act. If adopted, PR 2305 will provide emission reductions that can help meet these 'further deployment' commitments. This document provides the background for how PR 2305 emission reductions will be SIP creditable.

What are the requirements for SIP credit?

There are a variety of guidance documents¹ and regulations that address how emission reductions can be credited towards the SIP. In general, SIP creditable emission reductions must satisfy five

¹ Voluntary Mobile Source SIP Programs, www.epa.gov/sites/production/files/2016-05/documents/vmep-gud.pdf
Improving Air Quality with Economic Incentive Programs (2001),
www.epa.gov/sites/production/files/2015-07/documents/eipfin.pdf
Voluntary and Emerging SIP Measures,
www.epa.gov/sites/production/files/2016-05/documents/voluntarycontrolmeasurespolicypepa.pdf
Energy Efficiency and Renewable Energy SIP Measures,
www.epa.gov/sites/production/files/2016-05/documents/eresecerem_gd.pdf

key ‘integrity elements’. Namely, the emission reductions must be quantifiable, enforceable, verifiable, surplus, and real.

Which emission source categories can achieve SIP-creditable emission reductions with PR 2305?

The emission sources that may have SIP-creditable emission reductions from PR 2305 include on-road trucks, hostlers (both on-road and off-road vehicles), Transport Refrigeration Units (TRUs), light duty vehicles, and power plants.

What is the role of scrapping in SIP-creditable mobile source measures?

Scrapping is the process by which older vehicles that are replaced by newer, cleaner vehicles are scrapped and taken out of service to ensure that the emission reductions from the newer vehicle are achieved. Scrapping ensures that the new vehicle is not just accommodating growth in the vehicle fleet. SIP-creditable emission reductions can be achieved both with and without a scrapping program. Examples of SIP-creditable programs with scrapping requirements include many voluntary incentive programs like Carl Moyer, or AB 617 funding. These programs are implemented on an individual truck basis (through grant funding contracts), and without a scrapping requirement it would not be possible to discern whether any one individual truck would result in eventual scrapping of a truck somewhere in the entire truck fleet, or if the newer, cleaner truck is actually adding emissions due to growing the truck fleet.

Other SIP-creditable measures do not require scrapping, such as CARB regulations like the Low NOx Omnibus Rule or the Advanced Clean Trucks Rule. These rules rely on assumptions about future truck sales and future truck activity (e.g., miles travelled per year). Importantly, these rules broadly affect large sections of the truck fleet instead of individual trucks, and the rulemaking analysis for these rules consider how each rule will affect the entire truck fleet, including growth and rates of vehicle turnover. These assumptions are subsequently verified through the regular updates to the EMFAC model.

What is EMFAC?

EMFAC is an emissions model developed and used by CARB to assess emissions from on-road vehicles including cars, trucks, and buses in California, and to support CARB's regulatory and air quality planning efforts to meet the Federal Highway Administration's transportation planning requirements. U.S. EPA approves EMFAC for use in the State Implementation Plan and transportation conformity analyses.

How does SIP credit work for incentive funding programs?

Programs like Carl Moyer or AB-617 funding programs provide subsidies to offset the higher purchase price of near-zero and zero emission vehicles. In some cases, these types of voluntary

Incorporating Bundled Measures in a SIP,

www3.epa.gov/ttn/naaqs/aqmguide/collection/cp2/20050816_page_incorporating_bundled_measure_sip.pdf

Incorporating Energy Efficiency/Renewable Energy Policies and Programs into SIPs,

www.epa.gov/sites/production/files/2016-05/documents/eeremanual_0.pdf

Diesel Retrofit SIP Programs, <http://nepis.epa.gov/Exe/ZyPDF.cgi/P100HP2S.PDF?Dockey=P100HP2S.PD>

incentive programs can result in prospective SIP creditable emission reductions.² While incentive funding programs have been included as control measures within the 2016 AQMP, they are not included in the baseline emissions inventory, nor are their effects included within EMFAC. PR 2305 is designed to work together with incentive programs. Although some incentive programs are oversubscribed³, others are undersubscribed⁴. PR 2305 can help ensure that incentive funds are fully utilized, and can also potentially spread incentives to additional vehicles by lowering the amount that vehicle purchasers are willing to accept due to the requirements within PR 2305 on warehouse operators.

Background on Obtaining SIP Credit for Mobile Source Emission Reduction Measures

SIP creditable emission reductions are typically obtained through three key processes.

- 1) Regulations adopted at the local, state, or federal level that meet the ‘integrity elements’ described above can achieve prospective SIP credit at the time that the regulation is adopted. Prospective SIP credit is a projection of how emission reductions will occur in the future due to a control measure.
 - a. Example: CARB’s Truck and Bus Regulation⁵ requires fleets to only utilize trucks that meet or exceed 2010 truck engine standards (with some limited exceptions) by 2023. Those fleets may include older, higher-emitting trucks today, but the future emission reductions from the existing regulation provides prospective SIP credit. As shown below, not all emission reduction measures can be credited towards the SIP prospectively.
- 2) For some regulations or control measures, actual emission reductions achieved may be higher or lower than originally estimated at the time the regulation was adopted. A later analysis may evaluate how a rule is actually being implemented and adjust the amount of SIP creditable emission reductions. These retrospective emission reductions evaluate how emissions changed in the past, and then project how that will affect the future.
 - a. Example: EPA’s Heavy Duty Engine Standards⁶ required all truck engine manufacturers to meet a NO_x emission standard of 0.2 g/hp-hr by 2010 (with some limited exceptions). SIP creditable prospective emission reductions were assumed in the EMFAC 2007 emission model at the time assuming that engines would meet these standards in real world conditions.⁷ However, subsequent testing of these engines has shown that engines that meet the EPA standard (based on a test cycle) do not achieve the previously assumed level of emission reductions in real world conditions.⁸ One example includes during periods when the engine exhaust controls

² <https://ww2.arb.ca.gov/resources/documents/implementation-state-sip-strategy>

³ <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2019/2019-dec6-006.pdf>

⁴ <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2020/2020-dec4-005.pdf>

⁵ <https://ww2.arb.ca.gov/our-work/programs/truck-bus-regulation/truck-and-bus-regulation-regulation-advisories>
Accessed 11/5/2020.

⁶ <https://www.govinfo.gov/content/pkg/FR-2001-01-18/pdf/01-2.pdf> Accessed 11/5/2020.

⁷ EMFAC 2007 Revision of Heavy Heavy-Duty Diesel Truck Emission Factors and Speed Correction Factors. https://ww3.arb.ca.gov/msei/onroad/techmemo/revised_hhddt_emission_factors_and_speed_corr_factors.pdf.
Accessed 11/5/2020.

⁸ See Figure ES-3 for an example: <https://ww3.arb.ca.gov/regact/2020/hdomnibuslownox/isor.pdf#page=27>.
Accessed 11/5/2020.

are operating at lower temperatures than necessary to fully reduce NO_x emissions.⁹ As a result, a more recent EPA-approved emissions inventory for trucks in EMFAC 2017 has subsequently been updated to incorporate this more recent real world data.¹⁰ The table below shows a comparison of NO_x emission rates for the same model year truck between the EPA-approved EMFAC 2007 and EMFAC 2017 emissions inventory models. The more recent EMFAC 2017 model used more recent real-world data, and the subsequent SIP creditable emission reductions from the EPA Heavy Duty Engine Standard have been revised to incorporate real-world conditions.

Table 1: Zero-Mile NO_x Emission Rates for Model Year 2015

EMFAC 2007 ¹¹	EMFAC 2017 ¹²
1.14	2.68

- 3) Finally, real-world emissions from some sources are often affected by multiple factors. For example, on-road vehicle emissions are affected by multiple regulations, market forces (e.g., the state of the economy, the price of fuel, etc.), financial incentive programs (e.g., the Carl Moyer program), and private sector policies (e.g., corporate sustainability goals). In order to account for all of these competing influences, every few years the baseline mobile source emissions inventory used for the SIP is updated, including through updates to CARB's mobile source inventories (e.g., the EMFAC model, off-road equipment inventories, etc.), updates to the Regional Transportation Plan (RTP) from the Southern California Association of Governments (SCAG), and new South Coast AQMD Air Quality Management Plans (AQMPs). Because SIP creditable emission reductions cannot always be separately assigned to each unique factor, the holistic evaluation of the on-road mobile source sector in EMFAC updates (or equivalent off-road sector updates) conducted by CARB ensures that the SIP inventory is as comprehensive, accurate, and current as possible.
- a. Example: Every four years SCAG updates its forecast for the transportation system in the RTP. This modeling analysis includes a forecast of vehicle miles travelled in the freight sector based on a number of factors including: activity data from the ports of Los Angeles and Long Beach, national commodity flow surveys, land use patterns, developments in the roadway network, etc. These modeled outputs (e.g., vehicle miles travelled, vehicle speeds, location of vehicle activity) are combined with emission factors from EMFAC to establish the SIP creditable emissions inventory in the subsequent AQMP.

⁹ Tan et al., On-Board Sensor-Based NO_x Emissions from Heavy-Duty Diesel Vehicles. *Environ. Sci. Technol.* 2019, 53, 9, 5504–5511. <https://pubs.acs.org/doi/10.1021/acs.est.8b07048> Accessed 11/5/2020.

¹⁰ EMFAC2017 Volume III – Technical Documentation.

<https://ww3.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf>

¹¹ https://ww3.arb.ca.gov/msei/onroad/techmemo/revised_hhddt_emission_factors_and_speed_corr_factors.pdf,

Table 8

¹² <https://ww3.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf>, Table 4.3-46

Expected Mechanisms to Obtain SIP-Creditable Emission Reductions with PR 2305

If PR 2305 is adopted, SIP-creditable emission reductions can be achieved prospectively, retrospectively, and through holistic mobile source inventory analysis. Because other existing and forthcoming mobile source measures will reduce emissions from the same sources, not all emission reductions achievable from PR 2305 can be fully quantified at time of rule adoption. As described in CARB's Mobile Source Strategy¹³, additional future measures may be developed that would affect emission sources at facilities covered by PR 2305, but it is too speculative at this stage to determine how they may or may not overlap with PR 2305.

Prospective Emission Reductions from PR 2305

Emissions reductions are expected from all of the emissions sources covered by PR 2305, however not all of the emission reductions can be fully quantified at time of rule adoption. This is primarily because some emission reductions from PR 2305 will at least partially overlap with other SIP-creditable measures. The table at the end of this section lists the key existing and future mobile source measures that also reduce emissions sources addressed by PR 2305, and describes how the overlap is addressed. Even if prospective SIP creditable emission reductions are not achievable at the time of rule adoption, other means of obtaining SIP credit are possible (see below). Further, through the implementation of the WAIRE Mitigation Program, it may be possible to develop prospective SIP creditable emission reductions at a future date.

Retrospective Emission Reductions from PR 2305

The PR 2305 WAIRE Program will be tracked by South Coast AQMD staff to evaluate how it is implemented every year, reported publicly to the Governing Board Mobile Source Committee, with results also made available on the South Coast AQMD web page. A key component of this analysis will be to evaluate which menu options are being chosen by every facility, and comparing that to the original analysis conducted during the rulemaking process. If trends emerge that show greater or lesser emission reductions than envisioned in the rulemaking analysis, then adjustment may be made in subsequent revisions to the SIP inventory (e.g., as part of a future AQMP).

Holistic Analysis of Emission Reductions from PR 2305

Some emission reductions may be attributable to PR 2305, but will not be captured in either a prospective or retrospective analysis. This could include emissions from trucks purchased to comply with PR 2305, but that make truck trips between facilities that aren't regulated under PR 2305. These truck trips are not accounted for in the rulemaking analysis, or in subsequent annual reviews of the WAIRE Program. In addition, if many warehouse operators decide to install zero emission charging/fueling infrastructure, this is expected to make it easier for truck owners to decide to switch to zero emission technologies as finding a fueling location will become less of a concern. This potential increased zero emission technology penetration into the overall truck fleet is not accounted for in the rulemaking analysis except for zero emissions truck visits to regulated facilities. Further, the assumptions included in the rulemaking analysis about other mobile source measures (e.g., CARB's Low NOx Omnibus Rule or ACT Rule) will likely be revised based on future, unknown conditions. In particular, the level of future truck sales, future activity per truck, future costs to operate trucks, etc. all may require updates as part of a normal EMFAC update. As is currently practiced, this holistic analysis will provide the mechanism to ensure that all

¹³ <https://ww2.arb.ca.gov/resources/documents/2020-mobile-source-strategy>

overlapping mobile source measures are captured across the entire truck fleet. This is the primary mechanism by which the San Joaquin Valley Air Pollution Control District receives quantifiable ‘SIP credit’ for its Indirect Source Review program (Rule 9510).¹⁴

¹⁴ When EPA approved Rule 9510 into the SIP, it specifically did not allow the rule to be used for prospective SIP credit (76 FR 26609). Notwithstanding this approach, the most recent Annual Report for Rule 9510 shows that since its inception the rule has resulted in 15,617 tons of NOx and PM10 that have been avoided, with another 12,147 tons of NOx and PM10 that has been reduced through use of its mitigation fee program (<https://www.valleyair.org/ISR/Documents/2020-ISR-Final-Annual-Report.pdf>).

Table 2: Existing and Future Measures that Have Overlapping SIP-Creditable Emission Reductions with PR 2305

Emission Reduction Measure	Measure Summary	Existing or Future Measure	Potential Overlap with PR 2305 Requirements	Calculation Method to Address Potential Overlap for Prospective SIP Credit
Incentive Funding Programs	Various state and federal programs (e.g., Carl Moyer, AB 617 funding, DERA, etc.) provide subsidies to offset the higher cost of NZE and ZE vehicles.	Existing and Future	Potential overlap for existing state and federal funding programs. Uncertain overlap for any new funding programs.	Because incentive programs are not included within EMFAC, no adjustments are made to the PR 2305 calculation.
EPA Heavy Duty Engine Standards	Requires manufacturers nationwide to only sell trucks meeting specified emission standards by 2010 (e.g., 0.2 g/hp-hr NOx)	Existing	Partial overlap due to CARB Truck and Bus Rule.	Overlap calculated as part of CARB Truck and Bus Rule.
CARB Truck and Bus Rule	Requires truck fleets to only operate trucks meeting EPA’s 2010 engine standard by 2023. Measure is phased in before 2023.	Existing	Partial overlap before 2023. No overlap after 2023.	Any emission from NZE or ZE truck activity associated with PR 2305 are compared against baseline truck emission rates that are the average for that truck type in any calendar year from EMFAC 2017 (which includes the Truck and Bus Rule).
CARB Advanced Clean Truck (ACT) Rule	Requires truck manufacturers to ensure that a portion of their new vehicle sales in CA are zero emissions. Measure phases in from 2024-2035.	Existing	No overlap before 2024. Partial overlap after 2024.	Before 2024, any ZE truck activity attributable to PR 2305 that aren’t funded by Incentive Programs provide prospective SIP creditable emission reductions. As a conservative approach ¹ , after 2024 any emission reductions from ZE truck activity associated with PR 2305 will be reduced by the amount of applicable ZE truck activity

Emission Reduction Measure	Measure Summary	Existing or Future Measure	Potential Overlap with PR 2305 Requirements	Calculation Method to Address Potential Overlap for Prospective SIP Credit
				associated with ACT ² in addition to any potentially incentive funded trucks.
CARB Low NOx Omnibus Rule	Requires manufacturers to only sell trucks in CA meeting specified emission standards. Updates warranty, useful life, certification testing procedures, etc. Measure phases in from 2024-2027.	Existing	No overlap before 2024. Partial overlap after 2024	Before 2024, any NZE truck activity attributable to PR 2305 that aren't funded by Incentive Programs provide prospective SIP creditable emission reductions. As a conservative approach ¹ , after 2024 any emission reductions from ZE truck activity associated with PR 2305 is reduced by the amount of applicable NZE truck activity associated with Low NOx Omnibus ² in addition to any potentially incentive funded trucks.
CARB Transport Refrigeration Units (TRU) Air Toxics Control Measure (ATCM)	Requires TRUs to meet in-use particulate matter standards, phased in through 2021.	Existing	No overlap.	No adjustment necessary as rule is completely phased in.
CARB In-Use Off-Road Diesel Rule	For PR2305, this measure applies to yard trucks. This rule requires fleets to meet specified in-use emission levels, depending on fleet size. The rule is phased in from 2014-2029.	Existing	Potential overlap.	Average baseline emission rate for yard trucks is based on industry estimate of yard truck age. This age profile results in baseline emissions that are lower than the most stringent standard in the In-Use Offroad Rule. SIP-creditable emission reduction calculations for yard trucks therefore assume less emission reductions than if only considering this measure.

Emission Reduction Measure	Measure Summary	Existing or Future Measure	Potential Overlap with PR 2305 Requirements	Calculation Method to Address Potential Overlap for Prospective SIP Credit
EPA Cleaner Trucks Initiative	Proposal would require manufacturers nationwide to only sell trucks meeting specified emission standards. Level of control and timing uncertain, though it may match CARB’s Low NOx Omnibus Rule in 2027.	Future	Potential overlap after any new standards go into place.	No analysis currently possible as measure has not yet been sufficiently developed or approved. SIP credit for this measure in relation to PR 2305 will be determined at a later date if PR 2305 is approved.
CARB Advanced Clean Fleets Rule	Proposal would require fleets to increasingly use ZE trucks. Goal is a 100% ZE truck fleet by 2045, with interim goals before then.	Future	Potential overlap after any new standards go into place.	No analysis currently possible as measure has not yet been sufficiently developed or approved. SIP credit for this measure in relation to PR 2305 will be determined at a later date if both PR 2305 and ACF are approved.
CARB Proposed TRU ATCM Amendments	Proposal will transition straight truck TRUs to ZE from 2024-2031. A second rule amendment will target transitioning trailer TRUs to ZE by 2035.	Future	Potential overlap after any new standards go into place.	No analysis currently possible as measure has not yet been sufficiently developed or approved. SIP credit for this measure in relation to PR 2305 will be determined at a later date if both PR 2305 and the TRU ATCM are approved. PR 2305 (d)(3)(A) also prohibits earning WAIRE Points in any year that a CARB or EPA rule applies.
CARB Proposed ZE Forklift Rule	Proposal would require fleets to phase in ZE forklifts from 2025-2040.	Future	Potential overlap after any new standards go into place.	No analysis currently possible as measure has not yet been sufficiently developed or approved. Emission reductions not calculated for forklifts in PR 2305 as these are not included in the WAIRE Menu.

Emission Reduction Measure	Measure Summary	Existing or Future Measure	Potential Overlap with PR 2305 Requirements	Calculation Method to Address Potential Overlap for Prospective SIP Credit
CARB Heavy Duty Inspection & Maintenance (HD I/M) Rule	Proposal would require truck owners to routinely test their trucks to ensure they operate within acceptable standards.	Future	Potential overlap as emission reductions from this measure are not yet accounted for in EMFAC.	Expected effect of HD I/M is calculated in CARB META tool. Baseline truck emissions (i.e. trucks that would go to warehouses absent PR 2305) will be reduced to account for HD I/M before calculating the difference due to ZE and NZE trucks visiting PR 2305 warehouses.

Notes:

- 1) There are no requirements in this measure that ensure that mandated statewide sales targets will result in emission reductions specifically in the South Coast Air Basin.
- 2) Emissions from this measure are derived from CARB’s Mobile Emissions Toolkit and Analysis (META) tool that was developed for CARB’s Mobile Source Strategy as a means of evaluating how all mobile source strategies will interact in the future. The analysis in META assumes that truck sales will match the sales targets in Table A-1 of California Code of Regulations (CCR) Title 13, Section 1963.1, but does not consider the impact of the vehicle weight modifiers in Table A-2 or the credit/trading provisions of the regulation in Section 1963.2. Based on experience with similar provisions in the Advanced Clean Cars (ACC) regulation from CARB (CCR Title 13 Section 1962.2), this assumption results in a high-end estimate of ZE vehicles that will be sold, and the emission reduction estimates due to PR 2305 in this staff report may be higher than shown. For example, the target for light duty sales in ACC is 22% in 2025 and beyond [Section 1962.2 (b)(1)(A)], however EMFAC 2017 only assumes 6.3% based on actual sales that are expected to occur (Table 4.5-5 in EMFAC 2017 Technical Documentation).²⁵¹ If crediting provisions in ACT similarly result in either lower sales percentages, or a focus on sales of truck types that do not visit PR 2305 warehouses, then less ZE trucks will visit warehouses in the baseline, and more WAIRE Points will need to be earned.

²⁵¹ <https://ww3.arb.ca.gov/msei/downloads/emfac2017-volume-iii-technical-documentation.pdf>

Appendix E: NZE ALTERNATIVES FOR CUSTOM WAIRE PLANS

The Draft Environmental Assessment provides an alternative analysis which considered NZE technology alternatives. As a continuation of that analysis the inclusion of NZE yard trucks and NZE fueling infrastructure is discussed below if it were to be included as Custom WAIRE Plan submissions. In the currently proposed rule, the submission of NZE yard truck fueling infrastructure and NZE on-road truck fueling infrastructure are prohibited from being considered as Custom WAIRE Plans.

NZE YARD TRUCKS

NZE yard trucks are fueled with CNG, LNG or Propane resulting in a 90% or better reduction in NOx emissions and 100% DPM reductions. In addition to the 10% or less NOx emission reduction difference between the ZE and NZE yard trucks, NZE yard trucks may have local public health impacts as they may idle similar to conventional diesel yard trucks, especially as yard trucks typically do not leave the warehouse site and may be used solely for off-road applications. During the analysis of NZE yard trucks, no off-road CARB certified yard trucks were identified, which would otherwise have provided a cost saving at the time of purchase for off-road vehicles. The NZE yard trucks that are used for demonstration projects at the Port of Los Angeles include Capacity trucks with CWI 6.7 and 8.9 liter engines which performed well with the heavier duty cycles of port application. NZE yard trucks have been demonstrated for several years and were not commercial status, but recent advancements have resulted in commercially available NZE yard trucks that are on-road CARB certified to 0.02 g/bhp-hr. Recent innovations of a propane “pony” system allows propane NZE yard truck models to quickly switch propane tanks with minor interruptions to service, which may result in wider use for warehouse, port, and railyard applications.

There are multiple NZE yard truck manufacturers including Capacity, Autocar, and TICO with different engine manufacturers including Cummins, PSI, and Ford. According to the Ports’ Feasibility Study²⁵² the cost for an NZE yard truck is currently about \$150,000, with conventional diesel models costing about \$100,000 which makes the incremental cost about \$50,000. The incremental costs for NZE yard trucks can vary depending on the engine size and whether the yard truck is fueled with CNG, LNG, or Propane. Another potential cost to the NZE yard trucks are the NZE infrastructure that would be used to fuel the NZE yard trucks with CNG, LNG, or Propane. Costs for the NZE yard truck fueling infrastructure is another potential investment that could be proposed should Custom WAIRE Plan submissions be allowed for NZE yard trucks, as the cost for the infrastructure would vary depending on the type of natural gas.

NZE FUELING INFRASTRUCTURE

NZE fueling infrastructure is not included in the currently proposed WAIRE Menu as there is an established network of NZE fueling stations in California, with 295 public stations and

²⁵² San Pedro Bay Ports, 2018 Feasibility Assessment for Cargo-Handling Equipment, September 2019, <https://cleanairactionplan.org/documents/final-cargo-handling-equipment-che-feasibility-assessment.pdf/>

another 184 private stations²⁵³. The typical equipment required at CNG and LNG stations include a compressor, storage, dryer, and fueling posts, with the system design based on capacity determining the number of each type of equipment. Based on the station design the costs of CNG or LNG station can range from \$1.1 million to nearly \$2 million depending on the system design²⁵⁴. Some of the companies that design and install CNG and LNG stations include SoCal Gas, TruStar Energy, Ozinga, and Clean Energy.

²⁵³ <https://afdc.energy.gov/stations/#/analyze?region=US-CA&fuel=CNG&fuel=LNG&fuel=LPG>

²⁵⁴ Based on quotations submitted to the CEC and Carl Moyer incentive programs

Appendix F: RESPONSE TO COMMENTS

**CENTER FOR COMMUNITY ACTION & ENVIRONEMNTAL JUSTICE
EAST YARD COMMUNITIES FOR ENVRIONMENTAL JUSTICE
EARTHJUSTICE
NATURAL RESOURCES DEFENSE COUNCIL
SAN PEDRO & PENINSULA HOMEOWNERS COALITION
SIERRA CLUB
URBAN & ENVIRONMENTAL POLICY INSTITUTE**

February 14, 2019

Chair Parker and Members of the Committee
Mobile Source Committee
South Coast Air Quality Management District
21865 Copley Dr.
Diamond Bar, CA 91765

Re: Update on Development of Facility-Based Mobile Source Measures in 2016 AQMP

Dear Chair Parker and Members of the Committee:

On behalf of the undersigned organizations, we file comments on the facilities-based measure update that is before your committee. Communities have been fighting pollution from the freight industry for decades. The communities surrounding ports, railyards, warehouses, and freight corridors continue to suffer disproportionately from this industry. And the impacts are serious and grave. Given the contribution of this industry in concentrating pollution in neighborhoods in the region and its regional contribution to air pollution, it is critical that the South Coast Air Quality Management District do everything within its authority to control pollution from freight facilities. We understand that other agencies must do their part (i.e. the California Air Resources Board and the Environmental Protection Agency), but we also need our local air district to do everything it can given the seriousness of the freight pollution crisis.

1-1

As this Committee hears the updates on the various work in addressing pollution from freight facilities, we want to provide some initial input for this committee to consider.

Ports: Given community concerns with a Memorandum of Understanding (MOU) approach, it is vital that any MOU effort be fully vetted in public. As such, it is critical to start the outreach and vetting of these documents now. People concerned with breathing safe air will need time to understand how these contracts are enforceable and set forth strong metrics for emissions reductions at the largest fixed source of pollution in the region.

Warehouses: Staff should continue to examine strategies like facility caps, even if it prefers fleet certification and mitigation fees as a tool. We fear that options for legal approaches are being taken off the table prior to the requisite analysis being completed. While some strategies may aid in reductions region-wide, we remain concerned with approaches that could allow for picking winners and losers in some communities getting cleaner air and others not. We think a strong facility cap could be effective in ensuring warehouses clean up their pollution in all communities.

1-2

Railyards: We continue to find out more about the harmful impacts railyards impose on communities. The air district should pursue a strong rule to combat these facilities that impose so much health burden on communities. We are excited to start this rulemaking process in earnest.

We appreciate your consideration of these comments, and we look forward to working with the Air District to bring clean air to the communities who've been harmed by the freight industry for decades.

1-3

Sincerely,

Adrian Martinez
Michelle Ghafar
Earthjustice

Andrea Vidaurre
Center for Community Action & Environmental Justice

Taylor Thomas
East Yard Communities for Environmental Justice

David Pettit
Natural Resources Defense Council

Jessica Tovar
Urban & Environmental Policy Institute
Occidental College

Peter Warren
San Pedro & Peninsula Homeowners Coalition

Carlo De La Cruz
Sierra Club

Responses to Comment Letter #1 CCAEJ - 2/14/2019Response to 1-1

Thank you for your participation in the rule development process and your comments in support of a warehouse ISR.

Response to 1-2

Staff analyzed various strategies including from facility caps, fleet certifications, best management practices, and a mitigation fee., Staff ultimately deciding on a menu-based points approach that promoted the incorporation of cleaner NZE and ZE technologies to get the needed regional NOx and local DPM community benefit while preserving flexibility to accommodate a variety of warehouse business models. Facility caps were found to be an infeasible approach due to the difficulty in tracking the distances that every truck visiting a warehouse travels. Trucking companies consider this proprietary information as they will travel to warehouse competitors. Further, goods in a truck may be destined for multiple warehouses, and assigning mileage to specific warehouses is impractical. Finally, even if those difficult challenges could be addressed, the administrative burden on facilities and South Coast AQMD to calculate emissions for every facility is significant given the ~3,000 warehouses covered by the rule, and the hundreds of thousands of trucks that operate in the region every day. The proposed menu-based system approach was determined to be the most feasible to administer that also met the project objectives.

Response to 1-3

Thank you for your participation in the rule development process and your comments in support of a warehouse ISR.

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Todd R. Campbell
Vice President Public Policy & Regulatory Affairs



September 17, 2019

Mr. Ian MacMillan
Mr. Victor Juan
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Comments on the August 23rd Warehouse Indirect Source Rule Working Group

Dear Mr. MacMillan, Mr. Juan, and AQMD Staff:

Clean Energy appreciates the opportunity to comment on the latest staff presentation provided during the August 23rd Warehouse Indirect Source Rule (ISR) Working Group. We also would like to commend South Coast Air Quality Management District (AQMD) staff on your collective efforts to seek deeper NOx reductions from mobile sources that demonstrably have a disproportional impact upon the South Coast Air Basin and disadvantaged communities. If the South Coast is ever to reach clean air attainment under the federal Clean Air Act’s ozone standards or improve upon the health of impacted communities, the AQMD must be in the best position to transition the basin’s fleet to near zero and, as they become available, zero emission medium and heavy-duty truck strategies. As a long-time partner of the AQMD, we offer our support and provide the following comments and recommendations designed to improve upon the agency’s ability to move regional warehouse operations toward a cleaner future.

2-1

Near Zero Trucks must be based and have full access to In-Basin Warehouse Facilities

If warehouses located within the South Coast Air Basin are to meaningfully reduce truck-related emissions in the near- to mid-term, low NOx trucks must be able to both access and be domiciled at warehouse facilities. In short, full access of such trucks that significantly cut diesel exhaust pollution – both smog and carcinogenic diesel particulate emissions – must be a part of the AQMD’s emissions reduction strategy portfolio.

During the August 23 workshop, a stakeholder suggested that only zero emission vehicles should be allowed to either access or be domiciled at a warehouse, especially if said facility is located near or adjacent to a disadvantaged community. Adopting such a position, however, would deny any immediate air pollution relief to a heavily impacted community as the default would likely be a dirtier diesel truck. Conversely, providing incentives for warehouse operators and the fleet owners that serve them over to low NOx trucks using renewable natural gas would deliver 90 percent fewer smog-forming emissions and potentially carbon negative emissions reductions immediately.

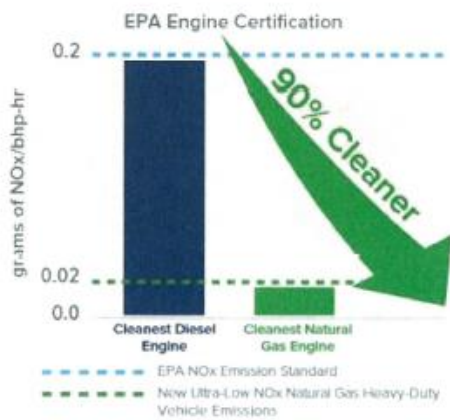
2-2

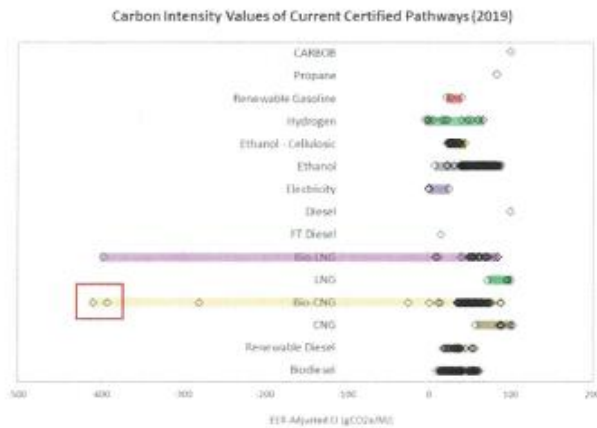
The South Coast AQMD Must Transition Away from Diesel Trucks as Quickly as Possible

Today’s diesel trucks not only fail to meet the most stringent low NOx standard, but likely exceed the current NOx emission standard for heavy-duty truck engines if they use a selective-catalytic reduction (SCR) system. Specifically, diesel trucks using SCR devices were found to be ineffective in cutting NOx emissions when operating at low speeds (i.e., drayage). In fact, we would recommend that AQMD staff review recent literature published by the California Air Resources Board clearly stating that emissions from base-line diesel trucks could be up to 9 times above the current heavy-duty truck engine standard for NOx emissions during low speed operations.ⁱ

2-3

Low NOx trucks powered by natural gas, however, do not depend on an SCR system and have been certified to NOx emissions levels that are 90% below the current heavy-duty truck engine standards (i.e., 0.02 g/bhp-hr NOx v. 0.2g/bhp-hr, respectively). Recent studies by the University of California at Riverside also have demonstrated that in-use NOx emissions by natural gas low NOx trucks actually show up to a 99% reduction of NOx emissions compared to the current heavy-duty truck standards set by the US Environmental Protection Agency (EPA) and CARB.ⁱⁱ Additionally, when a low NOx truck is powered with renewable natural gas (RNG), carbon emissions performance for a low NOx truck can actually be carbon negative depending upon the fuel source.ⁱⁱⁱ It should be noted that the two leading providers of natural gas as a transportation fuel in the South Coast Air Basin and the State of California only sell RNG at the pump thanks to the Low Carbon Fuel Standard.





Clearly, low NOx strategies powered by RNG should play an unapologetic and prominent role in the final Warehouse Indirect Source Rule.

2-3
(continued)

Include Renewable Natural Gas Fueling Stations in the Ongoing Warehouse ISR Mitigation Menu

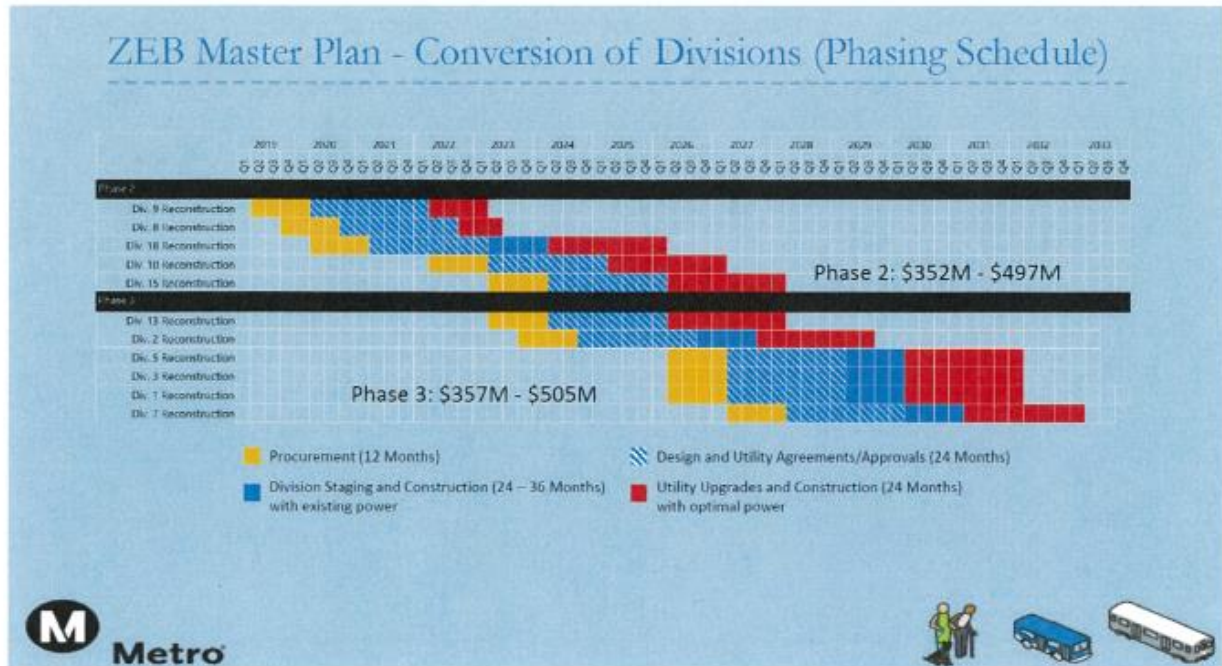
After reviewing the August 23rd Warehouse ISR Working Group presentation, we strongly recommend that AQMD Staff add RNG fueling infrastructure investments on the ongoing mitigation menu as additional fueling infrastructure will be needed to fully address the South Coast’s truck pollution crisis.

A few stakeholders have argued against the inclusion of RNG fueling infrastructure with the hope that AQMD would only support zero emission fueling infrastructure projects from this point forward. They even claim that such RNG fueling investments would become stranded assets with the promise of zero emission technology on the horizon. However, RNG fueling infrastructure investments would largely make use of private capital (not public funds) and a return on investment would easily be achieved within 5 to 10 years. Further, while the desire to achieve zero emission strategies now is not lost upon us, it is highly unlikely that the region can make a regional transition for several decades due to both cost, infrastructure and logistical issues.

2-4

For example, Los Angeles County Metro’s Board of Directors committed the agency to make a full transition to zero emission buses by 2030 and Metro is now required to do so by 2040 under the California Air Resources Board’s Innovative Clean Transit rule. Despite this momentum and receiving massive federal and state public subsidies, Metro staff is quickly learning the herculean challenges of adopting a strategy that has yet to be fully commercialized. For example, Metro’s Operations, Safety and Customer Experience Committee is recommending on Thursday, September 19, to purchase 259 Contract Option forty-foot CNG buses because the transit authority cannot get the necessary zero-emission charging infrastructure in place to run more ZEBs in Metro’s fleet.^{iv} Further, there are numerous complications associated with certain zero emission bus technologies in terms of weight and range that remain unresolved and are steadily pushing out Metro’s target implementation date to no fault of Metro staff’s efforts.^v The reality

is zero emission strategies face multiple logistical, technical and cost challenges that go well beyond the operator.



Finally, while we highly dispute the statements pertaining to the NGV industry’s ability to quickly build out public or private RNG fueling infrastructure in the 2018 Drayage Truck Feasibility Assessment released by the San Pedro Bay Port Authorities, failing to include RNG fueling infrastructure as an ongoing menu option under the proposed Warehouse ISR will result in delayed emissions reductions for the region.^{vi} For example, an agency could fail to act on adopting policies that are supportive of AQMD’s Warehouse ISR if they determine that there is insufficient fueling stations to support a clean fleet policy or transition. The AQMD’s final Warehouse ISR should take progressive steps to deny such an outcome by promoting fueling infrastructure that supports low NOx trucks using renewable and climate friendly fuel today.

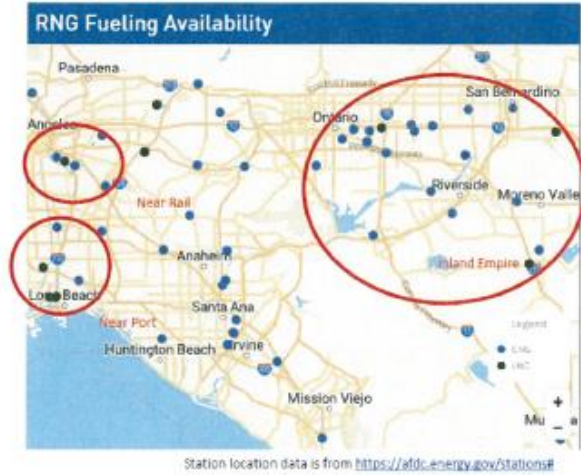
2-5

Substantial RNG Fueling Is Already Available Where Port Trucks Travel

33 existing stations are located near the port, along the 710 corridor to Commerce rail yards and the Inland Empire.

Clean Energy Wilmington station has 6 dispensers. Assuming the remaining 32 stations have 2 dispensers, this gives 70 total dispensers for port trucks. Assuming 50% utilization (actual is less than 50%), the existing network can support 70 x 116 to 165 trucks x 50% = 4,060 to 5,775 trucks.

In actuality, near port stations have 12 dispensers that can handle 12 x 116 to 165 = 1,392 to 1,980 trucks (current utilization goes to zero as the legacy LNG trucks retire). However, to be conservative, this study uses 50% utilization.



Area	Existing Capacity to Serve Additional Trucks
Near-Port	1,392 to 1,980 Trucks
LA Basin	4,060 to 5,775 Trucks

Conclusion:

Clean Energy would like to thank and support AQMD staff’s efforts to develop a meaningful Warehouse ISR. The Final Warehouse ISR must: (1) embrace low NOx trucks powered by RNG as a key mitigation strategy and (2) add RNG fueling infrastructure to the ongoing mitigation menu of the Warehouse ISR. Falling short of adopting these two progressive action items in the final Warehouse ISR’s strategy would not only deny regional warehouses and fleet operators a key tool to combat both air and climate pollution generated by trucks, it would run contrary to the AQMD’s own 2016 Air Quality Management Plan which heavily relies upon low NOx natural gas truck adoption as a core and central strategy to achieve the necessary NOx ton reductions to meet federal ozone attainment.

In fact, we believe both the San Joaquin Valley and South Coast air districts recently said it best in a letter to the California Air Resources Board urging CARB staff to retain low NOx funding under HVIP by stating:

“Both air districts have prioritized the need to replace a large number of long haul and other diesel (Class 7 & 8) trucks by 2024 with zero and near-zero emission technologies through transformational changes in the heavy-duty trucking sector. Additionally, both air districts, with grant funding from CARB, are working on developing and demonstrating zero emission heavy-duty (Class 7 & 8) trucks, and recognize that large scale deployments can provide a valuable option as they continue to become

2-6

*commercially available and feasible for fleets, especially with consideration or varying duty cycles. **However, these trucks are not yet commercially available.** Therefore, to reach both regions' and state's air quality goals, near-term large-scale emission reductions are required that can only be achieved by deploying currently available near-zero low NOx technologies today, with immediate reductions needed in AB 617 communities and broader regions.*

Towards that end, both districts support continued HVIP funding for zero and near-zero heavy duty (Class 7 & 8) trucks that reduce greenhouse gas and criteria pollutant emissions, especially when combined with renewable fuels that have increasing in-state production as a result of state funding. Both air districts have communities that are heavily impacted by goods movement due to the significant amount of heavy-duty diesel vehicles transporting materials on a daily basis. Bringing about significant additional reductions in freight emissions will be essential for reaching attainment with ever-tightening federal ozone and particulate standards. The development and implementation of near zero-emission low NOx technologies in the freight sector will also provide for significant reductions in toxic air contaminants that affect residents.^{vii}

2-6
cont'd

If you should have any questions or would like to have further input from our team, please do not hesitate to contact me directly.

Sincerely,



Todd R. Campbell

Vice President, Public Policy and Regulatory Affairs

ⁱ See California Air Resources Board. October 26, 2016. "High In-Use NOx Emissions from Heavy-Duty Diesel Trucks Equipped with SCR Systems and Their Impact on Air Quality Planning in California" by Yoon, Collins, Misra, Herner, Carter, Sax.

ⁱⁱ See UC Riverside's College of Engineering – Center for Environmental Research and Technology. February 2016. "Ultra-Low NOx Natural Gas Vehicle Evaluation: ISL G NZ" by Johnson, Jiang, and Yang.

ⁱⁱⁱ See <https://ww3.arb.ca.gov/fuels/lcfs/fuelpathways/pathwaytable.htm>.

^{iv} See <https://metro.legistar.com/LegislationDetail.aspx?ID=4136484&GUID=63368C2C-DCBE-4B38-A8DD-577532AB42F8>

^v See LA County Metro's "Zero Emission Bus (ZEB) Program Update. July 18, 2019. Operations, Safety, and Customer Experience Committee.

^{vi} See <http://www.cleanairactionplan.org/documents/final-drayage-truck-feasibility-assessment.pdf/>

^{vii} Joint San Joaquin Valley Air Pollution Control District and South Coast Air Quality Management District comment letter to the California Air Resources Board dated September 13, 2019 re: San Joaquin Valley Air Pollution Control District & South Coast Air Quality Management District Comments on the Discussion Draft of the Low Carbon Transportation Funding Plan.

Responses to Comment Letter #2 Clean Energy Fuels- 8/23/2019Response to 2-1

Thank you for your participation in the rule development process and your comments in support of a warehouse ISR.

Response to 2-2

PR 2305 provides options for the purchase and usage of NZE and ZE trucks by warehouse operators, and provides WAIRE Points incentives to motivate the use of NZE and ZE trucks. NZE options are expected to have the lowest cost of compliance in the near term, in particular for NZE Class 8 trucks. This incentive within the rule is expected to generate interest from warehouse operators, however they are free to choose whichever option makes the most sense for their operations. The goal of including NZE and ZE trucks is to get regional and local NO_x and PM emission reductions from the mobile sources that are attracted to warehouses. The proposed WAIRE Menu included in PR 2305 includes both NZE and ZE truck acquisition and usage.

Response to 2-3

South Coast AQMD staff agree with the comments that the diesel trucks are a significant NO_x emission source, and potentially exceed the current NO_x emission standard for heavy duty trucks. CARB has adopted several regulations adopted such as the Low NO_x Omnibus and the Heavy Duty I&M regulations that will reduce the NO_x emissions but also work to ensure prolonged engine performance and emission standard compliance. South Coast AQMD does not have the authority to set emission standards for new engines or in-use performance standards. However, South Coast AQMD does have indirect source authority to provide WAIRE Points incentives for warehouse operators to acquire or get visits from NZE and ZE trucks to help satisfy their compliance obligation under PR 2305WPCO. In providing NZE and ZE truck options on the WAIRE Menu, South Coast AQMD can get needed short term regional and local NO_x and PM emission reductions toward the immediate emission reductions byupcoming 2023 and 2031 attainment deadlines, as well as facilitate early action on the implementation of other truck related rules and regulations that also result in emission reductions. Staff agrees that when an NZE truck is fueled with RNG, there can be GHG benefits in addition to the NO_x and PM emission reductions as compared with diesel fueled trucks. As stated in the most recent Proposed Final Integrated Energy Policy Report from the California Energy Commission, renewable natural gas made up about 77% of the pipeline gas supply for vehicles in 2019.²⁵⁵ NZE truck options present some of the lowest costs in the near term with the proposed rule, and are therefore expected to generate interest from warehouse operators as a compliance option.

Response to 2-4

The comment points out that a near-term ZE shift is unlikely due to cost, infrastructure, and logistical issues. is not yet readily available, and that installing this infrastructure will require more effort. This is also supported in a recent report from the California Energy Commissions that states that up to 157,000 chargers are needed for medium duty and heavy duty vehicles by 2030 in order to meet state goals, yet very few have been built to date.²⁵⁶ PR 2305 provides a mechanism to encourage installation of this infrastructure at warehouses – a key destination for medium and heavy duty trucks. While NZE trucks are allowed in PR 2305 (and are an attractive compliance option), NZE fueling infrastructure has not been included. This is in part due to a desire to work towards state ZE goals, and also because previous statements from the natural gas industry, and implied statements from this comment letter, have stated identified that government support is not

²⁵⁵ <https://efiling.energy.ca.gov/getdocument.aspx?tn=236905>, pg. 134. Accessed 2-28-21

²⁵⁶ <https://efiling.energy.ca.gov/getdocument.aspx?tn=236237>, Accessed 2-28-31

needed for the fueling infrastructure for widespread deployment of natural gas fueled NZE trucks other than policy and funding support for the trucks themselves.²⁵⁷ These previous comments have also stated that the natural gas industry is ready to quickly scale up fueling infrastructure to meet the demands of the trucking industry in southern California, and has a track record of previous successful rapid station developments by constructing 70 stations within one year.

There are currently about 66 CNG and LNG stations in the South Coast AQMD that can serve heavy duty trucks. The ports of Los Angeles and Long Beach estimated that up to 14 new stations could be needed to support up to 18,000 Class 8 NZE trucks serving the ports, however their analysis did not consider the use of any of the existing stations throughout the region.²⁵⁸ At a stringency of 0.0025 Points/WATT, the level of deployment of NZE Class 8 trucks in PR 2305 is no more than about 16,000 trucks over a ten year period in the extreme unlikelihood that all warehouse operators only chose NZE Class 8 trucks as a compliance option. Therefore, no more than 14 new stations are expected to be needed to support NZE trucks under PR 2305, and potentially could be much lower if the existing natural gas “station infrastructure is overbuilt for the current natural gas truck market in California”.²⁵⁹ As a result of these factors – the high need for zero emissions charging/fueling infrastructure, the expressed willingness of the natural gas industry to build out fueling stations on its own, and the limited amount of natural gas fueling infrastructure needed to support any NZE trucks that might be introduced due to PR 2305 – natural gas fueling options are not included as a compliance option within PR 2305. Nonetheless, a CEQA alternative has been included that evaluates additional NZE compliance options within PR 2305, and the Governing Board will consider these alternatives as part of its overall consideration of PR 2305.

Response to 2-5

See Response 2-4 above. The proposed approach in PR 2305 is expected to ultimately result in about 2.5 to 4 tons per day of NOx reduction, including providing near term emission reductions. Whether or not the Governing Board approves PR 2305, South Coast AQMD will continue to advocate with other agencies to adopt policies that promote cost-effective and near term emission reductions (as noted by the commenter in 2-6).

Response to 2-6

See Response 2-4 above. Further, while renewable natural gas (RNG) does have climate benefits relative to conventional diesel fuel, the primary focus of PR 2305 is the reduction of criteria pollutants to reduce regional and local air pollution, and to reduce localized exposure to air pollution sources related to warehouses. Although reducing greenhouse gases is an important goal, it is not one of the project objectives of PR 2305. PR 2305 is expected to result in increased use of NZE Class 8 trucks fueled by RNG. Thank you for your participation in the rule development process and your comments in support of a warehouse ISR.

²⁵⁷ <https://cngvc.org/wp/wp-content/uploads/2017/04/ACT-Now-Plan-Final.pdf>, pg. 14, Accessed 2-28-21
<https://cleanairactionplan.org/documents/2018-draft-drayage-feasibility-assessment-public-comments.pdf>, letters at pg. 14 and 47 Accessed 2-28-21

²⁵⁸ <https://cleanairactionplan.org/documents/final-drayage-truck-feasibility-assessment.pdf/>, Accessed 2-28-21

²⁵⁹ <https://cleanairactionplan.org/documents/2018-draft-drayage-feasibility-assessment-public-comments.pdf>, pg. 17 Accessed 2-28-21

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Todd R. Campbell
Vice President Public Policy & Regulatory Affairs



November 26, 2019

Mr. Ian MacMillan
Mr. Victor Juan
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Comments on the November 13th Warehouse Indirect Source Rule Working Group

Dear Mr. MacMillan, Mr. Juan, and South Coast Air Quality Management District Staff:

Clean Energy appreciates the opportunity to comment on the latest staff presentation provided during the November 13th Warehouse Indirect Source Rule (ISR) Working Group. We also would like to commend South Coast Air Quality Management District (AQMD) staff on your collective efforts to seek deeper NOx reductions from mobile sources that demonstrably have a disproportional impact upon the South Coast Air Basin and its disadvantaged communities. If the South Coast is ever to reach clean air attainment under the federal Clean Air Act’s ozone standards or improve upon the health of impacted communities, the AQMD must be in the best position to transition the basin’s fleet to near zero and, as they become available, zero emission medium and heavy-duty truck strategies.

3-1

As a long-time partner of the AQMD, we offer our support and provide the following comments and recommendations designed to improve upon the agency’s ability to move regional warehouse operations toward a cleaner future.

The following comments are being made after review of the newly proposed language:

Warehouse Size Must be Clarified in Rule Language:

Clean Energy recommends that language referring to warehouse size be consistent with the calculations on warehouse size made throughout the document. To do so, we recommend changing the draft language’s references to warehoused size located in the AQMD from:

“with greater than 100,000 square feet of indoor floor space in a single building”

to:

“with equal or greater than 100,000 square feet of indoor floor space in a single building”

3-2

Instances where “equal or” should be amended into the draft rule’s language are on pages: 2305-1, section (b); 2305-3, section (d)(1); and, 2305-7, section (e)(1)(A).

North America’s leader in clean transportation 1

Implementation of Warehouse Rule based on Warehouse Size

Staff is recommending that this rule be phased in over a three-year period covering 2021-2023 based on three warehouse sizes: >=250,000 sq. ft. (2021); >=150,000 sq. ft. (2022), and >=100,000 sq. ft. (2023). Clean Energy questions why there would be any delay in adopting mitigation measures for sources of pollution at warehouses, especially when the South Coast Air Basin needs to come into attainment with the federal Clean Air Act for ozone in 2023. Given this sense of urgency, it seems to make more sense to require all warehouses equal or greater than 100,000 sq. ft. subject to rule starting in July of 2021. In that way, the rule may see some economies of scale benefits come into play over compliance costs if more, not less, regulated warehouses need to purchase advanced clean trucks and other warehouse mitigation strategies to meet rule obligations. Has staff done any type of analysis as to what the benefits and costs would be to stretch out this rule as currently proposed? Given the enormous costs associated with air pollution and the real possibility of federal sanctions if we fail to meet federal attainment deadlines under the Clean Air Act, it would make more sense for AQMD to implement this rule forward as soon as possible.

3-3

Other Considerations for Rule Acceleration

As staff develops values for WAIRE points, another way to accelerate proactive action would be to reward early action. For example, actions done in advance by warehouse owners or operators who do not currently have any WAIRE obligations would receive a multiplier of WAIRE points that could be used toward compliance. This option certainly should be considered if staff insists on staggering warehouse compliance of the regulation based on size. One recommendation would be, actions taken two years in advance of obligations receive a 2X multiple and actions taken one year in advance would receive a 1.5X multiple.

3-4

Default WATTs Calculation due to a Force Majeure

Staff suggests that if a warehouse operator fails to know the number of annual truck trips made to a warehouse due to a force majeure or for whatever reason, a default WATTs calculation shall be used to determine an owner or operator’s compliance requirements. Such calculations should be used only as a last resort and be heavily weighted in favor of public health. In other words, a default WATTs calculation should be set in such a way that a warehouse owner or operator would prefer to voluntarily report out the actual WATTs values at each warehouse facility over taking the default WATTs calculation. This principle would be similar to default pathways established under the Low Carbon Fuel Standard (LCFS) whereas the default would not generate the level of credits that one would normally expect at a fuel production facility. By doing so, the producer is motivated to submit a detailed pathway to maximize a plants low carbon fuel accreditation.

3-5

Mitigation Fee

Although no fee has been set by Staff in the proposed language, it goes without saying that such a fee must serve as a real deterrent to a warehouse owner or operator who would otherwise opt to violate the rule if the penalty was inconsequential. We will be very interested in the rationale behind whatever figure staff ultimately proposes for the \$XX amount for each WAIRE point.

3-6

Warehouse Activities Definition

We are concerned about the potential abuse that could occur if staff allows supporting office administration, maintenance or manufacturing areas within a warehouse, etc., not count as warehouse activities. It is quite possible that such areas could be created permanently or temporarily to intentionally avoid obligations under the proposed warehouse rule. Further, the AQMD’s ability to enforce and prosecute those who take advantage of this loophole with fraudulent intent would be a challenge for Staff. We highly recommend the removal of these exemptions to warehouse activities.

3-7

Near-Zero Emission (NZE) Trucks Definition

We strongly support this definition as it ensures that the rule will put the cleanest low NOx truck option onto the South Coast Air Basin’s roads.

3-8

WAIRE Menu

We highly recommend the following changes to the WAIRE Menu to make sure that the AQMD achieves meaningful reductions in air pollution from warehouse operations.

- Acquire ZE/NZE Truck: Support
- NZE/ZE Truck Visits: Support
- Acquire ZE Yard Truck: Support if amended to include NZE Yard Truck to this item as NZE trucks, as defined by the rule, now come in 6.7L, 8.9L and 11.9L engine options.
- Install Onsite ZE Charging or Fueling Stations: Oppose. We recommend this option’s removal from the WAIRE menu. The usage of such stations at the facility is what helps achieve emissions reductions at a warehouse. The actual act of installing a charging or fueling station does not reduce emissions in or around a warehouse if there is no volume exhibited. This action therefore should not receive WAIRE credit.
- Use Onsite ZE Charging or Fueling Stations: Oppose unless amended to include NZE fueling stations. Clean Energy believes that the state LCFS already incentivizes the use of low carbon charging or fuel use by volume. However, if staff elects to maintain this action item under the WAIRE menu, it should also include the usage of renewable fuel at NZE fueling stations located at or near warehouses. The value of the WAIRE credit value should also be determined by the CI value of the renewable fuel at a charging or fueling station using the CI values under the California Air Resources Board’s LCFS program.
- Install Onsite Energy Systems: Oppose. We recommend removing this action from the WAIRE menu as it does nothing to reduce air pollution at warehouse facilities which is the rule’s objective.
- Use Onsite Energy Systems: Oppose. We recommend removing this action from the WAIRE menu as it does not actually reduce air pollution at a warehouse which is the rule’s objective.
- Community Benefits: Support. Any action that better informs the community on the health risks and impacts is important information to collect and share with the community.

3-9

3-10

3-11

3-12

3-13

Conclusion:

Clean Energy would like to thank and support AQMD staff's efforts to develop a meaningful Warehouse ISR. If possible, we would like to meet with you to discuss the above amendments and recommendations in person prior to the next Warehouse Workshops in December.

3-14

Also, if you should have any questions or would like to have further input from our team, please do not hesitate to contact me directly.

Sincerely,



Todd R. Campbell
Vice President, Public Policy and Regulatory Affairs

Response to Comment Letter #3 - Clean Energy November 26th 2019Response to Comment 3-1

Thank you for your participation in the rule development process and your comments in support of a warehouse ISR.

Response to Comment 3-2

Staff agrees with the comment regarding consistency in the size applicability definition, which was also addressed during the November 13, 2019 working group meeting. Revisions were made to the rule language and other documents related to PR 2305 that now have the consistent language of “with greater than or equal to 100,000 square feet”.

Response to Comment 3-3

The proposed three-year phase-in for PR 2305 takes into account many factors. Key considerations included the number of new facilities entering into a regulatory program, the need for emission reductions, and the potential impact on industry. In order to ensure that South Coast AQMD staff can appropriately administer a new program with approximately 3,300 facilities (a more than 10% increase compared to the current permitted universe of about 28,000 facilities), 1,000 facilities will enter each year for three years to allow compliance staff the necessary time to create the program, including a new online reporting portal, field inspection program, auditing program, and making data available to the public. Staff is aware of the urgency in meeting the 2023 and 2031 federal ozone standards. PR 2305 on its own cannot achieve the emission reductions needed for South Coast AQMD to meet these deadlines. However, it is part of a comprehensive strategy described in the 2016 Air Quality Management Plan, and can make meaningful progress towards those goals. The proposed phase-in will allow for a successful roll out of a new program on an industry of warehouse operators that is largely unregulated by air quality agencies.

Response to Comment 3-4

Early action multipliers are not included in the proposed regulation, however PR 2305 does have early action provisions including one that allows that allows extra WAIRE Points earned in one year to be banked for up to three future years to satisfy future compliance obligations, and another that allows both warehouse operators and owners to earn WAIRE Points ahead of their warehouse size phase-in schedule. The banking clock on these pre-phase-in WAIRE Points does not begin until the warehouse operator’s first compliance period, providing an additional early action benefit. Finally, the WAIRE Menu includes options that go above and beyond current regulations in order to earn WAIRE Points. Warehouse operators may also decide to take early action ahead of the implementation schedule of U.S. EPA or CARB rules and regulation in order to earn WAIRE Points.

Response to Comment 3-5

Staff agrees with the comment that the default WATT calculation serves as a last resort if something beyond the warehouse operator’s control resulted in the loss of truck trip count data. Many studies have shown that the correlation between number of truck trips and the size of a warehouse is poor.²⁶⁰ Therefore, PR 2305 requires actual truck trip count data to obtain the most accurate WPCO for the warehouse operator. Staff’s intent is to obtain the most accurate and representative data set on the actual truck trips counts, but to also have a mechanism to determine a facility’s WPCO should something happen to their truck trip counts that was beyond its control, in other words, a *force majeure*.

Response to Comment 3-6

²⁶⁰ <http://library.ite.org/pub/a3e6679a-e3a8-bf38-7f29-2961becdd498>

The WAIRE Menu options were compared based on their costs and their potential emission reductions. The mitigation fee of \$1,000 per WAIRE Point is similar to the cost of many of these WAIRE Menu options for any one individual warehouse operator in any given year (see page 33 of the Preliminary Draft Staff Report). Although in any one year the cost may be similar, the warehouse operator has not made the investment into the facility and therefore may not be entitled to earn points in future years attributed to usage of items on the WAIRE Menu. Because the investments are not made by a facility are not retained with a mitigation fee As a result,, the long term costs of the mitigation fee approach are likely higher. Further, many options in the WAIRE Menu are lower cost than the mitigation fee. Therefore, the mitigation fee approach is not expected to be the dominant mechanism of compliance, though there are no restrictions if warehouse operators choose to use that option.

Response to Comment 3-7

Staff agrees with the concern about the definition of warehousing space. Staff revised Revisions were made to the definition of “warehousing activities” to better address what could be discounted from the warehouse square footage and what square footage could be used for potential warehousing activities even on a temporary or seasonal basis. However, because South Coast AQMD does not have clear knowledge of all of the facilities subject to PR 2305, what may look like a warehouse from databases and limited information visible from an adjacent street, the indoor activity may not be related to warehousing at all. As the PR 2305 compliance options are tailored to warehousing activities, the applicability of the rule is designed to match this activity.

Additionally, the warehouse owner and warehouse operators would be required to submit information on the square footage of the building in the Warehouse Operations Notification, and the amount of square footage leased for actual warehousing activities that could be verified on the lease agreements. During facility audits, should a concern on the square footage arise, a South Coast AQMD inspector may require further documentation from the warehouse operator to confirm the square footage reported on the Warehouse Operations Notification, the Initial Site Information Report, or on the Annual WAIRE Report. In addition, in order to ensure that the suggested abuse does not occur, PR 316 has been included to provide funding for compliance staff to conduct on-site field inspections. As with other compliance activities conducted by South Coast AQMD, site inspections are typically unannounced in order to see how a facility operates during normal activities.

Response to Comment 3-8

The support for the definition of NZE trucks is noted.

Response to Comment 3-9

The WAIRE Menu includes both NZE and ZE on-road truck acquisition and use, but the WAIRE Menu only includes ZE yard trucks. There are key policy distinctions for why ZE yard trucks are the only option considered. First, in the on-road sector ZE trucks are not at the same stage of commercial development as NZE yard trucks, which have been operating in commercial service for several years, especially for Class 8 trucks. However, ZE yard trucks are commercially available today and have been operating at warehouses since 2015. Additionally, because ZE yard trucks are located at an individual facility, they are well-suited to serve as an early beachhead for

the longer term development of ZE vehicle solutions.²⁶¹ By focusing PR 2305 on ZE yard trucks, warehouse operators are introduced to ZE technology to see how it works in their operations. Finally, because yard trucks primarily stay at the warehouse facility, their emissions can have a disproportionate impact on communities surrounding warehouses compared to on-road trucks with emission miles away from a facility. Many yard trucks idle as part of their operation at warehouse facilities, and the switch to ZE yard trucks would benefit public health of the communities surrounding the warehouse to being less by not being burdened by idling emissions. Although NZE engines have lower emissions than their conventional diesel counterparts, they do still have tailpipe emissions. Notwithstanding these issues, a CEQA alternative has been included that evaluates additional NZE compliance options (including for yard trucks) within PR 2305. Further, the second draft staff report and the accompanying WAIRE Implementation Guidelines now explicitly allow NZE yard trucks to earn WAIRE Points through a Custom WAIRE Plan, and example calculations that warehouse operators could use are included.

Response to Comment 3-10

The installation of ZE charging and fueling infrastructure facilitates the implementation of CARB regulations and supports the Governor's Executive Order N-79-20 as it relates to the ZE truck sales and fleet operation goals. Installing ZE charging or fueling infrastructure would help promote the usage of ZE trucks visiting the warehouse or for ZE trucks the warehouse operator owns or plans to acquire. Staff agrees with the comment that there is no emission benefit from the installation ZE charging or fueling infrastructure itself, but this option is included in the WAIRE Menu as it facilitates the usage of ZE technology. WAIRE Points can be earned separately for use of the ZE charging/fueling stations, similar to how WAIRE Points are earned separately for the acquisition of NZE trucks and use of NZE trucks. The splitting of WAIRE Points for both acquisition and usage of equipment and vehicles also allows greater flexibility for incentive funding to be used to offset compliance costs of PR 2305. For example, incentive programs that offset the purchase of a vehicle commonly are typically not allowed to be used for regulatory compliance, such as mandates to purchase vehicles. However, because PR 2305 allows vehicles to be used at a location to earn WAIRE Points, the incentive program restrictions do not apply, and trucks purchased with incentive funding can still earn WAIRE Points for their use. This same approach applies to ZE charging/fueling infrastructure.

Response to Comment 3-11

See Response to Comments 2-4. Further, carbon intensity values have not been considered as part of any WAIRE Menu item. Although reducing greenhouse gases is an important goal, it is not one of the project objectives of PR 2305. PR 2305 is expected to result in increased use of NZE Class 8 trucks fueled by RNG. This is due to the expected increase in use of NZE trucks due to their cost effectiveness relative to other options, and because 77% of natural gas used for transportation fuels in CA is renewable. Nonetheless, a CEQA alternative has been included that evaluates additional NZE compliance options within PR 2305, and the Governing Board will consider these alternatives as part of its overall consideration of PR 2305.

Response to Comment 3-12

The WAIRE Menu was revised and now only includes the installation of solar panel systems. While solar panels do not directly reduce emissions at a warehouse site, they do reduce emissions associated with a warehouse by reducing power produced from local natural-gas fueled power plants. Solar panel systems can provide electricity for warehouses to use for their operations, which

²⁶¹ https://globaldrivetozero.org/public/The_Beachhead_Model.pdf

could include EV or TRU charging that might otherwise have relied on electricity generated from local power plants that resulted in regional NOx emissions. Solar panel system installations also offer additional flexibility for warehouse operators, and this technology is also a common consideration for warehouse operators to meet their corporate sustainability goals.

Response to Comment 3-13

The WAIRE Menu was revised and now only includes the installation of MERV 16 or better air filter systems or the replacement of MERV 16 air filters at sensitive sites for the communities surrounding warehouses. Air filter systems benefits the public health of neighboring communities as it reduces exposure to particulate matter, a common pollutant associated with warehousing activity. The support for measures that better inform the community on the health risks and impacts from air pollution is noted.

Response to Comment 3-14

Thank you for your participation in the rule development process and your comments in support of a warehouse ISR.

CENTER FOR COMMUNITY ACTION & ENVIRONMENTAL JUSTICE
EARTHJUSTICE
EAST YARD COMMUNITIES FOR ENVIRONMENTAL JUSTICE
LEADERSHIP COUNSEL FOR JUSTICE & ACCOUNTABILITY
LONG BEACH ALLIANCE FOR CHILDREN WITH ASTHMA
NATURAL RESOURCES DEFENSE COUNCIL
SAN PEDRO & PENINSULA HOMEOWNERS COALITION
SIERRA CLUB
TEAMSTERS LOCAL 1932
WAREHOUSE WORKER RESOURCE CENTER

December 6, 2019

Ian MacMillan
 Planning and Rules Manager
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765

Re: Comments on Preliminary Draft Warehouse Indirect Source Rule (Proposed Rule 2305)

Dear Mr. MacMillan:

On behalf of the undersigned coalition of community and environmental organizations, we submit these comments on the preliminary draft warehouse indirect source rule proposed by South Coast Air Quality Management District staff during the November 13, 2019 meeting of the warehouse working group. Our coalition is actively involved in this group because communities adjacent to warehouses are consistently and disproportionately harmed by the freight industry every day. We have advocated *for years* for a strong and equitable warehouse rule that will achieve necessary emissions reductions. Indeed, it is well past time for the warehouse industry to see effective and meaningful regulation, and to finally be a good neighbor to the communities burdened by dirty air and unacceptable health risks. The Air District must therefore use this opportunity to pass a strong rule that advances both short- and long-term solutions for the air quality and health crises caused by this industry. The health burden placed on current and future generations of children, pregnant mothers, and our elders and families as a whole must stop now. The time for delay is long over.

4-1

While we appreciate the robust work done so far to develop a strong warehouse rule, and commend the Air District's decision to move away from a credit trading program that would simply amount to pollution trading and we know would not work, the draft rule can do more to better reflect the reality of warehouse operations and the pollution crisis in the region. The Inland Empire has seen a proliferation of these facilities in recent years, and the Southern California Association of Governments projects even more warehouse space will be built or retrofitted in

4-2

the future.¹ These facilities continue to be sited in neighborhoods throughout the South Coast air basin that routinely show high levels of ozone and fine particulate matter. In fact, the region continues to rank as one of the most polluted areas of the country, recently receiving an "F" from the American Lung Association for ozone and fine particulate matter pollution.² After operating for years under a business model that places industry over our health, this industry must be held accountable for business decisions that contribute to consistent and toxic pollution in our neighborhoods.

4-2
(continued)

And there is no question that the Air District can ensure accountability here, under its considerable legal and regulatory authority to develop a strong warehouse rule that tackles the freight pollution crisis. Under the California Health and Safety Code, the Air District is expressly required to provide a warehouse facility-based measure that addresses "high-level, localized concentrations of pollutants" throughout the South Coast air basin.³ Thus, we request that Air District staff update the draft rule to reflect our comments below prior to submitting it to the Air District's Governing Board for adoption in May 2020.

I. The Rule Must Apply to Warehouses 100,000 Square Feet or Larger in Size.

Throughout the draft rule, the language indicates it applies to warehouses that are either greater than 100,000 square feet in size, or greater than *or equal to* 100,000 square feet, shifting between the two interchangeably. (Compare Proposed Rule 2305(b), (d)(1), and (e)(1)(A) with Proposed Rule 2305(d)(1)(C), (e)(3)(A).) Given that the former option likely exempts from the rule many facilities that the rule actually intends to cover, the final rule should clearly and consistently state it applies to warehouses that are greater than or equal to 100,000 square feet.

4-3

In addition, the draft rule defines a warehouse as a "facility consisting of one or more buildings that stores cargo," yet notes it only applies to "a single building" that meets its size requirements. (Proposed Rule 2305(b), (e)(22).) We have seen many facilities in our communities that consist of smaller buildings clustered near each other, however, with one operator running all the warehousing activities in each building. A limitation to single buildings thus may not reflect the reality of warehouse operations, and may again unintentionally exempt certain facilities that should be regulated. The final rule must account for warehousing activities spanning several neighboring buildings that together may meet the 100,000 square feet requirement.

4-4

II. The Points Compliance Obligation Must Reflect the Disproportionate Impacts on Environmental Justice Communities.

The specifics of the warehouse points compliance obligation are still left largely undefined in the draft rule. The stringency value, annual variable, and points for each menu item are critical to creating a strong rule, and we anticipate participating in the technical working

4-5

¹ So. Cal. Assn. of Governments, *Industrial Warehousing in the SCAG Region* (Apr. 2018) at p. 81.

² Am. Lung Assn., *State of the Air 2019* at pp. 69-70.

³ Health & Saf. Code, § 40440(b)(3).

group and providing more detailed comments once these factors are defined. We want to ensure at this point, however, that the points obligation for each warehouse accounts for nearby sensitive receptors, and that facilities located in environmental justice communities and/or neighbor sensitive receptors must receive a higher points obligation. A just and equitable warehouse rule must ultimately aid in region-wide emissions reductions and avoid approaches that could allow for picking winners and losers, with some communities getting cleaner air and others not. A compliance obligation that reflects the disproportionate impacts faced by disadvantaged communities will be effective in ensuring warehouses clean up their pollution in *all* communities.

4-5
(continued)

The draft rule further fails to specify exactly how warehouse owners and operators will determine their final points compliance obligation each year. We presume the Air District will provide owners and operators their precise obligation using the equation in Proposed Rule 2305(d)(1), however, the draft rule does not describe this process. We suggest the final rule lay out the process, including how and when the Air District will communicate the final obligation, in order to ensure consistency in the rule's application.

4-6

Finally, and again for the sake of clarity, the final rule should also define "sensitive receptors" as used in the table of menu items, e.g., residential areas, schools, hospitals, daycare facilities, nursing homes, parks, or other areas where occupants are more susceptible to the negative impacts of pollution.

4-7

III. The Mitigation Fee Option Should Be Minimal.

As with the points compliance obligation, the draft rule does not specify the mitigation fee rate. (Proposed Rule 2305(f).) Yet it is imperative that the mitigation fee option not become a "pay to pollute" alternative, with facilities simply paying their way out of their compliance obligation each year rather than investing in the on-site menu items. The current draft rule language seems to allow for just such an alternative, simply making the fee progressively more expensive each year that an operator fails to meet its compliance obligation using on-site menu items. Unfortunately, we have seen time and time again that the industry would rather pay more than change their operations or invest in meaningful emissions reduction measures. Thus, the final rule must properly limit the role of a mitigation fee in an operator's compliance obligation.

4-8

To that end, the mitigation fee must appropriately cost more than the menu options in order to incentivize on-site investments, and the points generated per dollar must be further discounted for those facilities located near sensitive receptors and/or in environmental justice communities. The final rule should also specify how and where the mitigation fees generated each year will be used. Given that our members bear the brunt of this industry's operations, we expect such fees will fund emissions reduction projects in our communities.

4-9

IV. The Freight Sector Must Move to Zero-Emissions.

We want to be abundantly clear that our community members want zero-emissions technology as part of any warehouse rule, in order to truly address the air quality and health crises caused by the warehouse industry. Any investment in "near-zero" equipment and

4-10

infrastructure at this point is counterproductive and should not be included in this rule. The on-site menu items still include the purchase of near-zero trucks as one of many options to earn points, yet near-zero technologies ultimately delay the development and implementation of the zero-emissions equipment necessary to clean up pollution in our communities.

We continue to hear industry representatives push near-zero technology in our working group meetings, but near-zero is often used as code for traditional combustion technologies burning methane gas. These technologies provide no bridge to advancing zero-emissions technologies, and ultimately create barriers to the transition to and implementation of zero-emissions infrastructure. Moreover, the communities listed on this letter are those that bear the brunt of the natural gas and oil infrastructure that supports these combustion technologies. These communities do not want the continued negative climate and health impacts that accompany the propagation of fossil fuel technology, equipment, and infrastructure.

4-10
(continued)

Near-zero advocates talk about their technologies being available now as an argument why the region should invest robustly in natural gas infrastructure and vehicles. We remind the Air District that zero-emissions technologies are developing rapidly and by the time compliance obligations start for this rule, we expect significant further developments in the zero-emissions technologies space.

4-11

The freight sector must move to zero-emissions to meet not only our greenhouse gas reduction targets, but also to be consistent with the directives and plans adopted at the regional, State, and even global level. Indeed, the transition to zero-emissions will happen, and the Air District is wise to begin planning and demonstrating a clear foundation for it.

4-12

V. The Final Rule Must Address CEQA Obligations.

The draft rule does not address the interplay between compliance with the final warehouse rule, and facilities' compliance with obligations under the California Environmental Quality Act (CEQA). Yet we anticipate seeing future CEQA documents where warehouse owners and operators claim they will address air pollutant emissions, for example, through the warehouse rule, thereby punting their CEQA obligations rather than properly analyzing and mitigating the impacts of their projects through the CEQA process. The Air District must clarify and formalize in the final rule that owners and operators cannot use future compliance with this rule as satisfying CEQA's disclosure and mitigation requirements, regardless of the warehouse rule's application.

4-13

VI. Our Communities Cannot Afford Further Delays in the Rulemaking Process.

The warehouse rule should have been before the Air District's Governing Board in December of this year. Instead, the rule is now tentatively scheduled to go to the Governing Board in mid-2020. We cannot keep pushing the adoption of this rule further into the future, even as pollution continues to envelop our communities. We want to remind the Air District that we expect a finalized and adopted warehouse rule by May 2020.

4-14

We appreciate your consideration of these comments, and reiterate our support for the important work done so far to develop a meaningful warehouse rule. We look forward to working with the Air District to lift up the voices of our community members and tackle the harms caused by the warehouse industry. | 4-15

Sincerely,

Adrian Martinez
Michelle Ghafar
Earthjustice

Andrea Vidaurre
Center for Community Action & Environmental Justice

Taylor Thomas
East Yard Communities for Environmental Justice

Rebecca Zaragoza
Leadership Counsel for Justice & Accountability

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Long Beach Alliance for Children with Asthma

Heather Kryczka
Natural Resources Defense Council

Peter M. Warren
San Pedro & Peninsula Homeowners Coalition

Carlo De La Cruz
Sierra Club

Randy Korgan
Teamsters Local 1932

Sheheryar Kaoosji
Warehouse Worker Resource Center

cc:

Chair Burke and Members of the Committee
Mobile Source Committee
South Coast Air Quality Management District

Wayne Natri
Executive Officer
South Coast Air Quality Management District

Response to Comment Letter – 4_CCAEJ – Draft Rule -12/6/19Response to Comment 4-1

Thank you for your participation in the rule development process and your comments in support of a warehouse ISR.

Response to Comment 4-2

Staff recognizes the concerns expressed with a credit trading system and the structure of PR 2305 now requires all subject warehouse operators to take actions themselves that will reduce pollution and exposures in the communities near their warehouses, consistent with the authority granted to South Coast AQMD. Warehousing is also expected to continue growing in the region, and PR 2305 will apply to new warehouses as they are built.

Response to Comment 4-3

Staff agrees with the clarification of the minimum warehouse size applicable to PR 2305, as being warehouse facilities “with greater than or equal to 100,000 square feet of indoor floor space” rather than the 1st draft rule language stating “with greater than 100,00 square feet of indoor floor space”. The clarification statement incorporating the inclusive “greater than or equal to 100,000 square feet” will be revised and used from this point forward.

Response to Comment 4-4

PR 2305 does not include multiple buildings in the definitions of a warehouse and warehouse facility [PR 2305 (c)(31) and(c)(32)]. PR 2305 (b) states that the rule is applicable to “...owners and operators of warehouses located in the South Coast Air Quality Management District (South Coast AQMD) jurisdiction with greater than or equal to 100,000 square feet of indoor floor space in a single building.” Staff analyzed many different properties, and noted that complexes with multiple buildings may use auxiliary buildings for manufacturing, or maintenance and repair, but it is the large warehousing building that may dictate the level of mobile source emissions from on-road trucks and cargo handling equipment, therefore the rule applicability of greater than or equal to 100,000 square feet is applied to a single building. PR 2305 is applicable to about 3,300 warehouses, and there are perhaps another 30,000 warehouses that are below the applicability limits in PR 2305.²⁶² However, given the need to ensure the successful implementation of a new regulatory program of this scale, those warehouses with the biggest emission impact (i.e. the largest facilities with the most truck traffic) are the focus of the proposed rule. If PR 2305 is approved and successfully implemented, staff will follow the direction of the Board before proposing additional approaches to regulate these smaller facilities.

²⁶² https://scag.ca.gov/sites/main/files/file-attachments/final_report_03_30_18.pdf, Accessed 2-28-21

Response to Comment 4-5

Staff understands that key information regarding stringency, the annual variable, and points were still under development in the version of the draft PR 2305 as of the date of your comment letter date 12/6/19. The current draft of PR 2305 states the recommended stringency to equal 0.0025 WAIRE Points per WATT. The annual variable listed in the WPCO equation corresponds to the three-year phase-in of the stringency as listed in PR 2305, Table 2.

Impacts of air pollution on communities surrounding warehouses are considered in the structure of the WAIRE Points themselves. WAIRE Points for each WAIRE Menu item were determined by calculating the NO_x emission reductions (which affects regional air pollution) as well as Diesel PM emission reductions (which affects regional and local air pollution), and the cost. Further, all warehouse operators must take actions themselves that reduce emissions or facilitate emission and exposure reductions in the communities near their warehouses. This approach will necessarily benefit disadvantaged communities as about 80% of warehouses are in communities that are in at least the worst 70th percentile as determined with the CalEnviroScreen tool (see Figure 4 of the Preliminary Draft Staff Report for a map). Because of the high overlap between the vast majority of warehouses and communities with pollution burdens, the most practical approach to reduce these impacts is to ensure that all warehouse operators must take actions to benefit their local communities.

Finally, in order to ensure that any limited transferring of WAIRE Points that may occur under the rule does not disproportionately effect local communities, any WAIRE Points transferred from a different location are discounted by the number of WAIRE Points associated with local benefits from Diesel PM reductions.

Response to Comment 4-6

PR 2305 specifies how warehouse operators will determine their final WPCO each year. As written in PR 2305, $WPCO = WATTS \times Stringency \times Annual\ Variable$, where WATTS is calculated as specified in PR 2305 subparagraph (d)(1)(B) or (d)(1)(C), as applicable, The recommended stringency is 0.0025 WAIRE Points per WATT, and the annual variable is specified in Table 2 of PR 2305. The WAIRE Program Implementation Guidelines goes into further detail in methods of collecting and maintaining records of actual truck trip counts, as it is a key component of the WPCO calculation.

Response to Comment 4-7

While the rule itself addresses specific impacts to sensitive receptors as mentioned by the commenter, there is only one requirement within the rule specific to these kinds of land uses – the installation of air filters and filtrations systems. In the WAIRE Menu, sensitive site locations such as schools, hospitals, community centers, and residences are described explicitly as locations to install filter systems or replace filters (see PR 2305, Table 3).

Response to Comment 4-8

PR 2305 lists the optional mitigation fee to be \$1,000 per WAIRE Point [see PR 2305 section (d)(5)]. The mitigation fee provides additional flexibility to warehouse operators. The mitigation fee cost of \$1000 per WAIRE Point is designed to be within the range of cost of the WAIRE Menu actions and investments for warehouse operator in any one year, though some options such as getting NZE/ZE truck visits would be cheaper and options such as installing a fueling station may be more expensive. Through time, the mitigation fee is expected to be a more expensive option if

warehouse operators don't take additional actions as early investments within the rule result in later cost savings, and lower emissions. The mitigation fee is proposed to be consistent across all warehouses similar to how the stringency of the rule is consistent across all warehouses. This approach will necessarily benefit disadvantaged communities as about 80% of warehouses are in communities that are in at least the worst 70th percentile as determined with the CalEnviroScreen tool (see Figure 4 of the Preliminary Draft Staff Report for a map). Because of the high overlap between the vast majority of warehouses and communities with pollution burdens, the most practical approach to reduce these impacts is to ensure that all warehouse operators must take actions to benefit their local communities.

Response to Comment 4-9

The WAIRE Mitigation Program will fund NZE and ZE trucks and ZE charging and fueling infrastructure in the communities around the warehouses that paid the fee as described at the end of Chapter 2 of the staff report. Specific language detailing requirements for spending mitigation funds will be included in the Board Resolution when it considers PR 2305 and PR 316. Any future spending of mitigation funds from the WAIRE Mitigation Program will also include additional public process and a Board vote should PR 2305 and PR 316 be approved.

Response to Comment 4-10

PR 2305 is designed to provide flexibility given the wide variety of business models employed by warehouses subject to the rule. Near zero options for on-road trucks are commercially available today, including for Class 8 trucks, whereas zero emission truck options are not yet widely commercially available. Additionally, NZE trucks can be significantly more cost-effective, both for the warehouse operator in terms of compliance (see Table 22 of the Preliminary Draft Staff Report) and in terms of cost per ton of emissions reduced (see Table 27 of the Preliminary Draft Staff Report). Further, PR 2305 is not designed to address all concerns associated with warehousing (e.g., traffic, aesthetics, economic and worker considerations, climate change impacts, etc.) as its focus is on reducing emissions that impact federal and state air quality standards and air pollution exposures in local communities. Nevertheless, The options for NZE and ZE technologies in PR 2305 are expected to have a positive impact on reducing greenhouse gas emissions compared to conventional diesel technologies. For example, as stated in the most recent Proposed Final Integrated Energy Policy Report from the California Energy Commission, renewable natural gas made up about 77% of the pipeline gas supply for vehicles in 2019.²⁶³ According to CARB, the carbon intensity of renewable natural gas fuels is considerably lower than diesel fuels, with many sources showing negative carbon intensity values.²⁶⁴ Finally, NZE technologies also completely eliminate the emissions of Diesel PM, the toxic air contaminant with the highest impact on environmental justice communities as shown in South Coast AQMD's MATES study.²⁶⁵

Response to Comment 4-11

ZE trucks are being commercialized rapidly today, and this is expected to continue over the next several years. However, charging/fueling infrastructure for these trucks has not been fully developed, some truck types will have longer wait times for zero emission technology to be commercialized (e.g., Class 8 trucks), and NZE technologies are significantly more cost effective than their ZE counterparts today. PR 2305 however does provide more options for ZE

²⁶³ <https://efiling.energy.ca.gov/getdocument.aspx?tn=236905>, pg. 134. Accessed 2-28-21

²⁶⁴ <https://ww3.arb.ca.gov/fuels/lcfs/dashboard/dashboard.htm>, Accessed 3-1-21

²⁶⁵ <http://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies/mates-iv>

technologies, and these compliance options are anticipated to grow in popularity through time as these technologies enter the commercial market at greater scale and begin to reduce in price. The ZE technology options in PR 2305 are also designed to allow warehouses to take advantage of these options in ways that match their operations, by allowing WAIRE Points to be earned for charging infrastructure and ZE trucks and yard trucks. However, some warehouse operators have already invested in NZE technology that reduces NO_x at least 90% compared to conventional diesel trucks and completely eliminates toxic Diesel PM, and may have needs that will not allow ZE trucks to work in their operations until the technology further matures. Nevertheless, the acquisition of ZE trucks and usage of Class 8 ZE trucks earns more points than the equivalent NZE acquisition or usage.

Response to Comment 4-12

The purpose of PR 2305 is to reduce regional and local NO_x and PM and facilitate other related rules and regulations, reductions for greenhouse gases would be a collateral benefit. The facilitative purpose of PR 2305 will help with implementation of measures such as the installation of much needed charging and fueling infrastructure and promote demand for ZE trucks which are two components needed by other regulations from CARB and the Governor's Executive Order N-79-20 which direct state agencies toward ZE transportation goals. The targets set by the state have focused on dates far in the future, such as 2035 and 2045. However, air quality needs are immediate (e.g., attainment dates are as close as 2023, public health is impacted today from poor air quality), and near-zero technology options have the ability to provide cost-effective solutions today.

Response to Comment 4-13

The approval of CEQA documents is within the purview of local lead agencies like cities and counties. South Coast AQMD does not have land use authority and cannot dictate how those lead agencies make land use decisions or CEQA decisions. However, PR 2305 does provide a level playing field for all new and existing warehouses subject to the rule, and is expected to meaningfully reduce emissions from this sector. One outcome that may result if PR 2305 is passed is that lead agencies may be able to use the framework that the rule establishes to require new warehouses to overcomply with PR 2305. This dynamic has worked in some instances with the application of LEED for new construction, with some lead agencies²⁶⁶ or the legislature²⁶⁷ requiring higher levels of compliance with that program for land use projects, and a similar dynamic could occur with the WAIRE Program if PR 2305 is approved.

Response to Comment 4-14

At this time, PR 2305 is expected to go before the South Coast AQMD Governing Board's for its consideration in April 2021.

Response to Comment 4-15

Thank you for your interest in the warehouse ISR development process and for bringing your comments to our attention.

²⁶⁶ Examples: https://planning.lacity.org/code_studies/GreenLa/Brochure.pdf, <https://www.cityoforange.org/DocumentCenter/View/531/Local-CEQA-Guidelines-PDF>, <http://file.lacounty.gov/SDSInter/bos/supdocs/97129.pdf>

²⁶⁷ Examples: AB 734 (2018), AB 987 (2018), SB 742 (2013)



December 6, 2019

Ian MacMillan
Planning & Rules Manager
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765
Via email - imacmillan@aqmd.gov

Re: First Draft of Proposed Rule 2305 – Warehouse Indirect Source Rule

Dear Mr. MacMillan:

Thank you for the opportunity to review and provide comments on the first draft of the South Coast Air Quality Management District (SCAQMD) Facility Based Mobile Source Measure – Warehouse Indirect Source Rule (Warehouse ISR). We appreciate how much work you and the other SCAQMD staff have put into this proposed rule, and look forward to continuing to work with you on an effective rule for full implementation.

5-1

Founded in 1971, the Coalition for Clean Air protects public health, improves air quality, and prevents climate change. We submit these comments in the hopes that they will be taken in the cooperative spirit in which they are offered.

I. Necessary Details of Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program Must Be Clarified

Under section (d) (1) (A) Requirements, the SCAQMD has left much undefined and without the ability for the public to determine how the WAIRE points will be calculated. The equation to calculate annual WAIRE program points required per warehouse includes the following:

WPCO = WATTs x Stringency x (Annual Variable)

However, "Stringency" is completely undefined, leaving interested members of the public wondering exactly how SCAQMD will calculate the required WAIRE points according to its own equation. Similarly, the "Annual Variable" is to be determined according to Table 1 (Proposed Warehouse ISR, 2305-11). When reviewing Table 1, however the Annual Variables in that table are also undefined.

5-2

Without hypothetical or placeholder values to insert into SCAQMD's proposed equation, it is impossible to determine what a proposed WAIRE point value would be for warehouses. Without some indication of what SCAQMD is proposing for both Stringency values and Annual Variables, the first draft of the Warehouse ISR is frustratingly vague and ambiguous. We hope that these values will be much

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more fully fleshed out by SCAQMD staff before our next Warehouse ISR meeting on Tuesday, December 10.

5-2
(cont.)

II. The Initial Requirement Dates Are Too Far Out

In table 2, the initial reporting dates are listed as follows:

Warehouse Size (sq. ft.)	Initial Reporting Date
Greater than or equal to 250,000	July 30, 2021
Greater than or equal to 150,000	August 2, 2022
Greater than or equal to 100,000	August 1, 2023

5-3

However, from the draft rule, it is unclear why such a large range of reporting dates is included. If the rule is voted upon and implemented next year, why would smaller warehouses have approximately three years to provide their initial reports? Why can't the warehouses be required to report their initial information sooner, so that the SCAQMD can begin implementation expeditiously? I hope this can be addressed at our next Working Group Meeting.

III. The Mitigation Fees Must be Increased Annually by a Larger Percentage

Again, as with the values of the equation discussed above, the proposed rule provides no value for each WAIRE point. (Proposed ISR, 2305-9, section (f)(1).) Further, the SCAQMD proposes that if a warehouse operator does not complete at least 50% of their WAIRE points obligation, the mitigation fee will rise by 10% the following year. (Proposed ISR, 2305-9, 10, section (f)(2).) We propose that the fee rise by 20% in the event of deficient compliance in a WAIRE year. This way, the operator will have even more incentive to comply with the WAIRE compliance rule. This is also to ensure that warehouse operators will simply pay the mitigation fee rather than make good faith efforts to comply with the WAIRE points SCAQMD rule.

5-4

5-5

Conclusion

Again, we appreciate the opportunity to comment and provide constructive criticism on the SCAQMD proposed Warehouse ISR. We understand that an element of uncertainty is part of the development of the Warehouse ISR, as it is new to SCAQMD. However, to make the rulemaking meaningful to public stakeholders, SCAQMD must do a better job of providing enough information about the proposed Warehouse ISR so that we can have appropriate input into it. In its current form, it is very difficult to determine if the proposed Warehouse ISR has developed a useful way to measure WAIRE points for warehouses in the South Coast Basin.

5-6

Sincerely,

Jerilyn López Mendoza

Jerilyn López Mendoza
Senior Policy Advocate

Response to Comment Letter – 5_CCAir– Draft Rule -12/6/19Response to Comment 5-1

Thank you for your interest in the warehouse ISR development process and for bringing your comments to our attention.

Response to Comment 5-2

Staff understands that information regarding stringency, the annual variable, and WAIRE Points were still under development in the version of the draft Proposed Rule 2305 (PR 2305) available when the comment was made. The current draft of PR 2305 includes the details for how warehouse owners and operators will determine their final WPCO each year. As written in PR 2305, WPCO = Weighted Annual Truck Trips (WATTs) x Stringency x (Annual Variable), where WATTs is calculated as specified in PR 2305 subparagraph (d)(1)(B) or (d)(1)(C), as applicable, the recommended stringency is 0.0025 WAIRE Points per WATT, and the annual variable corresponds to a three-year stringency phase-in specified in PR 2305, Table 2.

Response to Comment 5-3

The current version of PR 2305 provides updated initial requirement dates (see “Table 1 – Initial Requirement Date”) as shown below:

Phase	Warehouse Size (square feet)	Initial Reporting Date	Initial Compliance Period
1	≥ 250,000	January 31, 2023	January 1, 2022 to December 31, 2022
2	≥ 150,000-<250,000	January 31, 2024	January 1, 2023 to December 31, 2023
3	≥ 100,000-<150,000	January 31, 2025	January 1, 2024 to December 31, 2024

Staff considered the universe of approximately 3,320 warehouse facilities with greater than or equal to 100,000 square feet of indoor floor space when it was decided to have a three-year phase-in of facilities. Staff determined that a The purposeful phase-in with approximately 1,000 facilities entering each year for three years would help manage the workload associated with was determined as PR 2305 address a previously unregulated industry, with a proposed new online reporting system, along with a proposed new compliance team conducting facility audits. Additionally, given that the current inventory of permitted facilities regulated by South Coast AQMD is approximately 28,000 facilities, and a slow phase-in is required to insure a smooth rollout of a nearly 10% increase in facilities with the existing staff. The order of the phase-in from larger to smaller facilities is based on focusing on facilities expected to have the highest truck traffic on average. Staff is aware of the urgency in meeting air quality goals; the relatively short phase-in schedule proposed is intended to ensure PR 2305’s success.

Response to Comment 5-4

PR 2305 has been revised since the date this comment letter was submitted. PR 2305 Section (f)(1) is now Section (d)(5), and specifies a mitigation fee of \$1,000 per WAIRE Point.

Response to Comment 5-5

The current version of PR 2305 provided at the time this comment letter was written has since been revised. PR 2305 Section (f)(2) and its language has been removed from PR 2305 as the mitigation fee is not intended as a penalty. The mitigation fee of \$1,000 per WAIRE Point was analyzed to be within a similar range of cost as implementing the other WAIRE Menu options in any one year for a warehouse operator. Through time, the mitigation fee is expected to be a far more expensive option if warehouse operators don't take additional actions. This is because as early investments within the rule result in later cost savings through points attributable to usage, and lower emissions. The mitigation fee is proposed to be consistent across all warehouses similar to how the stringency of the rule is consistent across all warehouses.

Response to Comment 5-6

Thank you for your interest in the warehouse ISR development process and for bringing your comments to our attention. The additional detail requested has been provided in later drafts of the rule, as well as the Preliminary Draft Staff Report.



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December 6, 2019

Mr. Ian MacMillan
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 Transmitted to: imacmillan@aqmd.gov

Re: PROPOSED RULE 2503 - WAREHOUSE INDIRECT SOURCE RULE

SoCalGas appreciates the opportunity to comment on the South Coast Air Quality Management District (SCAQMD) Proposed Rule 2305: Warehouse Indirect Source Rule (ISR) – Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program (Proposed Rule). SoCalGas would like to offer the following comments for consideration for the Proposed Rule.

6-1

WAIRE Points Should Prioritize State Implementation Plan (SIP) Creditable Actions and Investments.

The Working Group presentation given on November 13, 2019, states that the number of WAIRE points earned for each menu item will be based on cost, direct emission reduction, and local benefit. While these are important considerations, SoCalGas recommends that SIP creditable emission reductions also be a top priority when determining WAIRE point values. Warehouse ISRs and the other Facility Based Mobile Source Measures were identified as control strategies in the 2016 Air Quality Management Plan to meet the 2023 attainment deadline for ozone. This can only be achieved through SIP creditable emission reductions. While other actions or investments that reduce exposure or enable emission reductions, such as installing filtration systems or electric vehicle chargers, are beneficial, they do not help to achieve the purpose of the Facility Based Mobile Source Measures of producing emission reductions that can be counted towards the SIP. Therefore, SIP creditable reductions should be prioritized.

6-2

Early Actions Should Receive Weighted WAIRE Points

With the federal Clean Air Act ozone attainment deadline quickly approaching in 2023, it is important to achieve as many emission reductions as possible and as soon as possible to meet attainment. Early action would be those that can be deployed immediately with commercially available technologies, such as heavy-duty trucks that meet the California Air Resources Board Optional Low Nitrogen Oxide (NOx) standard of 0.02 grams per brake horsepower hour. Early SIP creditable actions should be given weighted WAIRE points to encourage early action.

6-3

A Standardized Process to Add Actions and Investments to the WAIRE Menu Should be Developed

Page 2

The WAIRE menu included in the Proposed Rule language contains only nine actions and investments that receive WAIRE points. While this is the first version and will certainly be expanded, SoCalGas recommends developing a continuous, standardized process to add items to the WAIRE menu. A standardize process may include:

- Streamlined application process.
- Technical review committee with regularly scheduled meetings.
- Acceptance guidelines.
- Minimum requirements/criteria guidance document

6-4

Providing requirements and WAIRE point methodologies will give technology developers and solution providers an opportunity to pursue solutions with some amount of certainty that it will be eligible for WAIRE points.

Hydrogen Production Should Receive Additional WAIRE Points

Hydrogen fueling is mentioned in the WAIRE menu, which will achieve emission reductions for the WAIRE program. In addition to fueling, onsite hydrogen production should generate additional WAIRE points. Producing hydrogen on site reduces emissions from transporting the fuel and is a significant financial investment.

6-5

Natural Gas Fueling Infrastructure Should be Included in the WAIRE Menu

The WAIRE Menu includes the addition of alternative fuel infrastructure and specifically states electric and hydrogen infrastructure. Gas infrastructure should also be eligible to generate WAIRE points. Natural gas trucks are the only commercially available Class 8 trucks suitable for goods movement. Supporting the immediate deployment of Low NOx natural gas trucks would significantly assist the region to meeting the 2023 attainment deadline.

6-6

Thank you again for the opportunity to comment on the Proposed Regulation. If you have any questions, please feel free to contact me.

6-7

Respectfully submitted,



Kevin Maggay
Energy and Environmental Affairs Program Manager

Response to Comment Letter – 6_SoCalGas– Draft Rule -12/6/19Response to Comment 6-1

Thank you for your interest in the warehouse ISR development process and for bringing your comments to our attention.

Response to Comment 6-2

Staff intends to pursue State Implementation Plan (SIP) creditable emission reductions for PR 2305 for some of the actions taken from the WAIRE Menu, but PR 2305 is also a facilitative measure designed to enhance other rules and regulations which may also claim SIP credit. For example, CARB has its Advanced Clean Trucks (ACT) regulation which is largely a manufacturers' sales mandate, and the WAIRE Program can facilitate implementation of the ACT rule by warehouse operators choosing to purchase more ZE trucks earlier to earn WAIRE Points and by allowing facilities to earn points through truck usage., This which could serve to additionally create more demand for ZE trucks. The WAIRE Program also includes the installation of ZE charging or fueling infrastructure which would be needed to support newly purchased ZE trucks. WAIRE Point values have a direct connection to SIP creditable emission reductions via NOx and Diesel PM emission reductions, which are how PR 2305 will assist in meeting state and federal ambient air quality standards. Additional information regarding South Coast AQMD's approach to obtaining SIP credit for PR 2305 can be found in Appendix D of PR 2305's Preliminary Draft Staff Report (PDSR).

Response to Comment 6-3

Early action weighting is not included in the proposed regulation, however PR 2305 does have early action provisions. These include a provision one that allows that allows extra WAIRE Points earned in one year to be banked for up to three future years, and another that allows both warehouse operators and owners to earn WAIRE Points ahead of their warehouse size phase-in schedule. The banking clock on these pre-phase-in WAIRE Points does not begin until the warehouse operator's first compliance period, providing an additional early action benefit.

Finally, the WAIRE Menu includes options that go above and beyond current regulations in order to earn WAIRE Points. Warehouse operators may also decide to take early action ahead of the implementation schedule of U.S. EPA or CARB rules and regulation in order to earn WAIRE Points.

Response to Comment 6-4

The WAIRE Menu has nearly three dozen options that could earn WAIRE Points. However, due to comments from this stakeholder and others, PR 2305 now includes the option for warehouse owners and operators to submit a Custom WAIRE Plan application for proposed projects not on the WAIRE Menu but that achieve quantifiable, verifiable, and real NOx and DPM emission reductions. These Custom WAIRE Plans must meet all the requirements as outlined in PR 2305 Section (d)(4). The Custom WAIRE Plan provides an opportunity to propose specific projects that are not included in the WAIRE Menu.

Response to Comment 6-5

The WAIRE Menu includes the installation of a hydrogen fueling station and the use of a hydrogen fueling station as options to earn WAIRE Points. Hydrogen fuel production equipment was not analyzed as much of the emission reductions would result from the dispensed hydrogen replacing diesel fueled operation., Estimating and any emission reductions from such a scenario is difficult was difficult to set default values for calculation as it is was dependent on many equipment

design variables. Though hydrogen generation equipment is not included in the WAIRE Menu, a warehouse operator can propose it as a Custom WAIRE Plan application if it meets all the requirements for a Custom WAIRE Plan listed in PR 2305 (see PR 2305, Section (d)(4)).

Response to Comment 6-6

The commenter correctly points out that ZE charging/fueling infrastructure is included in the WAIRE Menu, but not NZE fueling infrastructure. A recent report from the California Energy Commission states that up to 157,000 chargers are needed for medium duty and heavy duty vehicles by 2030 in order to meet state goals, yet very few have been built to date.²⁶⁸ PR 2305 provides a mechanism to install this needed infrastructure at warehouses – a key destination for medium and heavy duty trucks. While NZE trucks are allowed in PR 2305 (and are an attractive compliance option), fueling infrastructure has not been included in part due to a desire to work towards state ZE goals, and also because previous statements from the natural gas industry have stated that government support is not needed for the fueling infrastructure for widespread deployment of natural gas fueled NZE trucks other than policy and funding support for the trucks themselves.²⁶⁹ These previous comments have also stated that the natural gas industry is ready to quickly scale up fueling infrastructure to meet the demands of the trucking industry in southern California, and has a track record of previous successful rapid station developments by constructing 70 stations within one year.

There are currently about 66 CNG and LNG stations in the South Coast AQMD that can serve heavy duty trucks. The ports of Los Angeles and Long Beach estimated that up to 14 new stations could be needed to support up to 18,000 Class 8 NZE trucks serving the ports, however their analysis did not consider the use of any of the existing stations throughout the region.²⁷⁰ At a stringency of 0.0025 Points/WATT, the level of deployment of NZE Class 8 trucks in PR 2305 is no more than about 16,000 trucks over a ten year period in the extreme unlikelihood that all warehouse operators only chose NZE Class 8 trucks as a compliance option. Therefore, no more than 14 new stations are expected to be needed to support NZE trucks under PR 2305, and potentially could be much lower if the existing natural gas “station infrastructure is overbuilt for the current natural gas truck market in California”.²⁷¹ As a result of these factors – the high need for zero emissions charging/fueling infrastructure, the expressed willingness of the natural gas industry to build out fueling stations on its own, and the limited amount of natural gas fueling infrastructure needed to support any NZE trucks that might be introduced due to PR 2305 – natural gas fueling options are not included as a compliance option within PR 2305. Nonetheless, a CEQA alternative has been included that evaluates additional NZE compliance options within PR 2305, and the Governing Board will consider these alternatives as part of its overall consideration of PR 2305.

Response to Comment 6-7

Thank you for your interest in the warehouse ISR development process and for bringing your comments to our attention.

²⁶⁸ <https://efiling.energy.ca.gov/getdocument.aspx?tn=236237>, Accessed 2-28-21

²⁶⁹ <https://cngvc.org/wp/wp-content/uploads/2017/04/ACT-Now-Plan-Final.pdf>, pg. 14, Accessed 2-28-21
<https://cleanairactionplan.org/documents/2018-draft-drayage-feasibility-assessment-public-comments.pdf>, letters at pg. 14 and 47 Accessed 2-28-21

²⁷⁰ <https://cleanairactionplan.org/documents/final-drayage-truck-feasibility-assessment.pdf/>, Accessed 2-28-21

²⁷¹ <https://cleanairactionplan.org/documents/2018-draft-drayage-feasibility-assessment-public-comments.pdf>, pg. 17 Accessed 2-28-21

To: Ian MacMillan and Victor Juan, South Coast Air Quality Management District
 From: Britta McOmber, UCLA Luskin Center for Innovation
 Date: December 6, 2019
 RE: Proposed Rule 2305 Warehouse Indirect Source Rule - Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program

LCI commends the South Coast Air Quality Management District for crafting a Warehouse Indirect Source Rule. We would like to support SCAQMD in development of the final rule that would reduce GHG emissions and harmful diesel emissions from associated heavy-duty truck (HDT) traffic while incentivizing the transition to the cleanest available HDTs. We believe a well-designed Warehouse ISR could improve air quality, public health, and quality of life for communities with concentrated warehousing development. Our potential ability to help quantifiably estimate some of these benefits will depend on the level of specificity available from SCAQMD pertaining to the proposed rule. Thus, please consider these questions for future revisions and workshops of Proposed Rule 2305.

7-1

Sensitive Receptors and Local Benefit Weighting

We would appreciate a better understanding of how the rule will define “Sensitive Receptors” within (c) Definitions. Working group meetings^{1,2} have discussed the proximity of warehouses to sensitive receptors as an important component of the weighted Localized Benefit in the equation that will determine the value of WAIRE points. There should be a clear definition of this term in the draft rule itself, as it is referenced in the WAIRE Menu. The definition could include a specific description of the populations most vulnerable to the impacts of poor air quality (who), and the types of land uses or facilities where vulnerable populations are located or concentrated (type). SCAQMD could further consider a definition of what is meant by “Local Benefit” in the draft rule; for example, defining the distance from a warehouse at which Sensitive Receptors would influence the value of WAIRE Points (proximity).

7-2

1. Will “Sensitive Receptors” and/or “Sensitive Sites” be defined under (c) Definitions in a future version of Proposed Rule 2305?
2. Will “Sensitive Receptors” be defined separately from “Residential Receptors” and “Worker Receptors”? Does SCAQMD intend to include “Residential Receptors” and “Worker Receptors” as components of the weighted Localized Benefit?
3. When is the expected timeline for release of the Supplemental Handbook that will include default calculations of Costs, Local Benefits, and Direct Emission Reductions for each menu item?

7-3

7-4

¹ Facility-Based Mobile Source Measures Warehouse Working Group. (Aug 23, 2019). *South Coast Air Quality Management District*.

² Facility-Based Mobile Source Measures Warehouse Working Group. (Sep 19, 2019). *South Coast Air Quality Management District*.

Reporting, Notification, and Recordkeeping

We are not aware of text in the draft rule regarding who bears the responsibility of identifying or reporting the number of “Sensitive Receptors” in close proximity to warehouses and distribution centers. It would be useful to specify the role of SCAQMD or some other independent entity in doing so under a uniform approach. This metric could follow the format of other initial site information required in the report, including the number, type, and proximity of Sensitive Receptors (i.e., there are two schools within one mile of the Facility A).

7-5

- 4. Will identification of “Sensitive Receptors” be the responsibility of SCAQMD staff, the responsibility of the warehouse owner/operator, or another entity?

Transferring WAIRE Points to a Different Warehouse

We also have a question about Section (d)(3)(A) Transferring WAIRE Points to a Different Warehouse. It states “If a warehouse operator conducts warehousing activities at more than one warehouse, then WAIRE Points earned for one warehouse may be used at the other warehouse(s) under the operational control of that same warehouse operator. Only those points that are earned in excess of a warehouse operator’s WAIRE Points Compliance Obligation at that site may be transferred. Any WAIRE Points transferred to a different warehouse shall be calculated using the values specified in the WAIRE Menu in Table 3.” We are unsure if this provision could unintentionally weaken a key goal underpinning the Rule, namely the *local* in “[t]o facilitate local and regional emission reductions through actions and investments at warehouses.”³

7-6

- 5. Could there be some mechanism or language added to this section of the Proposed Rule that would restrict the transferring of WAIRE Points between warehouses with the same operator in a way that maximizes local benefits?

Transparency

Finally, an attendee of the November 13th Warehouse ISR working group raised a question about transparency of Proposed Rule 2305: What information from the Annual WAIRE Reports would be available to the public? While we appreciate there may be industry-sensitive information in the Annual Reports that warehouse owners/operators may want to protect, LCI as a public serving research entity would appreciate having access to information about the associated investments. We also recognize that it is important that communities with high concentrations of warehousing activities and residents in close proximity to warehouses have the ability to know which warehouse owners/operators are, and are not, in compliance with the Rule.

7-7

³ Facility-Based Mobile Source Measures Warehouse Working Group. (Sep 19, 2019). “Warehouse ISR Working Group.” South Coast Air Quality Management District. Slide 28.

Thank you for your substantial effort to prepare the Proposed Warehouse Indirect Source Rule. I also appreciate the consideration of SCAQMD staff in reviewing these questions, and look forward to further discussions and working group meetings on the content of the rule.

7-8

Sincerely,

Britta McOmber
Staff Researcher, Luskin Center for Innovation
UCLA Luskin School of Public Affairs
3323 Public Affairs Building, Box 951656
Los Angeles, California 90095
Office: (310) 825-7202
Email: bmcomber@luskin.ucla.edu

Response to Comment Letter – 7_Luskin Center– Draft RuleResponse to Comment 7-1

Thank you for your interest in the warehouse ISR development process and for bringing your comments to our attention.

Response to Comment 7-2

The term “Sensitive Receptor” was not used in the draft rule language. However, sensitive sites are listed out in the WAIRE Menu (Table 3 of PR 2305) for possible locations to install minimum efficiency reporting value (MERV) 16 or greater filters filter systems or replace MERV 16 or greater filters. Warehouse facilities can earn WAIRE Points by implementing community benefits, (e.g., filter system installations) to satisfy the warehouse operator’s WPCO. Installation of MERV 16 or greater filter systems or replacement of MERV 16 or greater filters at sensitive sites with high risk level such as residences, schools, daycares, hospitals and community centers are intended to provide a local health benefit to communities surround a warehouse by reducing community exposure and emission impacts.

Response to Comment 7-3

As stated in previous response to comments, the term sensitive receptor was not used in PR 2305. The concept of sensitive receptors and/or sensitive sites is only referred in the current version of PR 2305 in the WAIRE menu (see PR 2305, Table 3), for the installation of MERV 16 or great filter systems or MERV 16 or greater filter replacement and not defined under (c) Definitions. Similarly, “Residential Receptors” are not addressed, the localized benefit addresses the benefit of reduced DPM emissions in the communities surrounding warehouses that suffer health impacts from the DPM emissions.

Response to Comment 7-4

The information such as the calculations of Cost, Regional NOx reductions, and Local Benefits are available on the Draft WAIRE Technical Report, available in Appendix B of the Preliminary Draft Staff Report.

Response to Comment 7-5

PR 2305 does not refer to sensitive receptors and/or sensitive sites and there is no requirement for warehouse operators or owners to identify sensitive receptors.

Response to Comment 7-6

PR 2305 allows limited transfer of excess WAIRE Points to a different site under a single operator’s control. Due to the concern raised by this commentor and others, the transferred WAIRE Points are discounted to account for any localized emission reductions of Diesel PM that wouldn’t be experienced for the community near the warehouse where the Points were transferred. Part of the reason for allowing this type of limited transfer is to , provided the warehouse operator of multiple warehouses the ability to be able to undertake larger scale WAIRE Menu projects such as the installation of charging or fueling infrastructure. These types of projects which may need to be initiated one warehouse at a time rather than all the warehouses at once due to cost investment and project management. The intent of the limited transfer was to enable large scale capital investment projects to be undertaken and not discouraged.

Response to Comment 7-7

Staff will be reporting on the implementation of the WAIRE Program to the South Coast AQMD Mobile Source Committee on an annual basis. In addition, staff anticipates providing a publicly accessible web portal (similar to other South Coast AQMD web resources) with information about

WAIRE Program compliance if PR 2305 passes. Prior to developing that web portal, staff will initiate a public process to get feedback on the development of the website.

Response to Comment 7-8

Thank you for your interest in the warehouse ISR development process and for bringing your comments to our attention.

CENTER FOR COMMUNITY ACTION & ENVIRONMENTAL JUSTICE
EARTHJUSTICE
EAST YARD COMMUNITIES FOR ENVIRONMENTAL JUSTICE
SIERRA CLUB
TEAMSTERS LOCAL 1932

January 24, 2020

Chair Burke and Members of the Committee
Mobile Source Committee
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Comments on Preliminary Draft Warehouse Indirect Source Rule (Proposed Rule 2305)

Dear Chair Burke and Members of the Committee:

On behalf of the undersigned coalition of community and environmental organizations, we submit these comments on the preliminary draft warehouse indirect source rule that is before your Committee. Our coalition represents the communities who live and work adjacent to warehouses and who are consistently and disproportionately harmed by the freight industry every day. After years of advocating for a strong and equitable warehouse rule that will achieve necessary emissions reductions, our communities can no longer afford a business model that places industry over our health. We need our Air District to use its considerable legal and regulatory authority to develop a strong warehouse rule that tackles the region's freight pollution crisis. Indeed, the warehouse industry must be held accountable for business decisions that contribute to consistent and toxic pollution in our neighborhoods.

8-1

As this Committee hears updates today on the progress of the warehouse rule, we provide the following input for the Committee's additional consideration:

I. The Freight Sector Must Move to Zero-Emissions.

As we have repeatedly emphasized to Air District staff, our community members expect zero-emissions technology as part of any warehouse rule, in order to truly address the air quality and health crises caused by the warehouse industry. Any investment in "near-zero" equipment and infrastructure at this point is counterproductive and should not be included in this rule. Although we commend the staff's decision to not grant points for near-zero infrastructure in the "WAIRE" menu of in-site investment items, the current menu still includes the purchase of near-zero trucks as one of many options to earn points toward compliance. In addition, we are deeply concerned that zero-emissions truck trips earn the same number of points as near-zero truck trips in the current menu. Given that the lion's share of air quality benefits from the rule stem from the use and operation of trucks, zero-emissions trucks must be elevated and granted a greater points value in the final menu. Near-zero technologies only delay the development and implementation of the zero-emissions equipment necessary to clean up pollution in our communities.

8-2

We continue to hear industry representatives push near-zero technology in our working group meetings, but near-zero is often used as code for traditional combustion technologies burning methane gas. These technologies provide no bridge to advancing zero-emissions operations, and ultimately create barriers to the transition to and implementation of zero-emissions infrastructure. Moreover, the communities listed on this letter are those that bear the brunt of the natural gas and oil infrastructure that supports these combustion technologies. These communities do not want the continued negative climate and health impacts that accompany the propagation of fossil fuel technology, equipment, and infrastructure.

8-3

Near-zero advocates talk about their technologies being available now as an argument why the region should invest robustly in natural gas infrastructure and vehicles. We remind the Air District that zero-emissions technologies are developing rapidly and by the time compliance obligations start for this rule, we expect significant further developments in the zero-emissions technologies space. We must take this opportunity to elevate zero-emissions technology and infrastructure in this rule—and begin phasing out near-zero—in order to ensure effective and meaningful regulation of the warehouse industry.

8-4

The freight sector must move to zero-emissions to meet not only our greenhouse gas reduction targets, but also to be consistent with the directives and plans adopted at the regional, State, and even global level. Indeed, the transition to zero-emissions will happen, and the Air District is wise to begin planning for it.

8-5

II. The Points Compliance Obligation Must Reflect the Disproportionate Impacts on Environmental Justice Communities.

The specifics of the warehouse points compliance obligation are still being finalized in the warehouse working group. The stringency value, annual variable, and points for each menu item are critical to creating a strong rule, and we anticipate providing more detailed comments as these factors are further developed. We want to ensure at this point, however, that the points obligation for each warehouse accounts for nearby sensitive receptors, and that facilities located in environmental justice communities and/or neighbor sensitive receptors must either receive a higher points obligation or attain zero-emissions operations on an accelerated timeline. A just and equitable warehouse rule must ultimately aid in region-wide emissions reductions and avoid approaches that could allow for picking winners and losers, with some communities getting cleaner air and others not. A compliance obligation that reflects the disproportionate impacts faced by disadvantaged communities will be effective in ensuring warehouses clean up their pollution in *all* communities.

8-6

Although the preliminary draft rule does not define "sensitive receptors," any final rule should include a definition that encompasses residential areas, schools, hospitals, daycare facilities, nursing homes, parks, or other areas where occupants are more susceptible to the negative impacts of pollution. Thus, for example, the rule would require that any facilities built near schools receive a greater warehouse points compliance obligation, or attain zero-emissions operations faster. Whether by its stringency or accelerated implementation, the rule must accommodate an evolving points system that truly reflects the reality of warehouse operations in the region.

8-7

We also note that the current menu of on-site investment items does not include designated on-site resting areas for workers and truck drivers that prevent parking and idling in nearby communities. This item would address one of the major impacts of freight operations in our communities.

8-8

III. Our Communities Cannot Afford Further Delays in the Rulemaking Process.

The warehouse rule should have been before the Air District's Governing Board in December of this past year. Instead, the rule is now tentatively scheduled to go to the Governing Board in mid-2020. We cannot keep pushing the adoption of this rule further into the future, even as pollution continues to envelop our communities. We want to remind the Air District that we expect a finalized and adopted warehouse rule by May 2020. We appreciate the Air District's staff pushing hard on this rule, and we encourage Committee members to support staff meeting the May 2020 deadline given the importance of this rule.

8-9

We appreciate your consideration of these comments, and appreciate the robust work done so far to develop a meaningful warehouse rule. We look forward to working with the Air District to lift up the voices of our community members and tackle the harms caused by the warehouse industry.

8-10

Sincerely,

Adrian Martinez
Michelle Ghafar
Earthjustice

Andrea Vidaurre
Center for Community Action & Environmental Justice

Taylor Thomas
East Yard Communities for Environmental Justice

Carlo De La Cruz
Sierra Club

Randy Korgan
Teamsters Local 1932

cc:

Wayne Nastri
Executive Officer
South Coast Air Quality Management District

Ian MacMillan
Planning and Rules Manager
South Coast Air Quality Management District

Response to Comment Letter #8 CCAEJ January 24, 2020 –Mobile Source CommitteeResponse to Comment 8-1

Thank you for your interest in the warehouse ISR development process and for bringing your comments to our attention.

Response to Comment 8-2

PR 2305 is designed to provide flexibility given the wide variety of business models employed by warehouses subject to the rule. Near zero options for on-road trucks are commercially available today, including for Class 8 trucks, whereas zero emission truck options are not yet widely commercially available. Additionally, NZE trucks can be significantly more cost-effective, both for the warehouse operator in terms of compliance (see Table 22 of the Preliminary Draft Staff Report) and in terms of cost per ton of emissions reduced (see Table 27 of the Preliminary Draft Staff Report). Further, PR 2305 is not designed to address all concerns associated with warehousing (e.g., traffic, aesthetics, economic and worker considerations, climate change impacts, etc.) as its focus is on reducing emissions that impact federal and state air quality standards and air pollution exposures in local communities. The options for NZE and ZE technologies in PR 2305 are expected to have a positive impact on reducing greenhouse gas emissions compared to conventional diesel technologies. For example, as stated in the most recent Proposed Final Integrated Energy Policy Report from the California Energy Commission, renewable natural gas made up about 77% of the pipeline gas supply for vehicles in 2019.²⁷² According to CARB, the carbon intensity of renewable natural gas fuels is considerably lower than diesel fuels, with many sources showing negative carbon intensity values.²⁷³ Finally, NZE technologies also completely eliminate the emissions of Diesel PM, the toxic air contaminant with the highest impact on environmental justice communities as shown in South Coast AQMD's MATES study.²⁷⁴

As documented in the Preliminary Draft Staff Report and its Appendix B - Draft WAIRE Menu Technical Report, the NOx and Diesel PM emission reductions and incremental costs relative to conventional diesel technologies are the factors that determine each WAIRE Menu action's Point value. Using a consistent method across all WAIRE Menu actions results in an ability to ensure approximately equal levels of compliance activity, regardless of the action chosen. Following this methodology, Class 4-7 ZE trucks and NZE trucks earn the same amount of WAIRE Points in the WAIRE Menu due to similar levels of emission reductions and costs between the two technologies. Class 8 truck WAIRE Point totals however are different between ZE and NZE technologies, due to the greater difference in cost and emission reductions for these trucks, with ZE trucks earning more Points than NZE.

Response to Comment 8-3

See Response to Comments 8-2 above.

²⁷² <https://efiling.energy.ca.gov/getdocument.aspx?tn=236905>, pg. 134. Accessed 2-28-21

²⁷³ <https://ww3.arb.ca.gov/fuels/lcfs/dashboard/dashboard.htm>, Accessed 3-1-21

²⁷⁴ <http://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies/mates-iv>

Response to Comment 8-4

ZE trucks are being commercialized rapidly today, and this is expected to continue over the next several years. However, charging/fueling infrastructure for these trucks has not been fully developed, some truck types will have longer wait times for zero emission technology to be commercialized (e.g., Class 8 trucks), and NZE technologies are significantly more cost effective than their ZE counterparts today. PR 2305 however does provide more options for ZE technologies, and these compliance options are anticipated to grow in popularity through time as these technologies enter the commercial market at greater scale and begin to reduce in price. The ZE technology options in PR 2305 are also designed to allow warehouses to take advantage of these options in ways that match their operations, by allowing WAIRE Points to be earned for charging infrastructure and ZE trucks and yard trucks. However, some warehouse operators have already invested in NZE technology that reduces NOx at least 90% compared to conventional diesel trucks and completely eliminates toxic Diesel PM, and may have needs that will not allow ZE trucks to work in their operations until the technology further matures.

Response to Comment 8-5

The purpose of PR 2305 is to reduce regional and local NOx and PM and facilitate other related rules and regulations, reductions for greenhouse gases would be a collateral benefit. The facilitative purpose of PR 2305 will help with implementation of measures such as the installation of much needed charging and fueling infrastructure and promote demand for ZE trucks which are two components needed by other regulations from CARB and the Governor's Executive Order N-79-20 which direct state agencies toward ZE transportation goals. The targets set by the state have focused on dates far in the future, such as 2035 and 2045. However, air quality needs are immediate – our region is facing deadlines in 2023 and 2031 to attain federal air quality standards and (e.g., attainment dates are as close as 2023, public health is impacted today from poor air quality.), and near-zero technology options have the ability to provide cost-effective solutions today.

Response to Comment 8-6

Impacts of air pollution on communities surrounding warehouses are considered in the structure of the WAIRE Points themselves. WAIRE Points for each WAIRE Menu item were determined by calculating the NOx emission reductions - (which affects regional air pollution -) as well as Diesel PM emission reductions -(which affects regional and local air pollution -), and the cost. Further, all warehouse operators must take actions themselves that reduce emissions or facilitate emission and exposure reductions in the communities near their warehouses. This approach will necessarily benefit disadvantaged communities as about 80% of warehouses are in communities that are in at least the worst 70th percentile as determined with the CalEnviroScreen tool (see Figure 4 of the Preliminary Draft Staff Report for a map). Because of the high overlap between the vast majority of warehouses and communities with pollution burdens, the most practical approach to reduce these impacts is to ensure that all warehouse operators must take actions to benefit their local communities.

Finally, in order to ensure that any limited transferring of WAIRE Points that may occur under the rule does not disproportionately effect local communities, any WAIRE Points transferred from a different location are discounted by the number of WAIRE Points associated with local benefits from Diesel PM reductions.

Response to Comment 8-7

Sensitive receptors are not referenced in the draft rule language. However, in the WAIRE Menu under the option for installation of MERV 16 or greater filter systems and MERV 16 or greater filter replacement does provided potential installation examples at sensitive sites such as residences, schools, daycares, hospitals, or community centers. The term sensitive receptor was not used in the determination of the WPCO as that was calculated using the WATT, rule stringency, and an annual variable. The recommended stringency of 0.0025 WAIRE Points per WATT with a three-year phase-in was analyzed in various scenarios to analyze the potential impacts on warehouse operations and air quality (see Preliminary Draft Staff Report Chapter 3).

Response to Comment 8-8

Onsite resting areas for workers or truck drivers were not included in the WAIRE Menu, as default values for costs, NO_x reductions, or Diesel PM reductions can vary from warehouse to warehouse. However, warehouse operators could propose a project of a designated onsite rest area for workers and truck drivers as a Custom WAIRE Plan application which would be evaluated based on the requirements listed in PR 2305. If the Custom WAIRE Plan is approved, this approach could earn the warehouse WAIRE Points toward the WPCO.

Response to Comment 8-9

The rule is currently anticipated to go before the South Coast AQMD Governing Board for consideration in April 2021. Additional time has been needed to develop the rule concept and supporting analysis, and to reach out to stakeholders.

Response to Comment 8-10

Thank you for your interest in the warehouse ISR development process and for bringing your comments to our attention.

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Todd R. Campbell
Vice President Public Policy & Regulatory Affairs



January 15, 2020

Mr. Ian MacMillan
Mr. Victor Juan
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Comments on the December 10 Warehouse Indirect Source Rule Working Group

Dear Mr. MacMillan, Mr. Juan, and South Coast Air Quality Management District Staff:

Clean Energy appreciates the opportunity to comment on the latest staff presentation during the Warehouse Indirect Source Rule (ISR) Working Group on December 10, 2019. We would like to provide the following comments on the proposed WAIRE point system:

9-1

WAIRE methodology must prioritize actual, quantifiable and SIP creditable emissions reductions.

We believe there is too much emphasis in the proposed WAIRE menu system to make investments that do not necessarily result in real, tangible, and quantifiable emissions reductions. Given that the South Coast airshed must reach federal clean air attainment standards in less than 3 years, WAIRE points should be focused and heavily weighted on the emissions reduction side of the equation.

We therefore recommend that AQMD staff place greater emphasis and weight on the action side of the menu and less on the investment side of the menu. We would also recommend that WAIRE points allocated toward investments be held until the regulated party can demonstrate to AQMD staff that the investment is helping the related facility to generate WAIRE points on the action side of the menu.

Using your example on slide 5, company A makes a \$20K investment but cannot demonstrate a regional emissions reductions or local benefit.

9-2

Company B makes a \$20K investment and can demonstrate a 60 lb. NOx reduction and a 0.4 DPM reduction.

Under our proposal, company A would be eligible for 1 WAIRE point but does not receive that WAIRE point until company A can demonstrate to AQMD staff that the investment was being used as intended. Company B, however, would receive 5 WAIRE points because company B can demonstrate to AQMD staff that their investment is being used.

The last thing the South Coast air basin needs is a rule that promotes stranded asset investments that achieve no real emissions reduction. By making the credit for an investment dependent upon usage, the rule will incentivize the regulated party to proactively plan for

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system installation and usage in advance. The way the WAIRE system is currently proposed, the AQMD staff did not develop the rule in such a way that compels the regulated party to make investments that will lead to real reductions.

9-2
(continued)

Early Adopter Bonus

We strongly encourage AQMD staff to consider an “early adopter bonus” for facilities that commit to achieving emission reductions prior to rule capture of the regulated party. While we do not have any specific recommendations on what multiplier should be used, one possible starting point could be as follows:

9-3

- 2x credit generation for actions completed 3 or more years in advance of rule capture;
- 1.5x credit generation for actions completed 2 or more years in advance of rule capture;
- 1.25x credit generation for actions completed 1 year or less in advance of rule capture.

Equal Treatment

Near-zero (defined as 0.02 NOx) should be treated equally as zero emissions technologies for onsite mitigation and under the Warehouse ISR for that matter. It is widely known that so-called zero emission strategies are not free of polluting emissions when the power generation is not from renewable sources. In fact, the South Coast Air Quality Management District expressed on numerous occasions that low NOx trucks certified at 0.02 grams NOx are essentially equivalent to zero emission battery electric trucks and buses based on the profile of the regional electrical grid. Of course, powerplants within the region are often located in disadvantaged communities and this pollution should not be overlooked. Additionally, in-state sources of renewable natural gas are increasingly coming online and have the ability of delivering up to minus 400 carbon intensity levels for low NOx trucks which could result in low NOx trucks being better on climate emissions than zero emission platforms. It is for all of these reasons that we believe the Warehouse ISR should not treat zero and near zero (low NOx trucks) any differently when it comes to credits or as options on the WAIRE menu.

9-4

Project Costs Do Not Equate to Emissions Reductions

Project cost tiers shown in the point system approach are too low if cost should be included at all. Including cost provides a path to accumulate points without a corresponding level of emissions reductions. It would be better to have an optional mitigation fee that can then be used to fund real quantifiable emission reductions. If costs are used to generate points then the costs should be amortized over the useful life of the equipment rather than upfront, and they should be awarded based on actual use of the equipment. Using cost as a point parameter may prevent the regulated party from using public funding.

9-5

Specific Comments on the Draft WAIRE Menu

- Add NZ as an option to every item that only shows ZE.
- Eliminate points for purchasing vehicles and only award points for actual use.
- Eliminate points for car charging, car charging does not eliminate DPM or other truck emissions.

9-6

9-7

9-8

- Allow trucks to be purchased by a 3rd party to address businesses that do not own/operate trucks, but they could fund 3rd party trucking companies. | 9-9
- Points should only be earned upon completion of infrastructure projects, not over incremental development milestones. Even better, infrastructure points should be earned based on use. | 9-10

Conclusion:

Clean Energy would like to thank and support AQMD staff's efforts to develop a meaningful Warehouse ISR. The development of the WAIRE menu in terms of how actions are valued, how WAIRE points are generated, and how the WAIRE menu incentivizes regulated parties to comply is critical to the rule's success. We hope AQMD staff takes our comments under full consideration so that the Warehouse ISR can achieve the maximum amount of emissions reductions in the shortest period of time. | 9-11

If you should have any questions or would like to have further input from our team, please do not hesitate to contact me directly.

Sincerely,



Todd R. Campbell
Vice President, Public Policy and Regulatory Affairs

Response to Comment Letter #9 Clean Energy Fuels – December 10, 2019Response to Comment 9-1

Thank you for your interest in the warehouse ISR development process, staff appreciates the time and effort taken to provide your feedback on the WAIRE Points system.

Response to Comment 9-2

By design the WAIRE Program seeks emission reductions and facilitate and enhances other related rules and regulations. While the WAIRE Program will result in emission reductions it will not on its own result in the attainment of the federal ozone standard for 2023, even if all warehouse emissions went to zero. But (PR 2305 is projected to provide about a 10-15% emission reduction, in the South Coast AQMD). However, PR 2305 is also part of a larger comprehensive strategy described in the 2016 Air Quality Management Plan that is designed to meet federal and state air quality standards. GThus, giiven the unique nature of the rule and South Coast AQMD’s indirect source authority, it is important to include measures that do not necessarily reduce emissions on their own, but that facilitate emission reductions, including by laying the ground work for future emission reduction technologies such as zero emissions trucks.

Further, the WAIRE Menu has been designed to split WAIRE Points between acquiring and using vehicles and equipment. This is to allow warehouse operators to make progress every year as part of an annual program, and also to allow incentive funding programs work within a regulatory setting. Incentive programs that offset the purchase price of a vehicle generally cannot be used if the purchase is required to comply with a regulation. However, because PR 2305 encourages the use of those purchased vehicles, as well as their use at specific warehouses, incentivized vehicles may still earn WAIRE Points. This mechanism has the effect of lowering the potential compliance cost of the rule, with the ability to further decrease compliance costs through the identification of additional sources of incentive funding.

Ultimately, all emission reductions achieved or facilitated by PR 2305 should be SIP creditable (see discussion in Appendix D of the Preliminary Draft Staff Report).

Response to Comment 9-3

Early action multipliers are not included in the proposed regulation. H, however PR 2305 does have early action provisions including one that allows that allows extra WAIRE Points earned in one year to be banked for up to three future years, and another that allows both warehouse operators and owners to earn WAIRE Points ahead of their warehouse size phase-in schedule. The banking clock on these pre-phase-in WAIRE Points does not begin until the warehouse operator’s first compliance period, providing an additional early action benefit.

Finally, the WAIRE Menu includes options that go above and beyond current regulations in order to earn WAIRE Points. Warehouse operators may also decide to take early action ahead of the implementation schedule of U.S. EPA or CARB rules and regulation in order to earn WAIRE Points.

Response to Comment 9-4

NZE and ZE trucks are treated equally in PR 2305. The development of the number of WAIRE Points for implementing each technology is described in detail in Appendix B to the Preliminary Draft Staff Report. In summary, WAIRE Points in the WAIRE Menu are assigned based on each technology’s costs and NOx and DPM emission reductions, relative to conventional diesel technologies. Although reducing greenhouse gases is an important goal, it is not one of the project objectives of PR 2305. The options for both NZE and ZE technologies in PR 2305 are expected to

have a positive impact on reducing greenhouse gas emissions compared to conventional diesel technologies. For example, as stated in the most recent Proposed Final Integrated Energy Policy Report from the California Energy Commission, renewable natural gas made up about 77% of the pipeline gas supply for vehicles in 2019.²⁷⁵ According to CARB, the average carbon intensity of renewable natural gas fuels is considerably lower than diesel fuels, with many sources showing negative carbon intensity values.²⁷⁶ The average carbon intensity of electricity production is currently lower than for renewable natural gas. Powerplant that provide electricity (including for ZE trucks) are becoming a diminishing source of emissions in the air basin, emitting less than 2 tpd of NOx in South Coast AQMD in 2019 based on an analysis of continuous emissions monitoring systems data. These emissions are anticipated to continue to decline as more renewable sources of power are introduced due to state policies.

Response to Comment 9-5

Costs were included in the determination of WAIRE Points for every WAIRE Menu action in order to recognize the investments that warehouse operators (and owners who opt in) make towards clean air technologies. PR 2305 requires annual compliance in order to ensure ongoing air quality improvements, and it is not possible to provide credit for emission reductions far into the future with this structure. In addition, many logistics industry stakeholders have commented on the short term nature of business relationships, with warehouse frequently atleases common for about three-year terms, and trucking contracts common for one-year terms (or less). In order to ensure the flexibility needed in this environment, investments are allowed to earn WAIRE Points on their own, and in the year that the investment is made. The WAIRE Menu has been designed to split WAIRE Points between acquiring and using vehicles and equipment. This provision is to allow warehouse operators to make progress every year as part of an annual program, and also to allow incentive funding programs work within a regulatory setting. Incentive programs that offset the purchase price of a vehicle generally cannot be used if the purchase is required to comply with a regulation. However, because PR 2305 encourages the use of those purchased vehicles, as well as their use at specific warehouses, incentivized vehicles may still earn WAIRE Points. This mechanism has the effect of lowering the potential compliance cost of the rule, with the ability to further decrease compliance costs through the identification of additional sources of incentive funding.

Response to Comment 9-6

The draft WAIRE Menu does not include NZE options for infrastructure or yard trucks. While NZE trucks are allowed in PR 2305 (and are an attractive compliance option), fueling infrastructure has not been included in part due to a desire to work towards state goals, and also because previous statements from the natural gas industry have stated that government support is not needed for the fueling infrastructure for widespread deployment of natural gas fueled NZE trucks other than policy and funding support for the trucks themselves.²⁷⁷ These previous comments have also stated that the natural gas industry is ready to quickly scale up fueling infrastructure to meet the demands of the trucking industry in southern California, and has a track

²⁷⁵ <https://efiling.energy.ca.gov/getdocument.aspx?tn=236905>, pg. 134. Accessed 2-28-21

²⁷⁶ <https://ww3.arb.ca.gov/fuels/lcfs/dashboard/dashboard.htm>, Accessed 3-1-21

²⁷⁷ <https://cngvc.org/wp/wp-content/uploads/2017/04/ACT-Now-Plan-Final.pdf>, pg. 14, Accessed 2-28-21
<https://cleanairactionplan.org/documents/2018-draft-drayage-feasibility-assessment-public-comments.pdf>, letters at pg. 14 and 47 Accessed 2-28-21

record of previous successful rapid station developments by constructing 70 stations within one year.

There are currently about 66 CNG and LNG stations in the South Coast AQMD that can serve heavy duty trucks. The ports of Los Angeles and Long Beach estimated that up to 14 new stations could be needed to support up to 18,000 Class 8 NZE trucks serving the ports, however their analysis did not consider the use of any of the existing stations throughout the region.²⁷⁸ At a stringency of 0.0025 Points/WATT, the level of deployment of NZE Class 8 trucks in PR 2305 is no more than about 16,000 trucks over a ten year period in the extreme unlikelihood that all warehouse operators only chose NZE Class 8 trucks as a compliance option. Therefore, no more than 14 new stations are expected to be needed to support NZE trucks under PR 2305, and potentially could be much lower if the existing natural gas “station infrastructure is overbuilt for the current natural gas truck market in California”.²⁷⁹ As a result of these factors – the high need for zero emissions charging/fueling infrastructure, the expressed willingness of the natural gas industry to build out fueling stations on its own, and the limited amount of natural gas fueling infrastructure needed to support any NZE trucks that might be introduced due to PR 2305 – natural gas fueling options are not included as a compliance option within PR 2305.

There are also key policy distinctions for why ZE yard trucks are the only option considered. First, in the on-road sector ZE trucks are not at the same stage of commercial development as NZE yard trucks, which have been operating in commercial service for several years, especially for Class 8 trucks. However, ZE yard trucks are commercially available today and have been operating at warehouses since 2015. Additionally, because ZE yard trucks are located at an individual facility, they are well-suited to serve as an early beachhead for the longer term development of ZE vehicle solutions.²⁸⁰ By focusing PR 2305 on ZE yard trucks, warehouse operators are introduced to ZE technology to see how it works in their operations. Nonetheless, a CEQA alternative has been included that evaluates additional NZE compliance options within PR 2305. Further, the second draft staff report and the accompanying WAIRE Implementation Guidelines now explicitly allow NZE yard trucks to earn WAIRE Points through a Custom WAIRE Plan, and example calculations that warehouse operators could use are included.

Response to Comment 9-7

See Response to Comments 9-2 and 9-5.

Response to Comment 9-8

One of the main goals of PR 2305 is regional NOx reductions, and the installation of EV chargers does facilitate indirect emission reductions by promoting the use of an EV rather than a traditional gasoline or diesel fueled vehicle. Staff agrees that the emissions from employee commuting is less than that of a heavy duty truck emissions, but is still NOx and PM emissions that can be reduced and are present at warehouses.

Response to Comment 9-9

There are many different business relationships between warehouse operators and trucking companies. 3rd parties may be able to provide a service in some instances that can earn WAIRE Points for an operator. Depending on the nature of the relationship, WAIRE Points could potentially be earned from the acquisition of trucks by a third party (if it is dedicated to a warehouse

²⁷⁸ <https://cleanairactionplan.org/documents/final-drayage-truck-feasibility-assessment.pdf/>, Accessed 2-28-21

²⁷⁹ <https://cleanairactionplan.org/documents/2018-draft-drayage-feasibility-assessment-public-comments.pdf>, pg. 17
Accessed 2-28-21

²⁸⁰ https://globaldrivetozero.org/public/The_Beachhead_Model.pdf

operator) from the WAIRE Menu, or through some other arrangement that would be detailed in a Custom WAIRE Plan.

Response to Comment 9-10

Both industry and utility stakeholders provided feedback that ZE charging infrastructure projects often can take more than one year to complete. In order to account for these delays and not penalize facilities that are making meaningful progress towards a goal, the milestone steps of equipment purchase, beginning construction, and construction finalization were incorporated into the WAIRE Program. Most WAIRE Points are earned upon completion of the project. As stated in previous comment responses, PR 2305 is a facilitative measure and though the installation of infrastructure does not directly result in emission reductions, it does facilitate reductions from other related rules and regulations and promote usage of ZE trucks and equipment. See Response to Comments 9-5.

Response to Comment 9-11

All comments received are taken into full consideration, and appreciated as they help guide the development of the proposed rule.



February 12, 2020

Mr. Ian MacMillan
 Mr. Victor Juan
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765

RE: Warehouse Indirect Source Rule

Dear Mr. MacMillan, Mr. Juan, and South Coast Air Quality Management District Staff:

Thank you for the opportunity to comment on the South Coast Air Quality Management District’s (SCAQMD) development of the Warehouse Indirect Source Rule (ISR) and WAIRE program aimed at reducing and facilitating local and regional emission reductions associated with warehouses and mobile sources attracted to warehouses. The Western Propane Gas Association (WPGA) seeks to be a valuable contributor in both the development of the rule and the policies and procedures that may emerge as a result of these discussions.

10-1

WPGA would like to commend SCAQMD staff on your efforts to seek deeper NOx reductions from mobile sources that have a disproportional impact upon the South Coast Air Basin and disadvantaged communities. We believe as the South Coast strives to reach federal clean air attainment and improve upon the health of impacted communities, near-zero and low-NOx technologies using renewable fuel are the most efficient and cost-effective way to address GHG and NOx emissions, especially in the near-term.

10-2

10-3

When looking toward the future, the propane industry is investing heavily in renewable propane, derived from sustainable sources like beef tallow or vegetable oil. The carbon intensity for renewable propane is on par with that of electric and prioritizing near-zero and low-NOx technologies, such as those using renewable propane, in the ISR will play an important role by sending a signal to the market of the importance of in-state production of renewable propane and the continued production of low-NOx engines to help reduce greenhouse gas emissions for decades to come.

The Western Propane Gas Association appreciates your work in this area and hope AQMD staff take a holistic view of the role near-zero and low-NOx technologies using renewable fuels can play in reducing emissions associated with warehouses and mobile sources attracted to warehouses.

Sincerely,

Ben Granholm
 Regulatory Affairs Specialist

Response to Comment Letter #10 - WPGA– Other General Comment -2/12/20Response to Comment 10-1

Thank you for your interest in the warehouse ISR development process and for bringing your comments to our attention.

Response to Comment 10-2

Staff agrees that NO_x reductions from mobile sources have a significant impact within the South Coast Air Basin (SCAB), especially to disadvantaged communities surrounding warehouse uses, and the warehouse ISR would help address these impacts.

Response to Comment 10-3

The primary purpose of PR 2305 is regional and local NO_x and PM reductions to assist in attainment of the federal ozone standard and reduce disproportionate impacts on the communities surrounding warehouses. Greenhouse gas reductions would result as a collateral benefit reduced diesel use and the increased usage of renewable fuels. The current WAIRE Menu only includes NZE technology for truck acquisition and use. However, NZE technology including propane will be part of the alternatives section of the CEQA analysis, which will be available for South Coast AQMD Board members to review and consider.

]



April 9, 2020

Victor Juan, Program Supervisor
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

RE: Comments on the Draft WAIRE Menu Technical Report

Dear Victor,

The Lion Electric Co. appreciates the opportunity to provide comments on the Draft WAIRE Menu Technical Report for Warehouse Indirect Source Rule (ISR). Lion strongly supports the South Coast Air Quality Management District’s continued efforts to accelerate the deployment of zero-emission vehicles and infrastructure to reduce harmful GHG and criteria pollutant emissions in our state’s most impacted communities. | 11-1

Lion is a leading Original Equipment Manufacturer of all-electric vehicles, including zero-emission school buses and zero-emission trucks and shuttle buses, with deployments in California, New York, Massachusetts, and other states across the nation. Today, there are currently over 300 Lion electric school buses in operation in North America that have been carrying kids to school every day safely for the last three years, with over six million miles of service provided.

Please see below for our comments.

The estimated incremental cost for a Class 8 zero-emission (ZE) truck is listed as being \$150,000 in Table 2 of the draft report. However, with the average diesel Class 8 truck costing about \$150,000 and a typical ZE Class 8 truck costing roughly \$500,000 for a longer range truck (a cost more accurately outlined in Table 9), the incremental cost is actually closer to \$350,000. This is a substantial increase from the initially proposed \$150,000 and of course results in the proposed WAIRE points achieved per ZE Class 8 truck purchase being lower than reasonably expected. With a more accurate incremental cost being closer to \$350,000, this would mean that the WAIRE points earned for a ZE Class 8 truck purchase should be 14 (\$350,000 / \$25,000 AUM = 14). With more WAIRE points earned by warehouses for choosing ZE truck options, not only will this incentivize warehouse owners/operators to begin transitioning their fleets to zero-emission, it will also accelerate the emissions reductions realized by the Warehouse ISR. | 11-2 | 11-3

Lion appreciates the inclusion of the Lion8 on the list of commercially available ZE trucks on page 4 of the draft report. We would like to request the inclusion of our Class 6 and 7 electric | 11-4



The Lion Electric Co.



thelionelectric.com

⚡ LION ELECTRIC

trucks as well – the Lion6 and Lion7. In addition, we also offer the Lion8 Tractor and Lion8 Straight-body Truck. These trucks represent our other commercial electric truck offerings and are available to suit the needs of a variety of fleets, including those that serve warehouses. Lion thanks South Coast Air Quality Management District (SCAQMD) for considering our vehicles.

The total cost of ownership (TCO) charts (Tables 7-10) present a default operating life of 12 years for all vehicle types and classes listed. As part of the operating life, a “midlife cost” is included, which is defined as a battery replacement for battery electric vehicles (BEVs). Lion would like to point out that with our three years of on-road BEV experience, we have noticed less than 0.5% rate of battery life degradation per year in our vehicles. What this means is that, at this current rate, these vehicles would not need a “midlife” battery replacement before 12 years of use because the batteries will have had only minor reductions to capacity through wear and tear. This would result in a lower TCO for BEVs as presented in Tables 8-10 specifically, because the estimated large cost of a battery replacement event would likely be factored out. In order to further protect the battery life of our vehicles, we offer a standard battery warranty of eight years, and an optional extended warranty of 12 years.

Lion strongly supports SCAQMD’s proposal to apply a multiplier of three to truck-related actions taken by warehouses to gain WAIRE points. This is an effective way to incentivize warehouse owners/operators to begin transitioning their fleets to zero-emission and to accelerate emissions reductions in the most impacted communities in the SCAQMD region. To further this, Lion respectfully recommends that the multiplier be increased to 5 for ZE truck-related actions specifically (and to keep the multiplier at 3 for near-zero emission (NZE) truck actions). This would help distinguish between the greater costs required for warehouses to acquire ZE trucks as opposed to NZE trucks, and would reward warehouse owners/operators for choosing the cleanest available technology to accelerate emissions reductions.

Lion is proud to support SCAQMD as it works to pass the Warehouse ISR. This ISR will greatly improve the air quality and health of the communities surrounding warehouses in the region and will prove a successful case study for other regions and communities across the state.

Lion appreciates the opportunity to provide comments on the Draft WAIRE Menu Technical Report and looks forward to continuing to work with SCAQMD on projects to reduce emissions in our state’s most impacted communities.

Sincerely,

Nate Baguio
Vice President of Sales



The Lion Electric Co.



thelionelectric.com

Response to Comment Letter #11 - Lion Electric April 9,2020Response to Comment 11-1

Thank you for your interest in the warehouse ISR development process and for bringing your comments to our attention.

Response to Comment 11-2

Staff has researched various sources including the CARB's analysis on ZE costs as they developed their Advanced Clean Truck (ACT) and Low NOx Omnibus regulations. Additionally, staff is aware that costs are continually adjusting in response to decreasing battery costs and availability of technology. However, staff is aware that several truck manufacturers are still in their demonstration phases and have not reached Technology Readiness Level 9 (TRL-9) such that initial price quotes may be higher. The ZE Class 8 truck costs used in the analysis on the WAIRE Menu Technical Report are attributed to the costs in the CARB analysis, and are viewed as being representative and consistent with the ACT regulation. As stated in your comments, there are options on battery size and range which would impact the costs, but these are specific to each fleet or warehouse operator choosing to purchase ZE trucks to satisfy their WPCO. Many business models use a leasing approach for truck acquisition which would further lower costs and is allowed in the WAIRE Program. Staff notes your comment regarding incremental price, and is continuing to monitor changes in the pricing.

Response to Comment 11-3

The WAIRE Points for the ZE Class 8 trucks were calculated using the costs stated in the CARB analysis for the ACT regulation. Staff understands that there are options in battery size and leasing options which may make the acquisition costs less or more depending on the preference and needs of the warehouse operator. ZE trucks are provided additional WAIRE Points due to their higher costs relative to NZE trucks, and this may be a motivating factor for some warehouse operators.

Response to Comment 11-4

The addition of new ZE truck offerings is welcome. A useful list of ZE trucks (including from the commenter), along with their expected commercial availability is maintained at the website below: <https://globaldrivetozero.org/tools/zero-emission-technology-inventory/>

Response to Comment 11-5

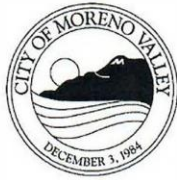
With regard to the "midlife costs", the source document was CARB's ACT Total Cost of Ownership (TCO) Discussion which presents the "midlife costs" to be the potential to replace a battery should it fail. The 12-year truck life an assumption used in several models, and many manufacturers have warranties that range from 8-12 years with options of extending the warranty. Because different truck manufacturers, and truck operator use cases, will result in different lengths of battery life, the assumption from CARB's ACT analysis was used as a default for purposes of developing the number of WAIRE Points for ZE trucks.

Response to Comment 11-6

The proposed approach of increasing the WAIRE Points for ZE and NZE truck visits is included to encourage operators to choose this option as it is the largest source of emissions associated with warehouses. The commenters proposed difference between NZE and ZE trucks has not been included however as the distinctions between those two technologies has already been considered in relation to their relative cost and emission reductions of NOx and DPM.

Response to Comment 11-7

Thank you for your interest in the warehouse ISR development process and for bringing your comments to our attention.



Community Development Department
Planning Division
14177 Frederick Street
P. O. Box 88005
Moreno Valley CA 92552-0805
Telephone: 951.413-3206
Fax: 951.413-3210

April 30, 2020

Ian MacMillan
Planning and Rules Manager
South Coast Air Quality Management District
21865 Copley Dr.
Diamond Bar, CA 91765

Subject: Comments on Draft WAIRE Menu Technical Report and Proposed Rule 2305 –
Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce
Emissions (WAIRE) Program

Dear Mr. MacMillan:

In reviewing the WAIRE Menu Technical Report and the draft Rule, staff is concerned that the complexity of the methodology would make it costly for operators to administer and comply with the rule. While staff understands that the subject is complex, a more streamlined methodology would reduce administrative costs for operators. It is also important to build into the methodology an incentive for buying or using zero or near-zero emissions equipment. Unless there is a financial advantage of buying and/or using the zero or near-zero emissions equipment, operators may simply not buy or upgrade equipment, and will instead choose to pay the mitigation fee. Since the objective is to reduce air quality emissions, it would seem to be most beneficial to encourage the purchase and use of zero and near-zero. Based on the details in the Technical Report and the draft Rule, there is not enough information to evaluate the impacts and costs of implementation for operators. The WAIRE Menu Technical Report should not be finalized until the draft Rule is further refined, and the mitigation fee is identified.

Staff requests to be notified of the availability of the draft Final Rule and the Socioeconomic Study, and all updates on the Rulemaking process. Also, just to let you know, the link to the Proposed Rule on the SCAQMD warehouse webpage is currently not working. Thank you for the opportunity to comment and we look forward to reviewing the forthcoming documents. If you have any questions or would like to discuss further, please feel free to contact Chris Ormsby, Senior Planner at (951) 413-3229, or by email at chriso@moval.org.

Sincerely,

Manuel A. Mancha
Community Development Director

c: Patty Nevins, Planning Official
Chris Ormsby, Senior Planner
Victor Juan, Program Supervisor SCAQMD

Response to Comment Letter #12 – Moreno Valley – Draft Technical Document -4/30/20
Response to Comment 12-1

The WAIRE Menu Technical Report includes many complex analyses in order to simplify the analysis that warehouse operators will need to do when complying with PR 2305 should it be approved by the South Coast AQMD Governing Board. After determining their annual truck trips, warehouse operators will only need to reference the WAIRE Menu (Table 3 of PR 2305) to provide the number of WAIRE Points each action would earn in order to meet their Warehouse Points Compliance Obligation (WPCO).

Response to Comment 12-2

PR 2305 defines the mitigation fee to be \$1000 per WAIRE Point, and is meant to be within a similar range of cost as the other WAIRE Menu options and is not meant as a way to avoid PR 2305's objective to reduce emissions of NOx or PM. At the current cost of the mitigation fee there are cheaper options for the warehouse operator to meet their WPCO such as NZE or ZE truck visits, and more expensive options such as the installation of a hydrogen fueling station that could be beneficial to the warehouse operator's business model. Each warehouse operator will decide the correct approach for their operations in any year, however the mitigation fee is not expected to be the most cost-effective approach in most cases as it does not allow a warehouse operator to make early investments that can earn WAIRE Points at a cheaper level in future years through usage of the investments.

Response to Comment 12-3

Elements in the WAIRE Program such as the stringency and phase-in schedule had not been defined at the time City of Moreno Valley drafted this letter. The commenter is directed to the current draft of PR 2305 and the Preliminary Draft Staff Report for the details and analysis requested.

Response to Comment 12-4

The latest draft of the WAIRE Menu Technical Report is included in the Preliminary Draft Staff Report for review, and will not be finalized unless the Board approves the proposed rule

Response to Comment 12-5

Staff has included commenter on the notice list for updates on the rulemaking process for PR 2305, including updates to PR 2305 and availability of related documents such as the socioeconomic study.

Response to Comment 12-6

Thank you for bringing this to South Coast AQMD Staff attention. The link has been fixed.

Response to Comment 12-7

Thank you for your interest in the warehouse ISR development process and for bringing your comments to our attention.

CENTER FOR COMMUNITY ACTION & ENVIRONMENTAL JUSTICE
EARTHJUSTICE
EAST YARD COMMUNITIES FOR ENVIRONMENTAL JUSTICE
SIERRA CLUB
TEAMSTERS LOCAL 1932

May 1, 2020

Ian MacMillan
Planning and Rules Manager
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Comments on Draft WAIRE Menu Technical Report for Warehouse Indirect Source Rule (Proposed Rule 2305)

Dear Mr. MacMillan:

On behalf of the undersigned coalition of community and environmental organizations, we submit these comments on the draft “WAIRE” menu technical report released on March 3, 2020 for the warehouse indirect source rule. Our coalition continues to appreciate the robust work done so far to develop a strong warehouse rule. We also remain concerned, however, that the draft rule still does not reflect the reality of warehouse operations and the pollution crisis in the South Coast air basin. The Air District cannot afford to waste this opportunity to ensure effective and meaningful regulation of the warehouse industry, and our communities cannot afford a weak rule. Indeed, our lives literally depend on a strong and equitable warehouse rule that will achieve necessary emissions reductions in the region—particularly as the COVID-19 pandemic exacerbates the health impacts of air pollution in our communities.

13-1

We request that Air District staff update the draft rule and WAIRE menu to reflect our comments below prior to submitting them to the Air District’s Governing Board for adoption. These comments emphasize again many of the concerns and nuances we have repeatedly raised throughout this rulemaking process, some of which continue to go unaddressed. We hope this additional input helps strengthen this life-saving regulation.

I. The Rule Must Prioritize Zero-Emissions Technology.

We have repeatedly emphasized to Air District staff that zero-emissions technology is the only solution to truly address the air quality and health crises caused by the warehouse industry. Any investment in "near-zero" equipment will likely slow the transition to a zero-emissions freight sector. Such investments will compete with the zero-emissions technologies we need, create concerns about stranding assets, and thus disincentive a zero-emissions future. We therefore commend the Air District’s decision to give nearly double the compliance points for the purchase of zero-emissions trucks compared to near-zero trucks in the current WAIRE menu

13-2

Comment letter on draft WAIRE menu technical report for warehouse ISR

Page | 2

May 1, 2020

of on-site investments. We support this points distribution and encourage an even greater points value to reflect the sizeable emissions benefits possible from zero-emissions trucks. 13-2(cont'd)

Unfortunately, zero-emissions truck trips continue to earn nearly the same number of points as near-zero truck trips in the menu, particularly for Class 4-7 trucks. This is partly due to underestimating regional (NOx) emissions reductions from switching to zero-emission trucks, while overestimating the NOx reductions possible from switching to near-zero trucks. In addition, we oppose the fact that the assessment assumes the local (DPM) benefits of zero-emission trucks are the same as near-zero trucks. This is just not the case. Importantly, the current WAIRE menu also reflects overly conservative cost estimates for zero-emission truck trips, even in the face of more and more data on declining battery, maintenance, and fuel costs.¹ The Union of Concerned Scientists recently summarized the results of studies conducted by the California Air Resources Board, the International Council on Clean Transportation, and ICF, all of which concluded that the total cost of ownership for Class 6 and 8 electric trucks is competitive or lower than diesel today, and are estimated to be lower than diesel in the next decade, even without financial incentives.² 13-3 13-4

Ultimately, the gulf between zero and near-zero technologies is wider than industry representatives claim, with “near-zero” just a code for traditional combustion technologies burning methane gas. Our communities refuse to continue to bear the disproportionate burdens of the natural gas and oil infrastructure that propagates these combustion technologies. 13-5

The continuing development of zero-emissions technologies has been stunning, and the evidence is growing that these technologies will be more widely available and commercially feasible by the time compliance obligations begin for this rule. The Air District has the opportunity to take bolder action here, and implement a vision for transitioning to a zero-emissions future that reflects the directives and plans adopted at the regional, State, and global level. As currently drafted, the proposed rule and WAIRE menu give no indication for when communities can expect the complete phase-out of natural gas and combustion technologies that cause negative climate and health impacts.³ Without clear targets and goals, there is no reason to have confidence the final rule will meaningfully regulate the warehouse industry, or help us meet our greenhouse gas reduction targets and air quality requirements. 13-6

¹ See, e.g., Bloomberg, [How Big Will the Battery Boom Get? Try \\$548 Billion, BNEF Says](#) (June 19, 2018) (reporting “[b]attery prices are expected to fall to \$70 a kilowatt-hour by 2030, down 67 percent from today”).

² Union of Concerned Scientists, [Ready for Work: Now is the Time for Heavy-Duty Electric Vehicles](#) (Dec. 2019) at pp. 12-13 (“With California’s policies and incentives, however, the total cost of ownership is lower than diesel today for 19 of 20 vehicle scenarios examined in the three studies.”).

³ European Federation for Transport & Environment, [Do Gas Trucks Reduce Emissions?](#) (Sept. 2019) at p. 10 (“Gas vehicles deliver negligible GHG benefits compared to diesel.”).

Comment letter on draft WAIRE menu technical report for warehouse ISR
 Page | 3
 May 1, 2020

II. Warehouses Near Environmental Justice Communities Must Reach Zero-Emissions Operations Faster.

We understand that Air District staff are still developing the stringency value and annual variable for the final rule. We want to ensure at this point, however, that these factors are adjusted appropriately so that the points obligation for each warehouse accounts for nearby sensitive receptors. In other words, facilities located in environmental justice communities and/or those neighboring sensitive receptors must either receive a higher points obligation or attain zero-emissions operations on an accelerated timeline. We appreciate the Air District’s recognition that a just and equitable warehouse rule will require such facilities to clean up their operations faster by including compliance points for local emissions reductions. 13-7

Nonetheless, the current proposed range for the stringency factor creates potentially wide differences in the annual points compliance obligation for the same facility, with lower stringencies allowing facilities to comply using just one WAIRE menu item annually.⁴ Providing such compliance pathways renders the menu useless in the face of otherwise low points obligations and will ultimately fail to reduce region-wide emissions. Our communities should not be forced to accommodate low stringency values from the get-go because facilities want to skirt meaningful compliance as long as possible. We have waited long enough for warehouses to clean up their toxic pollution in our neighborhoods. 13-8

The draft rule materials still do not define “sensitive receptors,” which should encompass residential areas, schools, hospitals, daycare facilities, nursing homes, parks, or other areas where occupants are more susceptible to the negative impacts of pollution. We also note that the current menu of WAIRE items continues to omit designated on-site resting areas for workers and truck drivers that prevent parking and idling in nearby communities. This item would address one of the major impacts of freight operations in our communities. 13-9
 13-10

III. Facilities Should Not Be Allowed to Pay Their Way Out of Compliance.

The latest draft rule materials indicate a mitigation fee set at \$1000 per WAIRE point. We are deeply concerned that this fee option will become a "pay to pollute" alternative, with facilities simply paying their way out of their compliance obligation each year rather than investing in the on-site menu items. The compliance examples provided by Air District staff alarmingly seem to provide for just such an alternative, listing fee totals that would satisfy a facility’s entire points obligation for a compliance year.⁵ Some of these total fees are as low as a few thousand dollars for a facility to comply.⁶ In the face of such a generous compliance option, we do not doubt that facilities will choose to pay rather than change their operations or invest in long-term emissions reduction measures. 13-11

⁴ SCAQMD, *Warehouse ISR Working Group Presentation* (Mar. 3, 2020), slides 16-18.

⁵ *Id.* at slides 16-20.

⁶ *Id.* at slides 19-20.

Comment letter on draft WAIRE menu technical report for warehouse ISR
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The mitigation fee must therefore be limited, and designed to incentivize meaningful investments in technologies that can instead address the region’s freight pollution crisis. Importantly, any points generated per dollar must be appropriately discounted for those facilities located near sensitive receptors and/or in environmental justice communities. And we reiterate that the final rule should also specify how and where the mitigation fees generated each year will be used. Given that our members bear the brunt of this industry’s operations, we expect such fees will fund emissions reduction projects in our communities. 13-12

IV. The Rule Must Prioritize Zero-Emissions Charging Infrastructure.

We appreciate the inclusion of compliance points for zero-emissions charging infrastructure, which will serve as a necessary push for the freight sector to invest now in zero-emissions technology. We request the inclusion of additional cost points for charger installation activity that includes installation of onsite generation, distributed energy resources, and battery energy storage for electric transportation. This will reduce grid demand, support peak shaving, and support increased and efficient integration of renewables into our transportation system. 13-13

V. The Socioeconomic Analysis Should Address Community Impacts.

We understand the Air District’s socioeconomic analysis must include costs to industry and potential industry responses as part of this rulemaking process. Yet any analysis of this industry is incomplete without consideration of its real health impacts on surrounding communities. Any discussion of potential impacts to jobs and the local economy must reflect data on health risks from ozone and fine particulate matter pollution and the reality that our community members are falling ill and dying because of this industry. Moreover, the analysis should include job benefits from implementation of cleaner technologies at warehouses. For example, the Los Angeles Economic Development Corporation recently determined that jobs in the electric vehicle space are a significant source of employment in Los Angeles County.⁷ We cannot focus on impacts to the industry alone at the exclusion of understanding the demographics and health data in nearby communities. 13-14

VI. This Rulemaking is Critical for Public Health.

Our coalition has advocated for years for a strong warehouse rule. It is a critical rule to protect communities adjacent to warehouses. We understand that Air District staff are working hard to push this rule forward, however, we also live in communities long burdened by disproportionately high levels of air pollution and are now more than ever at greater risk of serious illness and death in the ongoing COVID-19 pandemic.⁸ We ask that this rule be adopted by March of 2021. 13-15

⁷ Los Angeles Economic Development Corporation, [California and SoCal EV Industry is Growing, Giving Region Global Competitive Advantage](#) (Mar. 1, 2020).

⁸ Wu et al., [Exposure to Air Pollution and COVID-19 Mortality in the United States](#) (Apr. 5, 2020).

Comment letter on draft WAIRE menu technical report for warehouse ISR

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We appreciate your consideration of these comments, and look forward to continuing to work with the Air District to strengthen the warehouse rule.

Sincerely,

Michelle Ghafar
Adrian Martinez
Earthjustice

Andrea Vidaurre
Center for Community Action & Environmental Justice

Taylor Thomas
East Yard Communities for Environmental Justice

Carlo De La Cruz
Sierra Club

Randy Korgan
Teamsters Local 1932

cc:

Wayne Natri
Executive Officer
South Coast Air Quality Management District

Response to Comment Letter #13 – CCAEJ - May 1, 2020
Response to Comment 13-1

Thank you for your interest in the warehouse ISR development process and for bringing your comments to our attention. Comments made throughout this group of stakeholders have shaped the rule in many meaningful ways, including pivoting away from a credit-trading program, more explicit focus on individual actions of every warehouse at their facility and in their communities, and consideration of diesel PM as an integral part of the rule. However, many other stakeholders also have an interest in the development of this rule and their concerns are also considered, as well as the limitation of South Coast AQMD's unique authority in relation to mobile sources. Responses to specific comments in this letter are included below.

Response to Comment 13-2

The commenter's continued interest in ZE-only solutions is recognized and understood. While ZE technology solutions are ultimately needed, in the next several years NZE technologies are expected to be considerably more cost-effective in reducing NO_x, while also eliminating Diesel PM. The calculation of WAIRE Points for each WAIRE Menu item is based on the cost and emission reductions of NO_x and DPM relative to conventional diesel technologies. Hence ZE technologies result in higher WAIRE Points for acquisition (due to higher cost), but nearly identical WAIRE Points for visits (due to nearly equal emission reductions). For any warehouse operators who choose NZE options, their investments are not anticipated to be stranded assets as the transition to full ZE technologies is not anticipated by CARB in their most optimistic scenarios until 2045. This timeline allows a full useful life (between about 13-18 years) for NZE trucks for about the next decade.²⁸¹ Given the higher cost of ZE technologies, NZE technologies are included as an option to provide near-term cost-effective benefits until ZE technologies are more widely available commercially, and at cost-competitive levels.

Response to Comment 13-3

The commenter states that ZE truck emission reductions are underestimated, but does not cite any evidence in support of this statement. The analysis included in the draft WAIRE Menu Technical Report describes the standard emission factors from CARB's EMFAC model to calculate emission reductions from both ZE and NZE technologies. The commenter further states that the assessment that DPM emission reductions are the same between ZE and NZE technologies is incorrect, however no evidence is cited. NZE trucks are defined as those meeting CARB's lowest optional NO_x standard (currently 0.02 g/hp-hr). There are currently no diesel fueled trucks that meet this standard, and alternative fueled engines (like natural gas) are the only fuel available. By definition, Diesel Particulate Matter (DPM) is the particulate matter emitted from diesel fueled internal combustion engines.²⁸² Since trucks that meet the definition of NZE are not diesel-fueled, they do not emit DPM.

Response to Comment 13-4

Staff used several sources from the California Air Resources Board, the North American Council for Freight Efficiency, and the Feasibility Assessment for Drayage Trucks conducted by the Port of Los Angeles and Port of Long Beach to determine the total cost of ownership for trucks. These considered the 12-year useful life of trucks, fuel costs, fuel economy, lifetime maintenance costs, midlife costs, registration fees, and residual value of the trucks to calculate the WAIRE Points attributed to the cost of the truck visits. However, it is worthwhile to report that since many ZE trucks are not yet commercially available the actual price of a Class 8 ZE truck cannot be accurately predicted.

²⁸¹ <https://ww2.arb.ca.gov/resources/documents/2020-mobile-source-strategy>

²⁸² <https://ww2.arb.ca.gov/sites/default/files/classic/toxics/dieseltac/finexsum.pdf>

The commenter cites a study²⁸³ by the Union of Concerned Scientists (UCS) that states that ‘*With California’s policies and incentives*, however, the total cost of ownership is lower than diesel today for 19 of 20 vehicle scenarios examined in the three studies’. [*emphasis added*] The analysis included in the Draft WAIRE Menu Technical Report does not take into account how any incentives programs could reduce costs. As an example, in the case of ZE Class 8 trucks this could include \$120,000 from the HVIP Program.²⁸⁴ The HVIP Program currently includes \$25 million in funding for all vehicle categories it covers throughout the state.²⁸⁵ Even assuming that all funding were dedicated to South Coast AQMD Class 8 trucks going to warehouses, that would incentivize only 250 trucks. The number is expected to be considerably less because funding is for the entire state, and for many use cases unrelated to warehousing (e.g., transit buses). For comparison, in the Preliminary Draft Staff Report a scenario analysis focused on a Class 8 ZE truck-only compliance approach (Scenario 5). This analysis found that in Year 2 (the first year that Class 8 trucks are expected to be available), approximately 6,000 visits per day would be needed across the entire universe of PR 2305 warehouses to meet the collective compliance obligation. With the proposed phase-in of the rule, by Year 5 the number of visits per year would increase to about 14,000 visits per day. The level of incentive funding available is clearly not available to cover this number of trucks. Because of that, as shown in the UCS study, non-incentivized ZE trucks today are significantly more expensive to purchase, and also more expensive over time compared to their diesel counterparts (see Figures 8 and 9 from that study). While this dynamic is anticipated to change in the future due to declining battery costs, in the near term ZE technologies are not the most cost-effective option to reduce emissions. However, because warehouse operators do not need to report their costs as part of compliance with PR 2305, as those costs decline the technology is expected to become more popular due to the higher WAIRE Point totals relative to NZE counterparts.

Response to Comment 13-5

The commenters claim that NZE trucks are powered by natural gas are correct. The commenter also states that there are burdens of natural gas infrastructure on communities, however the claim is vague and it is uncertain what level of impact there is. Every natural gas fueled truck brought into service due to PR 2305 will provide a 90% reduction in NOx and an elimination of Diesel PM in the communities around warehouses.

Response to Comment 13-6

The commenter states that natural gas technologies have negative climate and health impacts and cites to a study from the European Federation²⁸⁶ as support. The natural gas engines and fuels studied in that report are not equal to natural gas engines or fuels that are certified as NZE by CARB. A study conducted by UC Riverside²⁸⁷ and the certification executive order by CARB²⁸⁸

²⁸³ <https://www.ucsusa.org/sites/default/files/2019-12/ReadyforWorkFullReport.pdf>

²⁸⁴ <https://californiahvip.org/vehicle-category/heavy-duty/>

²⁸⁵ As a point of comparison, since 2017, about \$105 million of funding has been provided for all on-road vehicles in South Coast AQMD, about \$35 million per year. <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/combine-hd-trucks-carb-biz-aqmp-presentations-1-26-21.pdf#page=69>

²⁸⁶

https://www.transportenvironment.org/sites/te/files/publications/2019_09_do_gas_trucks_reduce_emissions_paper_EN.pdf

²⁸⁷ https://ucrtoday.ucr.edu/wp-content/uploads/2018/08/CWI-LowNOx-12L-NG_v03.pdf

²⁸⁸ https://ww2.arb.ca.gov/sites/default/files/classic/msprog/onroad/cert/mdehdehdv/2020/cummins_hhdd-ub_a0210711_11d9_0d02_ng.pdf

both verify that natural gas NZE trucks have at least 90% lower NO_x emissions than diesel counterparts. Further, after factoring in the respective amounts of renewable fuels used in the state, the carbon intensity of natural gas used in transportation is about 52 g CO₂e/MJ, whereas diesel fuel is about 90 g CO₂e/MJ, representing a reduction of about 45% for natural gas trucks.²⁸⁹ Therefore, greenhouse gas emissions and NO_x emissions are significantly lower for NZE trucks than their diesel counterparts that they would replace if they were used as a compliance option for PR 2305.

Finally, the proposed stringency and phase-in schedule of the rule has been established since the comment letter was written. This proposed stringency is 0.0025 Points/WATT, which would result in approximately a 10-15% reduction in NO_x emissions, and approximately equal reductions in Diesel PM. While the reduction of greenhouse gas emissions is an important goal, it is not one of the objectives of this proposed rule. The objective of this rule is the reduction of these criteria pollutant emissions in order to assist in meeting federal and state air quality standards, to facilitate emission reductions in other programs, and to provide public health benefits to communities around warehouses. The proposed rule will meet all of these objectives.

Response to Comment 13-7

Staff understands that key information regarding stringency, the annual variable, and points were still under development in the version of the draft PR 2305 when these comments were provided. The current draft of PR 2305 states the recommended stringency to equal 0.0025 WAIRE Points per WATT. The annual variable listed in the WPCO equation corresponds to the three-year phase-in of the stringency as listed in PR 2305, Table 2.

Impacts of air pollution on communities surrounding warehouses are considered in the structure of the WAIRE Points themselves. WAIRE Points for each WAIRE Menu item were determined by calculating the NO_x emission reductions (which affects regional air pollution) as well as Diesel PM emission reductions (which affects regional and local air pollution), and the cost. Further, all warehouse operators must take actions themselves that reduce emissions or facilitate emission and exposure reductions in the communities near their warehouses. This approach will necessarily benefit disadvantaged communities as about 80% of warehouses are in communities that are in at least the worst 70th percentile as determined with the CalEnviroScreen tool (see Figure 4 of the Preliminary Draft Staff Report for a map). Because of the high overlap between the vast majority of warehouses and communities with pollution burdens, the most practical approach to reduce these impacts is to ensure that all warehouse operators must take actions to benefit their local communities.

Finally, in order to ensure that any limited transferring of WAIRE Points that may occur under the rule does not disproportionately affect local communities, any WAIRE Points transferred from a different location are discounted by the number of WAIRE Points associated with local benefits from Diesel PM reductions.

Response to Comment 13-8

The recommended stringency of 0.0025 WAIRE Points per WATT was analyzed using 18 scenarios that assumed all 2,902 of the warehouses that needed to earn WAIRE Points chose one WAIRE Menu option or a specific combination WAIRE Menu options scenario. Based on the analysis, the range of potential NO_x reductions from PR 2305 is ~2.5 - 4 tons per day above the NO_x reductions the current CARB regulations would provide. The PR 2305 reductions would also

²⁸⁹ <https://ww3.arb.ca.gov/fuels/lcfs/dashboard/dashboard.htm>

result in immediate reductions toward the 2023 and 2031 attainment goals, and provide emission reduction and public health benefits to communities around warehouses.

Response to Comment 13-9

The term “Sensitive Receptor” was not used in the draft rule language. However, sensitive sites are listed out in the WAIRE Menu (Table 3 of PR 2305) for possible locations to install minimum efficiency reporting value (MERV) 16 or greater filters filter systems or replace MERV 16 or greater filters. Warehouse facilities can earn WAIRE Points by implementing community benefits, (e.g., filter system installations) to satisfy the warehouse operator’s WPCO. Installation of MERV 16 or greater filter systems or replacement of MERV 16 or greater filters at sensitive sites with high risk levels such as residences, schools, daycares, hospitals and community centers are intended to provide a local health benefit to communities surround a warehouse by reducing community exposure and emission impacts.

Response to Comment 13-10

Onsite resting areas for workers or truck drivers were not included in the WAIRE Menu, as default values for costs, NOx reductions, or Diesel PM reductions can vary from warehouse to warehouse. However, warehouse operators could propose a project of a designated onsite rest area for workers and truck drivers as a Custom WAIRE Plan application which would be evaluated based on the requirements listed in PR 2305. If the Custom WAIRE Plan is approved, this approach could earn the warehouse WAIRE Points toward the WPCO.

Response to Comment 13-11

The mitigation fee is not designed as a “pay to pollute” alternative. The mitigation fee of \$1,000 per WAIRE Point was analyzed to be within a similar range of cost as implementing the other WAIRE Menu options in any one year for a warehouse operator. Through time, the mitigation fee is expected to be a more expensive option if warehouse operators don’t take additional actions as early investments within the rule result in later cost savings, and lower emissions. The mitigation fee is proposed to be consistent across all warehouses similar to how the stringency of the rule is consistent across all warehouses. The proposed stringency could result in mitigation fees up to about \$195,000 per year for a ‘typical’ 250,000 square foot warehouse with average levels of truck traffic, and whose operator takes no additional actions, such as encouraging or tracking any NZE or ZE trucks visiting their site.

Response to Comment 13-12

With the WAIRE Program being such a new concept, it is difficult to estimate how many warehouse operators will choose to pay the mitigation fee and how much those mitigation fee funds will total. The proposed rule language includes equal requirements regardless of warehouse location. This was done in part because about 80% of warehouses are in communities that are in at least the worst 70th percentile as determined with the CalEnviroScreen tool (see Figure 4 of the Preliminary Draft Staff Report for a map). Because of the high overlap between the vast majority of warehouses and communities with pollution burdens, the most practical approach to reduce these impacts is to ensure that all warehouse operators must take actions to benefit their local communities. This rationale for equal application of the rule across all warehouses, also supports the regional need for emissions reductions to meet state and federal air quality standards.

The WAIRE Mitigation Program that would be established if PR 2305 is approved will focus on funding NZE and ZE trucks and ZE charging and fueling infrastructure in the communities around the warehouses that paid the fee. A short description of the proposed program is included in the Preliminary Draft Staff Report at the end of Chapter 2. Additionally, more specific requirements

will be included for the Board's consideration in the resolution that would be adopted if they approve PR 2305.

Response to Comment 13-13

PR 2305 does not include onsite generation, distributed energy resources or battery energy storage in the WAIRE Menu. However, the commenter is correct that these options could support the grid and warehouse operators could submit a Custom WAIRE Plan application that includes these options, and if approved the warehouse operator may earn WAIRE Points for those Custom WAIRE Plans.

Response to Comment 13-14

As suggested by the commenter, the socioeconomic analysis will include an analysis of monetized health benefits of the rule as well as potential job gains and losses due to the proposed rule.

Response to Comment 13-15

The impact of air pollution on communities near warehouses is an important consideration, along with the added burden of COVID-19. The proposed rule is anticipated to go before the South Coast AQMD Board for its consideration in April 2021.



May 1, 2020

Via Email ONLY

Ian MacMillan
 Planning and Rules Manager
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765

Re: Comments on Draft WAIRE Menu Technical Report for Warehouse Indirect Source Rule (Proposed Rule 2305)

Dear Mr. MacMillan:

Thank you for the opportunity to submit these comments on the draft "WAIRE" menu technical report released on March 3, 2020 for the warehouse Indirect Source Rule. Undoubtedly, voluminous work has been done to get us to this point. We provide the following comments to continue to move us toward better air quality, health outcomes and clean job careers as follows:

14-1

I. The Rule Must Prioritize Zero-Emission Charging Infrastructure and Related Resiliency technologies:

The Rule should allocate points for zero emission charging infrastructure and allocate additional points for warehouses that install distributed energy resources ("DER"), such as on-site solar generation, battery energy storage and micro-grids. These related technologies will offset the costs of their fuel (electricity). DER can and will provide opportunities to peak shave, as well as provide much-needed resiliency. SCAQMD can and should help encourage warehouses to invest in clean technologies that provide cost, climate, and job creation benefits.

14-2

II. The Rule Should Prioritize Projects that are done via a Project Labor Agreement with local and targeted hiring provisions:

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Moving away from fossil-fuel dependent transportation necessitates considering workforce development in the clean, green economy. SCAQMD can encourage apprenticeship-based job creation by allocating a high point value to jobs that commit to using a Project Labor Agreement that includes features such as prevailing wage, Veteran hire, Disadvantaged Community member, and local hiring commitments. The latter (local hiring) ensures targeted efforts to ensure that the workforce is derived from communities around the warehouse, ensuring less driving by workers to get to a job site. Put simply: less workers driving from far away distances to a job site results in less emissions, specifically nitrogen oxides.

14-3

While the AQMD is considering how an Indirect Source Rule and other actions impact goods movement industry, we respectfully request it similarly consider the tremendous workforce potential these actions can have on local job creation and take a leadership role accordingly

III. The Mitigation Fee should be higher and cost-prohibitive.

The latest draft indicates a mitigation fee set at \$1000 per WAIRE point. An incredibly low fee ensures companies will likely consider the cost-benefit analysis of simply paying the fee versus taking meaningful action in the right direction to improve good air quality and simultaneously create good green jobs along the way.

14-4

Finally, any Mitigation Fees earned should be joined with the Port of Los Angeles and Port of Long Beach’s Clean Trucks Program for purposes of transitioning our goods movement trucking fleet to a zero-emission fleet.

14-5

We appreciate your consideration of these comments, and look forward to continuing to work with the Air District to strengthen the warehouse rule.

Sincerely,
Jennifer J. Kropke, Esq.
Director of Workforce and Environmental Engagement,
International Brotherhood of Electrical Workers, Local Union Eleven and National Electrical Contractors Association, Los Angeles Chapter, Labor Management Cooperation Committee

cc:

Wayne Natri
Executive Officer
South Coast Air Quality Management District

Response to Comment Letter #14 - IBEW & NECAResponse to 14-1

Thank you for your interest in the warehouse ISR development process and for bringing your comments to our attention.

Response to 14-2

The WAIRE Menu does include ZE charging and fueling infrastructure and solar panel systems. WAIRE Points may be earned for solar panel system installation and usage, the WAIRE Points calculation considered the costs of the solar panel system, and the emission reductions that can be gained by offsetting the electricity demand that would otherwise have been generated by a local natural gas fired power plant. The options on the WAIRE Menu will result in NOx and PM emission reductions, facilitate the implementation of other related rules and regulations, and promote the integration of cleaner technologies by warehouse operators. Additional onsite distributed energy resources such as onsite stationary battery systems can also be included in a Custom WAIRE Plan.

Response to 14-3

Although the proposed project labor standards suggested by the commenter are not included within the proposed rule, labor standards are being developed for the Board's consideration as part of the proposed WAIRE Mitigation Program. These could include using a skilled and trained workforce as defined in Public Contract Code section 2601 to perform such work. In addition, any recipients of WAIRE Mitigation Program incentives or funding for the installation of electric vehicle infrastructure could be required to comply with the Public Utilities Code section 740.20, subdivision (2) requirement that at least 25 percent of the total electricians working on an electric vehicle infrastructure project, at any given time, hold Electric Vehicle Infrastructure Training Program certification.

Response to 14-4

The optional mitigation fee of \$1000 per WAIRE Point is an optional compliance option to meet the WPCO, in addition to choosing options off the WAIRE Menu or submitting a Custom WAIRE Plan application. The optional mitigation fee is set to be consistent with the level of implementation of other options with the draft WAIRE Menu. The proposed stringency could result in mitigation fees up to about \$195,000 per year for a 'typical' 250,000 square foot warehouse with average levels of truck traffic, and whose operator takes no additional actions, such as encouraging or tracking any NZE or ZE trucks visiting their site. Those actions could significantly reduce or eliminate any mitigation fees paid. All options of compliance with PR 2305 will potential have both positive and negative jobs impacts. The analysis of these impacts will be included in the draft socioeconomic report.

Response to 14-5

PR 2305 is designed to work with other state and local regulations and policies, including the ports' proposed Clean Truck Rate. Trucks that go to the port commonly end up at a PR 2305 warehouse, and trucks that comply in one program will be able to comply in the other. Further, potential incentive funding provided by mitigation programs from both PR 2305 and the Clean Truck Rate program are expected to go towards the same pool of trucks.

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May 1, 2020

VIA EMAIL

South Coast Air Quality Management District
Attn: Ian MacMillan and Victor Juan
21865 Copley Drive
Diamond Bar, CA 91765

File No. 053552-0069

Re: Discussion Draft Rule 2305, Warehouse Indirect Source Rule (ISR) and Draft WAIRE Menu Technical Report

Dear Messrs. MacMillan and Juan:

Lineage Logistics (“Lineage”) is the world’s largest temperature-controlled logistics company handling the storage and distribution of significant portions of the nation’s food supply from harvest to local distribution centers. Lineage’s business operations include cold storage, packaging solutions, and transportation management for over 5,000 customers. Lineage owns and/or operates over two hundred warehouse facilities globally, including over 40 facilities within the State of California, a majority of which are within the South Coast Air Basin.

15-1

Lineage is at the forefront of efficiency and technological advances in the logistics industry, striving to operate its facilities as efficiently and sustainably as possible. The Lineage Applied Sciences team, consisting of scientists, mathematicians and engineers, designs and applies cutting-edge technology at Lineage facilities. Lineage looks forward to working with the South Coast Air Quality Management District (“District”) on promulgation and implementation of Proposed Rule (“PR”) 2305, Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions (“WAIRE”) Program (“Warehouse ISR”) and seeks an open and constructive dialogue with District Staff.

The logistics sector in Southern California represents over 580,000 jobs¹ and contributes \$224.6 billion per year of economic activity.² It is essential that the Warehouse ISR does not

15-2

¹ Institute for Applied Economics, Los Angeles County Economic Development Corporation, *Goods on the Move! Trade and Logistics in Southern California* at ii (May 2017). This total includes Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties, with roughly 90% of those jobs in Los Angeles, Riverside and San Bernardino counties.

² *Id.* at iii.

Ian MacMillan
May 1, 2020
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adversely impact the logistics sector’s ability to maintain and grow those jobs and sustain their critical role in the region’s economy.

15-2
(continued)

As part of the PR 2305 rulemaking, the District released preliminary draft rule language for PR 2305 on November 13, 2019. The District also released the Draft WAIRE Menu Technical Report (“Technical Report”) on March 3, 2020, and requested comments by April 3, 2020. Due to the ongoing COVID-19 crisis, that comment deadline was extended to May 1, 2020. Lineage would like to thank the District for extending the comment deadline due to these unusual and trying circumstances. As the logistics industry is designated as one of a handful of critical infrastructure sectors, Lineage has continued its work in the face of this global pandemic to ensure our customers’ products are safely and efficiently stored and distributed, contributing to the security of the world’s food supply chain.

15-3

Lineage respectfully submits the following comments on the Technical Report and the preliminary draft rule language for PR 2305.

I. DRAFT WAIRE MENU TECHNICAL REPORT

The Technical Report provides the underlying basis for how WAIRE Point values are calculated for each action on the WAIRE Menu. PR 2305 operates by requiring each warehouse operator to accumulate sufficient WAIRE Points to meet its WAIRE Points Compliance Obligation (“WPCO”) for the annual compliance period. As such, proper calculation of WAIRE Points is critical in two respects. First, the ability to earn WAIRE Points for particular activities and capital expenditures provide a key incentive for warehouse operators. Second, environmental benefits sought by PR 2305 could be diminished if the WAIRE Menu incentivizes inefficient activity and investment.

15-4

A. Role of Utility Incentives

Section 1b of the Technical Report states that the costs for each WAIRE Menu action do not include incentive funds. Certain available incentive funds are limited by statute or regulation such that they may only be used for actions that are above and beyond any existing regulatory requirements, and thus may not be used to purchase equipment for compliance with the Warehouse ISR.³ Lineage requests clarification that this limitation depends on the source of the incentive funds, and it is not a limitation of the Warehouse ISR itself that incentive funds may not be used to earn WAIRE Points. For instance, certain facilities may receive incentives or rebates from electric or gas utilities and wish to use those funds to purchase equipment that would earn WAIRE Points. Lineage would like to ensure that if the utility does not place restrictions on how the funds may be used, those funds may be put toward WAIRE Menu items to earn WAIRE Points.

15-5

³ See Health & Saf. Code §§ 44281(b) (Carl Moyer Memorial Air Quality Standards Attainment Program), 44391.4(a) (Greenhouse Gas Reduction Fund), 44271(c) (Alternative and Renewable Fuel and Vehicle Technology Program); 13 CCR § 2353(c)(4) (AB 118 Air Quality Improvement Program Funding Plan).

Ian MacMillan
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B. When Are WAIRE Points Earned?

Certain equipment that could be purchased and installed at a warehouse to earn WAIRE Points and comply with the WPCO may require a significant lead-time between the time of purchase and the time of delivery. WAIRE Menu items for installing onsite zero-emission (“ZE”) charging or fueling infrastructure include three milestones to account for the lengthy process and to award WAIRE Points for partial completion of installation during a compliance year.

However, it is unclear when WAIRE Points are earned, and thus available for compliance, for other potentially long-term items, such as installing onsite energy systems. Lineage proposes that all current and future WAIRE Menu items that involve purchasing equipment earn the associated WAIRE Points at the time of purchase, regardless of the time for delivery, which is not fully within the control of the warehouse. For complex WAIRE Menu items that involve purchase, construction, and permitting similar to installing ZE charging infrastructure, Lineage requests that the District similarly break the WAIRE Menu item down into milestones to provide for WAIRE Points throughout the process. This segmentation would encourage these larger-scale WAIRE Menu items by rewarding warehouse operators for incremental progress achieved during a compliance period.

15-6

C. Staff Analysis of Annual Average Cost of Electricity

The costs of using charging stations provided in Table 17 of the Technical Report appear to represent a simplified accounting of energy costs. The given scenarios assume fleets of three (3) to twenty (20) trucks utilizing 150-kilowatt (“kW”) chargers, with equal amounts of charging in each time window. The actual energy consumption of large warehouse facilities with dozens to hundreds (depending on Facility throughput) of different vehicle visits per day will be much more complex.

Demand charges will be important for the loads considered in these scenarios, and it is not clear from the Technical Report whether these charges have been included. Although the SCE TOU-EV-9 rate schedule currently waives demand charges until March 1, 2024, demand charges will be phased-in after that time.⁴ Additionally, the SCE TOU-8-RTP rate schedule is more nuanced than the “on-peak,” “mid-peak,” and “off-peak” breakdown presented in Table 17, as the prices for a given hour of a given day are set based on the previous day’s temperature in Los Angeles. For example, the listed demand charge for SCE’s TOU-8-RTP rate schedule is \$12.61/kW. Applying that demand charge to the aforementioned scenarios presented in the Technical Report would result in demand charges of approximately \$5,674 to \$37,830/month, assuming the TOU-EV-9 rate schedule will be similar to the TOU-8-RTP rate schedule.

15-7

Lineage respectfully requests additional detail on the charging scenarios used to determine the annual average cost of electricity. In particular, Lineage requests the

⁴ See SCE Schedule TOU-EV-9, March 22, 2019 (available at: https://library.sce.com/content/dam/sce-doclib/public/regulatory/tariff/electric/schedules/general-service-&-industrial-rates/ELECTRIC_SCHEDULES_TOU-EV-9.pdf).

Ian MacMillan
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comprehensive set of information used to arrive at the costs presented in Table 17 of the Technical Report. If Lineage were to receive the requested information, then it would be happy to calculate a more precise estimate of demand charges and share that estimate with the District.

15-7
(continued)

II. PROPOSED ADDITIONAL ITEMS FOR WAIRE MENU

Lineage has vast experience and has invested extensive resources in identifying the most efficient equipment and modes of operation at their warehouses. Based on Lineage’s experience designing and applying cutting-edge technology at its facilities, Lineage would like to propose additional items for the WAIRE Menu. These actions and investments will reduce emissions and accordingly should be eligible to earn WAIRE Points. Lineage welcomes further discussions with the District to discuss these proposals, and any technical questions, in more detail.

15-8

A. Installation and Use of Non-Diesel Emergency Generation

In order to address the growing wildfire risk in California, and to reduce the likelihood of utility infrastructure igniting fires, the State’s investor-owned utilities have begun to implement Public Safety Power Shut-offs (“PSPS”) to protect public safety when fire risk is high. The nature of Lineage facilities is that the goods stored in its warehouses are required to be maintained in cold storage to meet food safety standards, and such storage conditions require power. As the occurrence of PSPS becomes more common, warehouse owners and operators, including Lineage, are currently and will continue to be required to invest in backup generation systems that were not previously necessary.

15-9

While diesel-fueled emergency generators are common, Lineage is evaluating potential non-diesel emergency generation systems. Such systems are efficient and have lower emissions than diesel generators. However, they also are significantly more expensive than diesel-fired systems. Lineage proposes that warehouse owners or operators who choose to invest in non-diesel emergency generation systems should earn WAIRE Points in order to incentivize the installation of these lower-emitting generation systems despite their increased cost. Lineage proposes WAIRE Menu items for: (1) purchase and installation of a non-diesel emergency generator, based on the incremental cost beyond that of a traditional diesel-fired system; and (2) usage of the non-diesel emergency generator, based on the annual hours of operation and the quantifiable reductions in nitrogen oxides (“NOx”) and diesel particulate matter (“DPM”) compared to equivalent operation of a diesel-fired system.

B. Measures to Improve Efficiency of Refrigeration and Reduce Facility Power Consumption

Significant emissions can be associated with the energy consumption of cold storage warehouses depending on the mix of generation sources on the grid at the time energy is consumed. One of the main drivers for proposing the Warehouse ISR is the need for greater NOx reductions in the South Coast Air Basin to meet state and federal ambient air quality standards.⁵ The most recent version of the WAIRE Menu would award WAIRE Points for

15-10

⁵ See SCAQMD, Warehouse ISR Working Group Presentation at 9 (March 3, 2020).

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installation and use of onsite solar panel energy systems, though the quantity of WAIRE Points remains “to be determined.” Lineage assumes the WAIRE Points will be assigned based on the emissions reductions realized by utilizing onsite solar power that displaces power from the electricity grid. Just as use of onsite solar panels will reduce a warehouse’s grid electricity consumption and thereby reduce indirect emissions from electricity generating facilities, reductions in a warehouse’s electricity consumption similarly will achieve regional emission reductions.

Lineage has studied several aspects of its operations that could deliver energy savings. For instance, the primary point of heat entry into a refrigerated warehouse, which then requires additional thermal work by the refrigeration system to maintain the necessary temperature, are warehouse dock and room doors. Lineage has performed studies to assess the thermodynamic impact of cold storage doors, and developed the means to improve doors and reduce facility power consumption, albeit at significant cost.

Additionally, blast freezing is an energy-intensive process that occurs at the beginning of the supply chain, shortly after harvest. Lineage has been using airplane and automobile design methodologies to increase the efficiency of blast cells at its facilities. The benefits of this method for blast freezing are that it cycles trucks faster through the facility, reduces overall facility power consumption, and decreases food waste.⁶ Improved blast cells for more efficient freezing have many emission-reducing benefits, but adoption of such improved technology would not currently earn WAIRE Points.

15-10

Lineage proposes the addition of two new WAIRE Menu items to account for the emission reductions due to reducing overall facility energy consumption at cold storage facilities. First, Lineage proposes a WAIRE Menu item to earn WAIRE Points for the installation of equipment that will increase facility energy efficiency and reduce energy demand. This item would be based on the incremental cost of the high-efficiency investment, such as the higher cost of efficient room doors compared to a standard room door.

Second, Lineage proposes a WAIRE Menu item for usage of the high-efficiency improvements. Just as the use of onsite solar energy systems would earn WAIRE Points based on the kilowatt-hours of energy consumed onsite, and thus reducing an equivalent amount of demand from the grid, Lineage proposes that the WAIRE Menu include an item based on improved facility energy efficiency, measured by normalizing facility energy consumption by facility square footage, which is a metric already utilized by the U.S. Energy Information Administration (“EIA”) in their periodic Commercial Buildings Energy Consumption Survey to compare cold storage warehouses of different sizes.⁷ This measurement would focus on relevant

⁶ Reducing food waste reduces emissions associated with growing, harvesting, and transporting food. In addition, reducing food waste avoids methane emissions from landfills where wasted food often decomposes anaerobically.

⁷ See <https://www.eia.gov/consumption/commercial/>.

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warehouse load such as for refrigeration, but exclude any increased electricity consumption due to electric vehicle charging and utilization of transport refrigeration unit (“TRU”) plugs.

The WAIRE Menu item would incentivize energy efficiency by classifying facilities into energy performance levels according to annualized kWh per square foot, awarding more WAIRE Points to higher performing facilities. Facilities are able to achieve higher energy performance ratings, and thus more WAIRE Points, by seeking means through which to reduce their energy usage. The WAIRE Points would be calculated based on NOx emissions reductions (“Regional Benefit”) and DPM emissions reductions (“Local Benefit”) created by energy savings, using the same methodology that the District proposes for calculating WAIRE Points earned by the usage of onsite solar energy systems.⁸

15-10
(Cont'd)

C. Expanding “Battery Storage” to “Energy Storage”

The WAIRE Menu currently includes items for both installation and use of battery storage. Lineage requests that this item in the WAIRE Menu be broadened beyond traditional battery systems (e.g., lithium-ion batteries) to include the different types of energy storage, including thermal energy storage.

Thermal flywheeling is a means of scheduling energy consumption by essentially turning the cold storage warehouse into a thermal battery. The warehouse is super-cooled during off-peak hours – the thermal battery “charging.” During times of peak energy demand on the grid (particularly times when natural gas peaker plants are operating), the warehouse is able to lower or turn off the refrigeration system, relying on the “excess cold” of the warehouse contents to maintain temperatures in compliance with food quality and safety requirements – the thermal battery “discharging.” This flywheeling enables a cold storage facility to avoid drawing power from the grid during periods of peak demand—and peak emissions—on the grid.

15-11

While typically utilized to reduce energy costs by avoiding peak electricity rates, thermal flywheeling could be deployed to also shift energy usage to times of day when the mix of energy sources on the grid is cleanest, and away from times of day when emissions associated with the grid are highest. Cold storage warehouses require significant amounts of energy for refrigeration. Based on the estimated square footage of cold storage warehouses⁹ and the EIA’s reported energy consumption metrics for “large cold storage areas,”¹⁰ cold storage warehouses consume approximately 200,000,000 to 300,000,000 kWh per year in the South Coast Air Basin. Utilizing those warehouses as thermal batteries would achieve substantial regional emission reductions. The annualized metric for thermal energy storage could be the same as for lithium-ion battery storage, with a warehouse operator presumably reporting to the District the capacity

⁸ The Technical Report does not address the calculation methodology for “Usage of onsite energy systems” and the Point values in the WAIRE Menu currently are “TBD.”

⁹ See http://www.scag.ca.gov/Documents/Task2_FacilityInventory.pdf.

¹⁰ See <https://www.eia.gov/consumption/commercial/data/2012/c&e/cfm/c14.php>.

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of the battery installed, the charge/discharge rate, and the kWh per year of usage.¹¹ In other words, WAIRE Points for thermal energy storage could be awarded according to the same methodology that the District ultimately adopts for lithium-ion battery storage.

15-11
(Cont'd)

Lineage welcomes discussions with the District regarding the potential for cold storage warehouses across the South Coast Air Basin to use thermal flywheeling to reduce regional emissions and how such actions could generate WAIRE Points.

III. WAIRE MENU SHOULD ALLOW FOR EVOLVING TECHNOLOGY

A mechanism should be included in the WAIRE Menu that will allow warehouse operators to utilize new, or newly affordable, emissions reduction technology. As it stands, the WAIRE Menu is static and means of compliance are limited to implementing pre-determined items. Over time this approach is likely to become inefficient and more costly than necessary, and potentially unworkable. As technology evolves, a process for updating the WAIRE Menu over time will allow facilities the flexibility to choose the most efficient and affordable emission reduction actions.

15-12

One potential approach is to use the existing framework that District Staff is considering for calculating WAIRE Points and apply it to novel emission-reducing actions over time. Recent Staff presentations have proposed a calculation methodology that would assign the WAIRE Menu item's cost, Regional Benefit, and Local Benefit to a "bucket" of WAIRE Point values, which are summed for a total WAIRE Point value for that item.¹² A mechanism could be built into the WAIRE Menu that would allow an operator to approach the District with a proposed action, documentation of its cost, documentation of NO_x and DPM emission reductions, and proposed WAIRE Points based on the established and pre-approved calculation methodology. In this way, the WAIRE Point values assigned to cost and emission reductions are pre-approved through the PR 2305 rulemaking process, and the flexibility of allowing for novel WAIRE Menu items can be achieved without overly taxing District resources.

15-13

Lineage believes that some mechanism to account for the evolution of technology, and the changing costs of compliance, is necessary and would welcome discussions with the District on how best to achieve this flexibility.

IV. REMOVAL OF LIMITATIONS ON TRADING AND BANKING

The purposes of the Warehouse ISR can best be achieved if the limitations on trading and banking of WAIRE Points are removed or modified. These modifications can be achieved without reducing the effectiveness of the PR 2305, will minimize overall costs of compliance, and all WAIRE Points used for compliance would continue to represent real, surplus emission reductions.

15-14

¹¹ Lineage notes that the discharge rate of a thermal battery likely is not subject to the same constraints as discharge rates for lithium-ion batteries.

¹² See WAIRE Menu Technical Report_DRAFT_3-3-20.pdf at p. 3.

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Limiting a warehouse operator's ability to comply with the Warehouse ISR by restricting the trading and banking of WAIRE Points does not ensure greater emission reductions; it only serves to increase the cost of compliance. Time and again it has been shown that market-based mechanisms can effectively and efficiently achieve emission reductions. SCAQMD's own RECLAIM program, a market-based compliance program for the largest sources of NO_x and oxides of sulfur, achieved greater reductions at RECLAIM sources than non-RECLAIM sources. In the period of 1994 – 2012, reported emissions of NO_x decreased by 69% at RECLAIM sources, and 44% at non-RECLAIM stationary sources.¹³

The ability to trade compliance instruments in cap-and-trade programs has shown numerous benefits to the regulated community as well as consumers, in particular the ability to achieve the set amount of emission reductions at the lowest cost.¹⁴ Both the US Acid Rain Program and the EU Emissions Trading System have demonstrated in practice that emission reductions can be achieved at a lower cost than expected when trading is allowed and encouraged.¹⁵ Such trading allows individual facilities to assess whether the cost of purchasing a compliance instrument (similar to WAIRE Points) is more or less economical than actions they can take themselves that would achieve the same amount of emissions.

Trading mechanisms in the Warehouse ISR will set a price signal against which warehouse operators can measure the WAIRE Menu items that are potentially feasible at its facility, and thus determine the most economical way to meet its WPCO. The level of overall emission reductions is achieved at the lowest cost possible because the WAIRE Point price provides an economic incentive to find the mix of on-site emission reductions and WAIRE Point purchases that minimize costs.¹⁶

Lineage understands that the District and other stakeholders may have concerns that trading could reduce the benefits of PR 2305 in communities in close proximity to warehouses under the theory that emission reduction activities may not be conducted at such facilities. To alleviate these concerns, Lineage proposes that the District: (1) prohibit trading of any WAIRE Points earned from Local Benefit; and (2) require each warehouse operator to satisfy a specified percentage of its WPCO using WAIRE Points earned from Local Benefit. This would require that operators and the District track two buckets of WAIRE Points – those from the "Cost" and "Regional Benefit" columns ("Tradable") in the WAIRE Menu, and those from the "Local

15-14
 (Cont'd)

¹³ John Heintz and Aron Potash, *Southern California's Once Groundbreaking Cap and Trade Program is Now Riding Towards the Sunset*, 26 ENVTL. LAW NEWS 35, 36 (2017).

¹⁴ See IETA, *Benefits of Emissions Trading*, <https://www.ieta.org/resources/Resources/101s/Benefits%20of%20Emissions%20Trading.pdf> (March 2019).

¹⁵ *Id.*

¹⁶ Mac Taylor, Legislative Analyst's Office, *Cap-and-Trade Revenues: Strategies to Promote Legislative Priorities 10-11* (Jan. 21, 2016).

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Benefit” column (“Non-Tradable”). Thereafter, only Tradable WAIRE Points could be traded to other operators or warehouses.¹⁷

15-14
 (Cont'd)

To ensure emission reduction benefits to local communities, at the end of each compliance year a warehouse operator would need to satisfy a specified percentage of its total WPCO with Non-Tradable Points, and could satisfy the remaining portion of the WPCO using WAIRE Points earned on-site or purchased Tradable Points from other warehouse owners or operators. In this way, the local benefits of PR 2305 are protected, while allowing trading to help drive emissions reductions at the lowest cost.

Below is a table of requested modifications to PR 2305 that would facilitate compliance flexibility for warehouse operators, increasing the likelihood that PR 2305 achieves its regulatory goals.

15-15

PR 2305 Citation	Current Content	Lineage Recommendation	Reasoning
(d)(3)(A)	Allows a warehouse operator to transfer excess WAIRE Points in a given compliance year to another warehouse under the same operational control	Allow for transfer to owners or operators in other warehouses under different operational control, subtracting WAIRE Points earned from Local Benefit	Operational control should not limit the trading of WAIRE Points. Free trading among warehouse operators will encourage more numerous, larger, and earlier actions to earn WAIRE Points, and should be encouraged.
(d)(3)(B)	Allows a warehouse operator to bank excess WAIRE Points in the same warehouse in any of the next three compliance years	Allow banking of WAIRE Points without a temporal limit, subject to the requirement that the banked WAIRE Points be surplus when used for compliance.	Certain WAIRE Menu items may provide substantial emission reductions and more WAIRE Points than a warehouse operator requires. A temporal limit of three years may eliminate the incentive to take larger actions if the warehouse operator is not able to utilize all of the WAIRE Points within three years.

¹⁷ Lineage notes that Cost, Local Benefit, and Regional Benefit of WAIRE Menu likely will be tracked for purposes of compliance with the Air Quality Management Plan (AQMP). Therefore, the incremental demand on District Staff resources would be marginal and outweighed by the economic benefits trading would accrue.

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PR 2305 Citation	Current Content	Lineage Recommendation	Reasoning
(d)(3)(C)	Allows a warehouse owner to earn WAIRE Points or have WAIRE Points transferred to them from an operator in the same warehouse; also allows a warehouse owner to transfer WAIRE Points to any operator in the warehouse where the WAIRE Points were earned, within three years	Allow warehouse owners to transfer WAIRE Points to any owner or operator, even if unrelated to the owner, in any future compliance year. If the WAIRE Points are utilized at a different warehouse, subtract WAIRE Points earned from Local Benefit.	For the reasons stated above, free trading among different warehouse operators and the ability to bank WAIRE Points over time will encourage more numerous, larger, and earlier actions to earn WAIRE Points and thus achieve greater emission reductions.

15-15
 (Cont'd)

V. POTENTIAL OVERLAP WITH CARB TRU REGULATION

The California Air Resources Board (“CARB”) currently is promulgating a new TRU Regulation that would apply to warehouses or distribution centers with a building size greater than 20,000 square feet (“Applicable Facilities”). The most likely means of compliance with the TRU Regulation for warehouse will be the installation of TRU Plugs, and to ensure that Trailer TRUs and TRU Generator Sets on-site utilize those TRU Plugs when stationary for more than 15 minutes.

15-16

The majority of Lineage’s facilities in California are in the South Coast Air Basin. In order to assess its regulatory burden and means of compliance with all relevant state and local regulations, Lineage requests clarification regarding the potential overlap between the TRU Regulation and the Warehouse ISR. At what point would an action become ineligible for WAIRE Points because the District would interpret it to be an “action or investment required by a separate USEPA, CARB, or South Coast AQMD regulation during the compliance year”?¹⁸

For instance, facilities subject to both Warehouse ISR and the TRU Regulation may purchase and install TRU Plugs. However, it is not clear at what point such an action and investment would be considered “required” for compliance with the TRU Regulation, and thus ineligible for WAIRE Points. Would submitting a compliance plan to CARB stating that the facility intends to comply with the TRU Regulation by installing TRU Plugs be enough to render that action no longer eligible for WAIRE Points?¹⁹ Or would the action be “required” by CARB

¹⁸ PR 2305(d)(2)(A).

¹⁹ See TRU Regulation, Discussion Draft Section 2478.14 (stating that by December 31, 2022, Applicable Facility Owners shall submit a compliance plan to CARB).

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only once the Applicable Facility is required to provide infrastructure for TRUs to utilize a mode of Zero-Emission Operation?²⁰

15-16
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Additionally, the draft WAIRE Menu released as part of the WAIRE User Calculator on March 3, 2020, notes that for the WAIRE Menu Item “Use onsite ZE charging or fueling infrastructure” the reporting metric is “kWh of dispensed electricity beyond CARB requirements.” Lineage respectfully requests clarification as to what dispensed electricity would be “beyond CARB requirements.”

15-17

VI. CONCLUSION

We would like to thank the District for this opportunity to submit comments on the Draft WAIRE Menu Technical Report and PR 2305. Lineage looks forward to continued collaboration with District Staff on this rulemaking.

15-18

Best regards,



Joshua T. Bledsoe
Latham & Watkins LLP

Response to Comment Letter #15 Lineage Logistics – Draft Technical DocumentResponse to Comment 15-1

Thank you for your interest in the warehouse ISR development process and for bringing your comments to our attention. The comments and dialogue throughout the rulemaking process have resulted in improvements to the proposed rule.

Response to Comment 15-2

Potential economic impacts of PR 2305 and PR 316 will be analyzed and available for public review in the socioeconomic report. A supporting study conducted by IEc and commissioned by South Coast AQMD found that the warehousing industry in the region is robust (similar to the LAEDC study cited by the commenter). The IEc study found that the proposed rule would not result in any relocation of warehousing outside of South Coast AQMD. Further, the significant growth in warehousing is not projected to decline and potential impacts to industry take this growth into account.

Response to Comment 15-3

Thank you for your interest in the warehouse ISR development process and for bringing your comments to our attention.

Response to Comment 15-4

The commenter points out the importance of the underlying calculation in the draft Technical WAIRE Menu Report. This report was provided to stakeholders early in the process to solicit feedback due to its importance in establishing the WAIRE Points system.

Response to Comment 15-5

PR 2305 does not prohibit the use of incentive funds. Individual incentive funding programs themselves each have their own prohibitions, including how those funds can or cannot be used to comply with regulations. Warehouse operators are encouraged to use incentive funds to lower the purchase costs if allowed by the incentive program. Warehouse operators (and owners who opt in) should consult with the incentive programs they are seeking funding from to ensure funds can be used with PR 2305, should it be approved by the Board.

Response to Comment 15-6

The commenter correctly characterizes how WAIRE Points may be earned for specific milestones for the installation of ZE charging infrastructure. Other infrastructure projects in the WAIRE Menu do not include these milestones due to their expected quicker delivery times, including for solar and hydrogen fueling. For more complex projects that might be carried out that are not included in the WAIRE Menu, a Custom Plan application would need to be submitted and approved before Points could be earned. This Custom Plan could include specific milestones similar to those described for ZE charging infrastructure, if appropriate for the project that is proposed.

Response to Comment 15-7

The rates shown include full demand charges and time of use schedules to the extent they are available. SCE has not yet established the demand charges it may apply in the future for TOU-EV-9, and an estimate would therefore be speculative. Different utilities had different tariff schedules and different rates, however an approximate average scenario and cost was used to calculate the WAIRE Points attributed to the WAIRE Menu options. Due to the variation in demand charges overlaid on time of use costs, there can be a wide range in potential monthly costs. However, the warehouse operator may have some flexibility as they can potentially time their charging to lower their costs. Finally, potential Low Carbon Fuel Standard revenue was not included in any estimates. These revenues can be substantial, (above \$0.10/kWh), reducing costs potentially more than half.

Response to Comment 15-8

In part due to comments received from this stakeholder, PR 2305 was modified to include the option for warehouse owners and operators to propose a Custom WAIRE Plan to comply with PR 2305 (see PR 2305, Section (d)(4)). A Custom WAIRE Plan contains actions not included in the existing WAIRE Menu, which warehouse owners and operators can propose to meet their WPCO. In order to achieve WAIRE Points, warehouse owners and operators must show how a proposed Custom WAIRE Plan will achieve quantifiable, verifiable, and real NOx and DPM emission reductions, and meet all the requirements as outlined in PR 2305 Section (d)(4). Thus, a Custom WAIRE Plan provides opportunities to pursue flexible solutions to comply with PR 2305, and accommodate new developments in technology. WAIRE Points may only be earned from approved Custom WAIRE Plans.

Response to Comment 15-9

Staff understands the importance of backup generation systems in warehouse operations, particularly those for cold storage warehouses that must use electricity to maintain certain temperatures. There are no back up generation systems listed in the WAIRE Menu, however if there are existing non-alternative fueled back up generation systems that could reduce emissions relative to diesel fueled engines, then a Custom WAIRE Plan application could be submitted and implemented to earn WAIRE Points if approved.

Response to Comment 15-10

Cold storage warehouse facilities are significant users of electricity and can reduce air pollutant emissions from fossil fueled power plants via reduced power consumption and energy generation choice. The proposed methods to reduce onsite electricity consumption is best addressed as a Custom WAIRE Plan, which would need to be approved prior to being able to earn any WAIRE Points. The Custom WAIRE Plan approach was included in part due to suggestions like those made in this comment to allow flexibility for warehouse operators to take actions unique to their facility.

Response to Comment 15-11

PR 2305 has been revised since the date of this comment letter; the most recent version of PR 2305 no longer includes battery storage as a WAIRE Menu action. However, onsite energy storage systems, including the type proposed by the commenter can be included in a Custom WAIRE Plan application. A Custom WAIRE Plan contains actions not included in the existing WAIRE menu, which warehouse owners and operators can propose to meet their WPCO. Thermal flywheeling

could be included in a Custom WAIRE Plan, provided it meets all PR 2305's requirements as outlined in Section (d)(4) of PR 2305's rule language.

Response to Comment 15-12

PR 2305 includes the option for warehouse owners and operators to propose a Custom WAIRE Plan to comply with PR 2305 (see PR 2305, Section (d)(4)). A Custom WAIRE Plan actions and investments would include actions to reduce emissions that are not included in the existing WAIRE Menu, and that go above current regulatory requirements. Warehouse owners and operators can propose a Custom WAIRE Plan that is specific to their warehouse, and once the Custom WAIRE Plan is approved WAIRE Points could be earned to meet the warehouse operator's WPCO. In order to achieve WAIRE Points, warehouse owners and operators must show how a proposed Custom WAIRE Plan will achieve quantifiable, verifiable, and real NO_x and DPM emission reductions, and meet all the requirements as outlined in PR 2305 Section (d)(4). Thus, a Custom WAIRE Plan provides opportunities to utilize new or newly affordable solutions to comply with PR 2305.

If PR 2305 is approved, South Coast AQMD staff anticipates bringing annual status reports to the Mobile Source Committee to discuss implementation of the WAIRE Program. If technologies have progressed substantially beyond the currently proposed WAIRE Menu items, staff will seek direction from the Board on future steps during these updates.

Response to Comment 15-13

The WAIRE Program was designed to be simple and allow for flexibility. The commenter's suggestion in this comment is reflected in the modification to the proposed rule that now allows for Custom WAIRE Plans to earn WAIRE Points upon approval. The methodology for calculating WAIRE Points in a Custom WAIRE Plan is outlined in the WAIRE Program Implementation Guidelines, as included with the PDSR (see PR 2305, Section (d)(4) for all Custom WAIRE Plan requirements).

Response to Comment 15-14

The WAIRE Program was specifically designed not to be a crediting system, so as to ensure maximum actions in communities near warehouses. The original approach in PR 2305 included a crediting and trading scheme, however many stakeholders opposed this approach. They also noted that South Coast AQMD was winding down its RECLAIM cap-and-trade program due in part to concerns that local communities around facilities were not experiencing sufficient levels of emissions reduction. At that time the proposed crediting-trading rulemaking approaches being explored that were similar to the suggestion by the commenter were scrapped in favor of the current menu-based points system. Limited transferring of points is still allowed to provide some flexibility, however only in instances of overcompliance in any one compliance year.

Response to Comment 15-15

The commenter lists three potential mechanisms to allow additional trading of WAIRE Points within PR 2305. See Response to Comment 15-14. In addition, the commenter suggests that hypothetically additional emission reductions could be achieved with more flexibility in trading, however no specific examples are provided. It is therefore unclear as to whether any additional emission reduction would occur. In addition, the added level of complexity proposed by this comment would pose significant administrative burden on South Coast AQMD and the regulated

community, and would likely be confusing to the public. For all these reasons, the proposed suggestions have not been included in PR 2305.

Response to Comment 15-16

CARB's proposed TRU regulation has been modified since the comment letter was submitted.²⁹⁰ The current CARB concept will focus on ZE TRU trucks (instead of trailers). A later regulation may focus on ZE trailer TRUs, however that rulemaking is not expected until at least 2023. One potential overlap between CARB's current proposal for ZE TRU trucks and PR 2305 relates to the phase-in schedule for fleets. In one case, if a warehouse operator owns a fleet of TRU trucks and submits a Custom WAIRE Plan to convert that fleet to ZE, the implementation schedule in the Custom Plan would need to show early and/or extra compliance beyond CARB's requirements. For example, CARB is currently proposing fleets to turn over 15% of their trucks to ZE TRUs per year starting at the end of 2023. If a Custom Plan included a transition of 20% per year, then the additional 5% could earn WAIRE Points. As a different example, if CARB does not require TRU charging infrastructure to be used, then any kWh of electricity dispensed from TRU plugs at a PR 2305 warehouse could earn WAIRE Points. The specifics of CARB's proposed rule will ultimately determine any potential overlap with PR 2305 if both rules pass. South Coast AQMD staff will continue to coordinate with CARB staff to ensure that there is a common understanding of each other's programs.

Response to Comment 15-27

PR 2305 has been revised since this comment letter date; the most recent version of PR 2305 uses a reporting metric for use of onsite ZE charging or fueling infrastructure of kilowatt-hours (kWh) of dispensed electricity, without referring CARB requirements in the Menu.

Response to Comment 15-28

Thank you for your interest in the warehouse ISR development process and for bringing your comments to our attention.

²⁹⁰

<https://ww2.arb.ca.gov/sites/default/files/2021-01/Informational%20Document%20on%20Changes%20to%20TRU%20Rulemaking.pdf>

May 8, 2020

Ian MacMillan, Manager
South Coast Air Quality Management District
2165 Copley Dr.
Diamond Bar, CA 91765



Submitted Electronically

Dear Mr. MacMillan:

Thank you for the opportunity to submit comments on the South Coast Air Quality Management District Air Quality Management District (SCAQMD) Draft WAIRE Menu Technical Report.

16-1

First, we would like to thank SCAQMD for extending the comment period in response to the ongoing COVID-19 crisis. We are glad for the opportunity to submit technical comments, however, the CTA continues to have serious concerns about the legality and efficacy of the proposed rule. These comments should not be construed to indicate support or an endorsement of this flawed approach.

Furthermore, we submit these comments in the midst of a generational economic crisis.

COVID-19 Crisis is Unprecedented

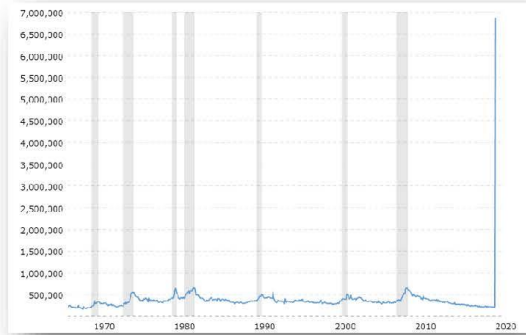
The still unfolding COVID-19 pandemic and associated economic crises are unlike anything our State and Nation have faced in its history. While the full scope of the economic impact from this sudden, unplanned shuttering of large swaths of commerce is yet to be fully understood, there are some clear warning signs already emerging.

16-2

As of mid-April 2020:

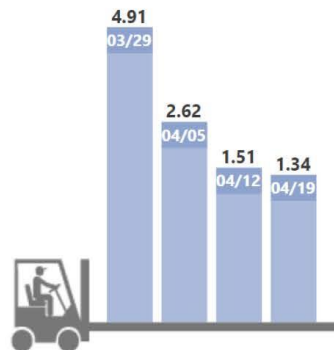
- 30 million Americans have filed for initial unemployment since mid-March. The 4-week moving average, which removes week-to-week volatility, jumped to an all-time high of 5.509 million, while continuing jobless claims hit a record 11.976 million in the week ended April 4th.

Fig. 1: Initial Jobless Claims 1967–2020 *Note: shaded regions = recessions*
 (Source: Macrotrends.net)



16-2
 (cont'd)

Fig. 2: Load-to-Truck Ratio (Source: DAT)
National Load-to-Truck Ratio



- After a several week-long spike in demand, general economic conditions have taken its toll on freight demand, with demand and rates falling precipitously.
- CTA has been made aware of furloughs already occurring in the trucking industry.
- Market analyst IHS estimates that 2020 Class 8 tractor sales will fall by 50% compared to 2019¹. How quickly the economy will recover is dependent on many factors which cannot be easily predicted at this time. The Legislative Analyst Office² preliminary assessment states that California is already in a recession and forecasts a possible “L-shaped” recovery marked by prolonged depressed economic activity and high unemployment.

¹ <https://www.ttnews.com/articles/commercial-vehicle-production-fall-20-globally-ih-says>

² <https://lao.ca.gov/handouts/FO/2020/Preliminary-Assessment-of-the-Economic-Impact-of-COVID-19-041620.pdf>

- The Department of Finance (DOF) projects a \$54.3 billion budget deficit through FY 20-21. DOF states that: “The rapid onset of the COVID-19 pandemic has had an immediate and severe impact on the global, national, and state economies. In California, COVID-19 has led to the following:
 - In the last one-week reporting period, nearly 478,000 claims were filed in California for state and federal unemployment benefits. Since mid-March, more than 4.2 million claims have been filed.
 - Job losses that have occurred disproportionately in the lower-wage sectors of the economy—amplifying the wage disparity that existed before the pandemic. Finance projects that the 2020 unemployment rate will be 18 percent, a much higher rate than during the Great Recession.”³

16-2
(cont'd)

Technical Comments (by Section)

Please see the below substantive comments on the Draft WAIRE Menu Technical Report.

16-3

Section 1a) WAIRE MENU ANNUALIZED UNITARY METRICS AND BINS

- Please explain the rationale of the relative weight given to NOx vs. PM reductions. Given the use of Carl Moyer Guidelines throughout the document, it is of note that the Carl Moyer Program applies a 20x weighting factor for PM reductions⁴ while the proposed WAIRE program would apply a 100x weighting factor to NOx reductions.
- AQMD’s proposed point system includes specific points for specific emission reduction technologies. However, there is no clear avenue or method for new or emerging technologies that may also reduce emissions. The proposal should create a clear and expedient pathway for allowing new technologies to be included in scheme without adding unnecessary barriers or hurdles.

16-4

Section 1b) COSTS

- Please elaborate on why staff believes NZE/ZE trucks purchased with restricted use state grants, such as the Carl Moyer Program, would be able to obtain WAIRE points for the usage, but not purchase, of that vehicle? Programs such as Carl Moyer typically have minimum annual usage for the life of the contract. Any usage up to the required annual minimum miles would not be considered surplus for the purposes of such a determination. And requiring such a determination by regulated entities would be infeasible for the purposes of this program.

16-5

Section 1c) REGIONAL EMISSION REDUCTIONS:

- What is the justification for using the Optional Advanced Technology Moyer cost-effectiveness threshold as the basis for calculating the value of WAIRE points? We are not aware of any statutory authority to use this cost-effectiveness threshold to set a price on NOx in the context of a regulation.

16-6

³ http://www.dof.ca.gov/Budget/Historical_Budget_Publications/2020-21/documents/DOF_FISCAL_UPDATE-MAY-7TH.pdf

⁴ https://ww3.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_c.pdf

- \$100,000 per ton of NOx is out of line with recent regulations to reduce NOx. The most recent version of the California Air Resources Board’s Statewide Truck and Bus Rule’s cost-effectiveness was \$3,820 per ton of NOx⁵. | 16-7
- SECTION 2) Zero and Near-Zero Emission Truck Visits and Truck Acquisitions**
- Please cite the authority under which the SCAQMD seeks to establish regulatory standards relating to the control of emissions from new motor vehicles or new motor vehicle engines. | 16-8
 - Please indicate whether the SCAQMD intends to pursue a Section 209 waiver. | 16-9
- SECTION 2b) Truck Visit**
- The approach of using an average of the EMFAC inventory for the cited subcategories to establish baseline emissions for the purpose of calculating the value of zero and near-zero emission truck acquisitions and use may be problematic as early as 2024. Due to the impact of CARB’s Low NOx and Advanced Clean Truck (ACT) Regulations, assumptions about the acquisition of these vehicles through natural turnover and mandated sales percentages, respectively, will be incorporated into the baseline year emissions in future revisions of EMFAC. Functionally, it will be impossible to distinguish emission reductions attributed to mandated sales percentages under the ACT and a truck visit to a regulated facility under the WAIRE program. | 16-10
 - The value of each truck visit will decrease on an annual basis as the weighted annual emissions of the fleet decreases. | 16-11
 - It is also unclear whether SCAQMD is in fact proposing the above approach or simply utilizing a baseline year of 2023. A static baseline also creates issues of additionality. In any event, SCAQMD should be clear as to how this calculation will work. | 16-12
 - Related to the use of EMFAC, this adds just another (more opaque) level of uncertainty for the regulated community. There are several aspects of the rule that present a moving target, as they are subject to change during the life of the rule. At the time of promulgation, a rule should provide the regulated community with a level of understanding and certainty of what their obligations are, and this rule will not do that. | 16-13
 - How will the SCAQMD determine deterioration for truck visits? | 16-14
 - As the purpose of the rule is to accelerate fleet turnover and preferentially replace retired vehicles with electric vehicles, the use of incremental cost is inappropriate, because it assumes that a fleet was already planning to purchase a new truck, at a given time. The rule is designed to use warehouse operators to pressure fleets to purchase vehicles on a timeline that is most beneficial to the | 16-15

⁵https://www.arb.ca.gov/msprog/onrdiesel/background/2014/2014_pm_nox_cost.xls?_ga=2.54243629.481378052.1588276844-228088285.1525364940

warehouse achieving compliance, rather than by the business needs of the fleet. Therefore, calculations should be based on the total purchase price.

16-15
(cont'd)

- The variation in in duty cycles and applications has always presented issues when trying to estimate emissions and apply regulation to on-road trucks. A homogeneous treatment of the sector results in a disconnect between the costs and emission reductions as translated into points, and the reality of the costs and emissions associated with each truck purchase. This is exacerbated by the calculations of point values across the “bins.” There is an inconsistent application of metrics and methodologies across the bins (e.g. annual mileage). The extensive use of averaging and various assumption result in a methodology that it is impossible to as it applies to an individual regulated entity. In the effort to simplify the rule, its application seems almost arbitrary at the facility and fleet level.

16-16

SECTION 3) Electric Charger Usage and Installation and SECTION 4) Hydrogen Filling Station Installation and Usage

- AQMD’s proposed point system has not clearly outlined how points will be assigned for investments made to reduce emission not located on the site of a warehouse. For example, if a warehouse operator develops a charging hub for multiple vehicles or hydrogen fueling station offsite, how will points be assigned for those investments?
- AQMD’s proposed point system has not included methods for assigning points to entities that work together to deploy zero emission infrastructure which are not on-site. For example, we can foresee an instance where several warehouse operators work together to finance or develop a fueling station for low or zero emission fuel vehicles. If this project is offsite and shared between warehouse operators, it is unclear how points would be assigned to the different actors involved in the project.

16-17

If you have any questions please feel free to contact Chris Shimoda at cshimoda@caltrux.org.

16-18

Thank you,

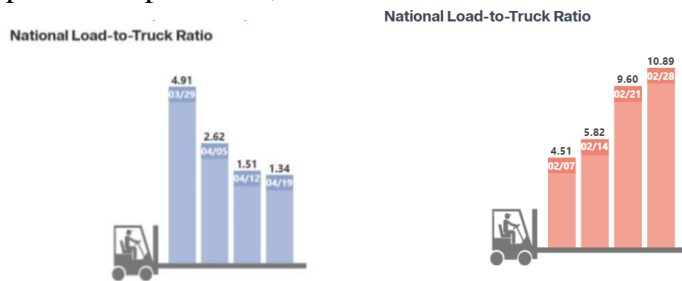


Chris Shimoda, Vice President of Government Affairs
California Trucking Association

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention. PR 2305 and PR 316 have been developed within South Coast AQMD’s legal authority and care has been taken to ensure industry’s concerns have been taken into account. Further, the changes in response to the COVID-19 pandemic have also resulted in significant public health impacts, including from air pollution from the increased movement of goods in our region.

Response to Comment 16-2

South Coast AQMD Staff understand that COVID-19 has had a significant impact on the economy, employment, and specifically the trucking industry. Since the receipt of this comment letter, the Ports of Long Beach and Los Angeles have recorded record volumes and have significantly exceeded their capacity to handle more goods movement, with up to 62 ships anchored awaiting entrance into the Ports.²⁹¹ At the same time, the industrial warehouse real estate market shows continued strength, even while other commercial real estate sectors have been affected by the pandemic.²⁹² While many sectors of the economy were significantly impacted early in the pandemic, some have rebounded dramatically, in particular in goods movement. For example, the DAT Load-to-Truck Ratio cited by the commenter showed a decline from 4.9 to 1.3 in the early part of the pandemic, but has since rebounded to a level of 10.9 in February 2021.²⁹³



Undoubtedly there are significant economic impacts of the pandemic. While unemployment spiked early at almost 15%, it quickly dropped and is now about 6%.²⁹⁴ However, the goods movement industry overall has shown significant demand in the South Coast AQMD region and the resulting activity is both expected to continue and to have resulted in increased emissions associated with warehouses.

Response to Comment 16-3

The commenter is correct that the Carl Moyer Guidelines use a 20x weighting factor for PM reductions. PR 2305 looks at Diesel PM, which is both a contributor to regional particulate matter emissions as well as a toxic air contaminant. Particulate matter emissions are an important consideration as the South Coast AQMD is in serious non-attainment for PM2.5, and Diesel PM is also a toxic air contaminant that is the largest contributor of air toxics cancer risk in our region. Diesel PM affects communities around warehouses more than those living farther away, and

²⁹¹ <https://www.freightwaves.com/news/62-ships-at-anchor-in-san-pedro-bay-on-wednesday>

²⁹²

https://connect.allenmatkins.com/hubfs/Anderson%20Forecast/Winter%202021/AMCRES_Winter_2021.pdf?hsCtaTracking=9cbedffc-5a28-4951-a7e1-255393bef5e5%7Ccecf4503-3ced-43f9-9cd2-36f68c0ac76e

²⁹³ <https://www.dat.com/industry-trends/trendlines/van/demand-and-capacity>

²⁹⁴ <https://www.bls.gov/news.release/pdf/empsit.pdf>

stakeholder concerns were continually expressed during rulemaking working group meetings, and in AB 617 community meetings and Community Emission Reduction Plans (CERPs).

Response to Comment 16-4

In part due to this comment, PR 2305 now includes the option for warehouse owners and operators to propose a Custom WAIRE Plan to comply with PR 2305 (see PR 2305, Section (d)(4)). A Custom WAIRE Plan contains actions not included in the existing WAIRE Menu, which warehouse owners and operators can propose to meet their WPCO. The analysis of the Custom WAIRE Plan applications mirrors the analysis conducted on the WAIRE Menu actions and investments. In order to achieve WAIRE Points, warehouse owners and operators must show how a proposed Custom WAIRE Plan will achieve quantifiable, verifiable, and real NO_x and DPM emission reductions, and meet all the requirements as outlined in PR 2305 Section (d)(4). Thus, a Custom WAIRE Menu provides opportunities to pursue flexible solutions to comply with PR 2305 that can provide a streamlined method to evaluate new and emerging technologies.

Response to Comment 16-5

Due to existing statutory or regulatory prohibitions, most state incentive funding programs used to offset the higher purchase price of zero emission NZE/ZE vehicles and equipment cannot be used to aid in complying with state or federal law or South Coast AQMD rules or regulations.²⁹⁵ In practice, this means that NZE/ZE trucks acquisitions with incentive funding by warehouse operators or owners cannot be used to comply with PR 2305, thus no WAIRE Points can be earned from these acquisitions. However, because PR 2305 requires use of those trucks at specific locations to reduce local emissions, and because PR 2305 does not apply to trucking companies, but rather to warehouse operators, the use of incentivized trucks is not prohibited by incentive programs with a program like PR 2305. Warehouse operators will therefore not be required to determine if a NZE or ZE truck that visits their warehouse is incentivized, and will not be required to determine if any usage is surplus.

Response to Comment 16-6

The statutory authority that PR 2305 relies upon is described in Chapter 1 of the Preliminary Draft Staff Report. South Coast AQMD currently uses a cost effectiveness threshold up to \$100,000 per ton in its Carl Moyer Funding Program. This same level was included as a parameter within the development of the WAIRE Menu, however it is not a requirement within PR 2305. The use of \$100,000 per ton within the development of the Points used in the WAIRE Menu is a mechanism to provide extra WAIRE Points for investments made by a warehouse operator, even though the investment on its own may not result in emission reductions. Also, with PR 2305, instead of investing \$100,000 in whichever WAIRE Menu action made sense to the warehouse operator, the money could be provided to South Coast AQMD as a mitigation fee. South Coast AQMD would then likely fund projects at \$100,000 per ton. By providing WAIRE Points at this level directly to the warehouse operator, they are given more flexibility as to how to make investments. Finally, as shown in Table 27 of the Preliminary Draft Staff Report, some options have cost effectiveness levels below \$100,000 per ton, while others are higher, highlighting that the \$100,000 per ton is not a requirement within PR 2305.

²⁹⁵ California Health and Safety Codes 44281(b), 44391.4(a), 44271(c), CCR Title 13, Ch. 8.2 Sec. 2353 (c)(4), Moyer Guidelines Ch. 2, CA Beneficiary Mitigation Plan

Response to Comment 16-7

The commenter cites a cost effectiveness of \$3,820 per ton of NO_x for the Truck and Bus Rule, however that rule allowed for trucks to be kept for about 13 years, equal to a full useful life, or where the value of the older truck is significantly reduced. The cost effectiveness of more recent mobile source regulations varies depending on the program, and depending on the timescale chosen. The table below summarizes recent key regulations from CARB and their cost effectiveness through about 2032 (dollars per ton of NO_x). Costs are substantially lower for many of these regulations when considering cost savings that are projected to occur in the 2030s and beyond, however the shorter timeline is compiled here to show a similar end year as for the analysis for PR 2305 (analysis conducted through 2031). The cost effectiveness for various scenarios with PR 2305 as shown in Table 27 of the Preliminary Draft Staff Report is similar to the wide range of values shown in the table below.

CARB Regulation	Approximate Cost Effectiveness (through 2032)
Airport Shuttle Bus	\$430,000/ton NO _x
Innovative Clean Transit	\$271,000/ton NO _x
At Berth (Ocean Going Vessels)	\$83,000/ton NO _x
Low NO _x Omnibus	\$39,000/ton NO _x
Advanced Clean Trucks	\$22,000/ton NO _x

Response to Comment 16-8

PR 2305 is not setting new emission standards as described by the commenter. The legal authority used for PR 2305 is listed in Chapter 1 of the Preliminary Draft Staff Report.

Response to Comment 16-9

South Coast AQMD does not intend to pursue a Section 209 waiver under the Clean Air Act for PR 2305.

Response to Comment 16-10

The effect of recent CARB rules has been included in the analysis in the Preliminary Draft Staff Report as shown in Tables 15 through 18. CARB's development of the META tool as a companion to its Draft Mobile Source Strategy allowed recent CARB rules like the Advanced Clean Truck rule to be subtracted from the EMFAC baseline so that the effects of PR 2305 could be isolated.

Response to Comment 16-11

Adjustments to truck emissions through time have been accounted for in the analysis. See Response to Comments 16-10. Warehouse operators will not need to account for changes in emissions through time, only their WAIRE Points Compliance Obligation.

Response to Comment 16-12

The full details of how calculations were conducted are included in the Preliminary Draft Staff Report as well as detailed companion calculation spreadsheets that were made available online.²⁹⁶

Response to Comment 16-13

PR 2305's rule language provides a simple, clear methodology for calculating a warehouse operator's WAIRE Points Compliance Obligation, as well as a simple WAIRE Menu with Points for each action. Warehouse operators are not expected to use the EMFAC model or any other model when complying with PR 2305 using the WAIRE Menu. The purpose of the much more complicated WAIRE Menu Technical Report is to develop as much of the complicated analysis up front during rulemaking so as to provide a streamlined methodology for warehouse operators to comply with PR 2305. Further, if PR 2305 is adopted there will be ample outreach efforts in order to inform warehouse owners and operators of their obligations and the steps that can be made to meet them. Additional guidance on PR 2305 will be provided online and in the WAIRE Program Implementation Guidelines.

Response to Comment 16-14

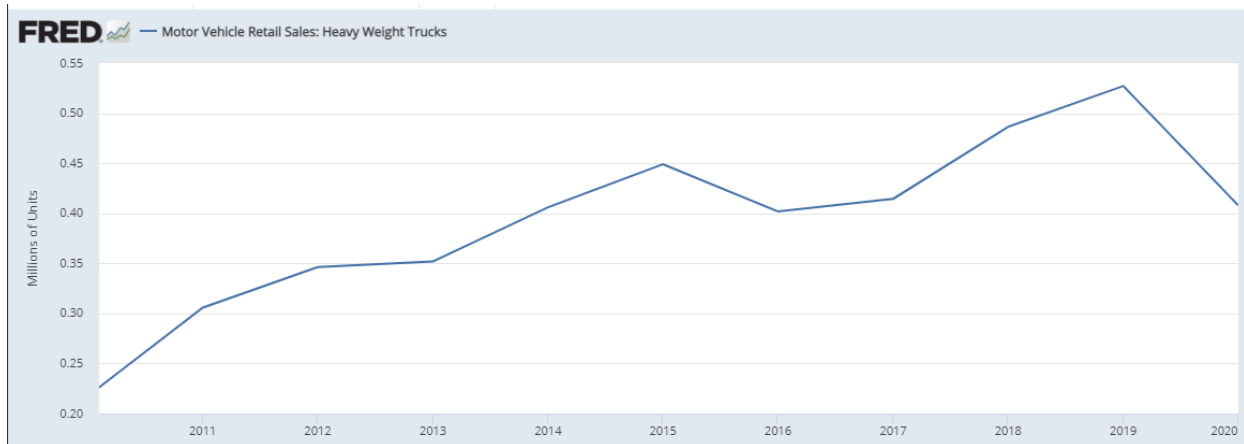
Deterioration rates are included within the EMFAC model and within the META tool that were used to develop emissions and emission reductions estimates in the Preliminary Draft Staff Report. These modeling tools are the standard used throughout the state to evaluate truck emissions.

Response to Comment 16-15

The purpose of PR 2305 is to facilitate regional NO_x and local DPM emission reductions associated with warehouses and the mobile sources attracted to applicable warehouses in order to assist in meeting state and federal air quality standards for ozone and fine particulate matter. Accelerated fleet turnover and replacing retired vehicles with electric vehicles are possible means to achieve PR 2305 goals. The incremental cost is used as a component in the calculation of the WAIRE Points value of the WAIRE Menu actions and investments, as it represents the additional cost effort that warehouse operators would have to take in order to comply with PR 2305. As part of the analysis of the proposed stringency within PR 2305, the number of new truck sales due to PR 2305 was evaluated relative to baseline new truck sales without PR 2305. This analysis found that in only extreme examples where all warehouse operators chose exactly the same method of compliance (e.g., 4,000 operators all chose to purchase a Class 8 NZE truck) would sales in any one year from PR 2305 exceed baseline levels. With so many operators and so many options for compliance, this extreme outcome is unlikely. Even in this unlikely case, the number of new truck sales varies widely year to year. In the graph below, national new heavy truck sales vary by about 50,000 to 100,000 units every year, out of a baseline of about 400,000 to 500,000 units.²⁹⁷ In the most extreme case, up to about 7,600 new trucks beyond normal sales could occur in one year due to PR 2305. This is within the range of variability in any given year. Therefore PR 2305 is not expected to result in early retirement of trucks as normal levels of new truck sales can accommodate the compliance requirements of PR 2305. Even if a warehouse operator did purchase a truck earlier than expected, PR 2305 does not have any requirement to scrap a truck, and the vehicle could be sold on the used market, thus retaining the value for the truck owner.

²⁹⁶ <http://www.aqmd.gov/docs/default-source/planning/fbmsm-docs/pr-2305-draft-scenario-calculations.xlsm>,
<http://www.aqmd.gov/docs/default-source/planning/fbmsm-docs/pr-2305-draft-baseline-emission-inventory.xlsx>,
<http://www.aqmd.gov/docs/default-source/planning/fbmsm-docs/pr-2305-draft-truck-emission-rate-calculations.xlsx>

²⁹⁷ <https://fred.stlouisfed.org/series/HTRUCKSSAAR#0>



Response to Comment 16-16

The commenter notes that there is wide variability in trucking operations, and homogeneous treatment across the sector results in inconsistencies at the individual level. The use of averages is therefore the most appropriate method to estimate emission reductions precisely because of this variability and the large number of warehouses and truck trips potentially affected by PR 2305. The alternative to using averages in many detailed calculations in the rulemaking analysis is to have all of the warehouse operators calculate their own site specific emissions and submit that to South Coast AQMD for review every year. This approach would be administratively burdensome for warehouse operators and South Coast AQMD, and would not be a good use of resources. Therefore, in order to facilitate a more streamlined approach on the back end for rule compliance, averages that are most applicable to large populations (which applies for the ~4,000 operators subject to PR 2305) are used in calculations at the front end of rulemaking.

Response to Comment 16-17

For off-site investments, the most appropriate action for a warehouse operator is to pursue a Custom WAIRE Plan, which had not been proposed at the time that this letter was written. The warehouse operator can submit a Custom WAIRE Plan application that details specifics on the project, emission reductions, and costs in accordance to the requirements listed in PR 2305 for Custom WAIRE Plan submissions. Off-site actions and investments were not included or evaluated for the WAIRE Menu as it was not possible to calculate default values that any warehouse operator could use to earn WAIRE Points for projects that may be specific to particular warehouses offsite or partnering with other warehouse operators.

Response to Comment 16-18

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention.



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Mr. Ian MacMillan
Planning & Rules Manager
imacmillan@aqmd.gov
Mr. Victor Juan
Program Supervisor
viuan@aqmd.gov

October 7, 2020

Recommendation to Include NZE Yard Tractors as Compliance Option Under Proposed Rule 2305

Dear Mr. MacMillan and Mr. Juan,

The Propane Education & Research Council (PERC) is pleased to provide input about how to best achieve fast, cost-effective NOx reductions under SCAQMD’s Proposed Rule 2305. We submit these comments in advance of the Warehouse ISR Working Group Meeting scheduled for Friday October 9, 2020. We appreciate that SCAQMD staff has been willing to consider alternative ways to accomplish your essential end goal: to restore healthful air quality to the South Coast Air Basin and attain the federally mandated National Ambient Air Quality Standard for ozone.

Authorized by the U.S. Congress in 1996, PERC (<https://propane.com/>) is a nonprofit organization that invests in research, development and commercialization of clean-burning low-emission propane-powered technologies. PERC partners with a variety of trade associations, advocacy groups, and government agencies to promote safety and the adoption of propane as a clean domestic fuel source. Our organization supports clean-fuel/low-emission programs in applications that include transportation, agriculture, commercial landscaping, residential, and commercial buildings. For decades we have helped regional government agencies like SCAQMD to identify, assess, and widely deploy clean propane engines in these applications (see additional details at <https://propane.com/environment/>).

17-1

SCAQMD’s webpage addressing facility-based mobile source measures (FBMSMs) states that the goal of PR 2305 “is to assess and identify potential actions to further reduce emissions associated with emission sources operating in and out of warehouse distribution centers” in the South Coast Air Basin. Our comments and inputs submitted today are fully compatible with -- and designed to strongly advance -- that important goal.

Proposed Expansion of PR 2305 to Allow NZE Yard Trucks as Compliance Options

As you know, CARB-certified near-zero-emission (NZE) propane engines are now available as commercially proven powerplants for HDVs that can deliver 90 percent (or better) NOx reductions in the two key mobile sources targeted under PR 2305: 1) Class 8 on-road heavy-duty trucks and 2) their off-road counterparts, yard trucks. Because PR 2305 already includes allowance for warehouse operators to comply using NZE on-road trucks, our recommendation to SCAQMD is to adopt a similar and parallel inclusion for NZE off-road yard trucks.

17-2

Our comments are not meant to be exclusionary about other ultra-clean fuel-technology platforms for HDVs. In fact, OEMs that manufacture NZE yard trucks are also working to commercialize ZE yard trucks using battery-electric and/or fuel cell architectures. Similarly, NZE yard truck OEMs are designing their products to





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interchangeably use either NZE propane or natural gas engines, depending on their customers' site-specific needs and considerations. In summary, when it comes to OEM development and commercialization efforts, there is *significant synergy* between ZE yard tractors and NZE yard trucks, whether fueled by propane or natural gas. PERC is specifically advocating for inclusion of propane-fueled yard trucks as a compliance option under PR 2305, but our position is fuel neutral and mutually supportive of ultra-clean natural gas yard trucks as a compliance option.

17-2
(cont.)

Why does PERC believe that inclusion of propane yard trucks is especially important to help SCAQMD achieve its goals for PR 2305? Simply put, NZE propane vehicle technology offers the fastest, easiest, most-cost-effective, infrastructure-friendly way for warehouse operators to rapidly deploy terminal tractors that emit NOx at levels equivalent to (or lower than) the grid-related emissions of battery-electric tractors.¹ Moreover, there is important synergy between deploying NZE yard trucks in the Basin and deploying NZE school buses. For example, the PSI 8.8L NZE propane engine that is now being incorporated into an OEM yard truck (from TICO) is also being incorporated into at least one OEM school bus model. In both cases, the specific focus of commercialization and deployments are on the South Coast Air Basin.

Collateral Benefits Major Fuel-Cycle GHG Reductions

We recognize that PR 2305 is focused on reducing NOx to help the Basin attain ozone standards. However, NZE yard trucks can also deliver a major collateral benefit: full-fuel-cycle GHG reductions. This is achieved by fueling NZE engines with drop-in renewable versions of conventional propane (or natural gas), which are CARB-verified to have very low carbon intensity. As you know, renewable natural gas is already widely used to fuel heavy-duty NGVs in California, and renewable propane is already co-produced at biofuel plants like the World Energy plant in Paramount. Renewable propane is now becoming available for transportation uses like terminal tractors and school buses. In fact, the propane fuel industry has committed to use 100 percent renewable propane in California transportation applications by 2030 (see the Western Propane Gas Association press release of September 25, 2020²).

17-3

And in another significant development, Suburban Propane recently announced a deal to purchase a 39 percent stake in Oberon Fuels, Inc. (Oberon) based in San Diego.³ Oberon's development-stage production of low-carbon renewable dimethyl ether (rdME) as a transportation fuel has important synergy with the propane industry's efforts to develop a practical and affordable pathway for low-pressure renewable fuels that can be "dropped in" to NZE propane engines.

Details About Our Proposed Changes to PR 2305

Accompanying this cover letter are the following attachments, designed to assist SCAQMD staff in reviewing our recommendation to add NZE yard trucks as compliance options under PR 2305:

17-4

¹ See the analysis by Gladstein, Neandross & Associates in its "Game Changer" white paper (funded partially by SCAQMD) at https://www.gladstein.org/eng_whitepapers/game-changer-next-generation-heavy-duty-natural-gas-engines-fueled-by-renewable-natural-gas/.
² <https://www.prweb.com/releases/100-percent-renewable-propane-targeted-for-california-by-2030/prweb17426932.htm>.
³ Cision PR Newswire, "Suburban Propane Partners, L.P. Announces Deal to Acquire 39% Stake in Oberon Fuels and Additional Investments to Support the Ongoing Development of Innovative Solutions to Reduce Carbon Emissions," press release, September 17, 2020, <https://www.prnewswire.com/news-releases/suburban-propane-partners-lp-announces-deal-to-acquire-39-stake-in-oberon-fuels-and-additional-investments-to-support-the-ongoing-development-of-innovative-solutions-to-reduce-carbon-emissions-301133443.html>.





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1. MS Word document with suggested modifications to "WAIRE Technical Menu Report" (March 3, 2020)

Using the "Track Changes" feature, we have modified this draft Staff report to add narrative incorporating NZE yard trucks as a compliance option under PR 2305. As you will see, we marked up only "SECTION 5) Zero Emissions Yard Truck Acquisition and Usage." We used parallel language and rationale as applied by Staff in allowing NZE on-road trucks to serve as compliance options, along with a ZE on-road trucks. Just as Staff made the case for the commercial maturity and product availability of ZE yard trucks, we have proposed parallel language as rationale for adding NZE yard trucks, using credible documentation. We believe our proposed mark-up and additions provide Staff with a solid and accurate head-start on language to make this modification to PR 2305. As noted above, this will significantly enhance the District's ability to rapidly attain cost-effective NOx reductions through implementation of this important new FBCM.

2. MS Excel spreadsheet "WAIRE User Calculator with NZE Yard truck calculations"

Using Staff's information provided in SCAQMD's slide presentation "WAREHOUSE ISR WORKING GROUP" dated March 3, 2020, we have reproduced in MS Excel the District's WAIRE point system. We created a parallel, justifiable point system for adding NZE yard trucks as a compliance option. As you will see in the middle tab titled "Waire Menu," we have added two new lines of calculations under "Acquire NZE Yard Truck" and "Use NZE Yard Truck." We used the same methodology and formulas that Staff used to establish the relative WAIRE points for NZE on-road trucks versus ZE on-road trucks. This results in calculated total points for Acquiring and Using NZE yard trucks. The result is that -- in similar fashion to the on-road case-- NZE yard trucks get significantly fewer points than ZE yard trucks for the "Acquire" category, but nearly the same points for the "Use" category. We believe our methodology and calculations are both logical and defensible. Of course, our team would be pleased to discuss this recommendation and the methodology in a follow-on virtual meeting with Staff, if deemed useful.

PERC greatly appreciates the District's willingness to review our proposed modifications to PR 2305's technical documentation and the WAIRE points system, designed to improve the speed and cost-effectiveness of achieving NOx reductions by introducing NZE yard trucks as compliance option. For all the reasons described above, we believe it represents good, defensible public policy for the District to pursue under the new in-direct source rule. We look forward to participating in Friday's Working Group meeting, and our team will be pleased to meet with Staff to further work through the concept laid out in this letter and attachments.

If you have any questions about our proposed changes to PR 2305, please give me a call. I can be reached at 804.338.0202 (cell) and 202.452.8975 (main).

Sincerely,

Tucker Perkins
President & Chief Executive Officer

17-4
Cont'd



Definition of NZE Yard Truck – SCAQMD states the following in the technical report:

“For PR 2305 a Near Zero Emission (NZE) truck is one in which the engine meets CARB’s lowest Optional Low NOx standard of 0.02 g/hp-hr NOx.”

Thus, this is an easy extrapolation to the very synonymous case of NZE yard trucks:

*“For PR 2305 a Near Zero Emission (NZE) **yard** truck is one in which the engine meets CARB’s lowest Optional Low NOx standard of 0.02 g/hp-hr NOx.”*

SECTION 5) Zero Emissions (ZE) and Near Zero Emissions (NZE) Yard Truck Acquisition and Usage

Description: Yard trucks (also called yard tractors, terminal trucks, hostlers, yard jockeys, or yard goats) move trailers and containers around warehouse facilities. Most yard trucks at warehouse facilities are diesel fueled and emit NOx, DPM, and other pollutants. Duty cycles for yard trucks vary depending on use, with heavier use at railyards and port facilities and lighter use typically at warehouses and manufacturing plants, as defined by hours of use and diesel consumption rates. CARB has limited population data for about 1,100 yard tractors operating statewide through its DOORS reporting program for off-road vehicles, but it is unclear how many of these operate at warehouses in South Coast AQMD. In addition, many yard tractors can be on-road vehicles, which are not required to be reported through the DOORS system. For example, about two thirds of the roughly 1,600 yard tractors at the ports of Los Angeles and Long Beach are on-road vehicles.

Commercial Availability:

ZE Yard Tractors: Many battery-electric yard tractor demonstration projects have taken place in the past several years, including in the South Coast AQMD. Following these efforts, multiple manufacturers have begun offering battery-electric ZE yard trucks for sale commercially including OrangeEV, Kalmar Ottawa, and BYD.

NZE Yard Tractors: Natural gas and propane yard tractors have been also been demonstrated for many years; until recently, this was done in a pre-commercial status. However, key advancements were achieved in 2019, and as of mid-2020, OEM-built models are commercially available with NZE engines (certified to CARB’s lowest tier OLN of 0.02 g/bhp-hr). For example, UPS already operates (or has ordered) at least 300 propane-fueled NZE yard tractors built by TICO.¹ A 2019 feasibility assessment released by the San Pedro Bay Ports found that natural gas NZE yard tractors - even when used in very tough marine terminal duty cycles – achieve “all four parameters that collectively define commercial feasibility.” The Ports’ joint assessment rated “overall feasibility” for NZE yard tractors (across technical, operational, infrastructure, and economic parameters) as equivalent to ZE yard tractors. Since that report was released, twenty-two natural gas NZE yard tractors (built by Capacity Trucks, with 6.7 and 8.9 liter CWI engines) have been demonstrated at the Port of Los Angeles for more than a year, enabling the “technology readiness” rating of this fuel-

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17-9

¹ Freight Waves, “UPS to add 6,000 natural gas vehicles over next 3 years,” October 9, 2019 <https://www.freightwaves.com/news/ups-to-add-6000-natural-gas-vehicles-over-next-3-years>.

technology platform to move into the threshold of full commercialization.² In mid-2020, the University of California-Riverside conducted chassis dynamometer emissions testing on a natural gas NZE yard tractor, documenting that the in-use NOx emissions benefits of NZE yard tractors (relative to a state-of-the-art diesel control tractor) was even greater than the 90% reduction derived by comparing certification levels.³

A variety of different NZE engines – using either natural gas or propane – are now being equipped in OEM yard tractors. In addition to Capacity’s incorporation of two different Cummins Westport NZE natural gas engines (L9N and B6.7N) in yard tractors, TICO has joined with engine provider Power Solutions International (PSI) to develop and commercialize NZE propane yard tractors for typical warehouse and distribution center service. Roush CleanTech’s NZE 6.8L propane engine can also be sourced by OEMs for their yard tractor models. And, Cummins is working on an advanced-technology propane yard tractor engine that will meet the NZE threshold, as well.⁴

While PR 2305 is focused on reducing NOx to help the Basin attain federal ozone standards, NZE yard tractors can also deliver an important collateral benefit: full-fuel-cycle GHG reductions. This is achieved by fueling NZE engines with drop-in renewable versions of conventional natural gas or propane that are verified to have very low carbon intensity. Renewable natural gas is already widely used to fuel heavy-duty NGVs in California, and renewable propane is now becoming available. The propane fuel industry has committed to use 100% renewable propane in California transportation applications by 2030).⁵

Operation: Operation of yard trucks can be tracked by hours of use, with hourly usage varying from <1,000 hours/year up to 6,000 hours/year. The diesel reductions were calculated by using the horse power, hours of use, the load factor, and the pollutant emission factor.

SECTION 5a) ZE Yard Truck Acquisition

WAIRE Points from ZE Yard Truck Acquisition: ZE yard trucks currently cost about \$310,000 while their diesel equivalent costs about \$100,000⁶. This incremental cost of \$210,000 would earn nine WAIRE Points per ZE yard truck purchased. Similar to the methods used for on-road truck acquisitions, at \$100,000 per ton cost effectiveness, a ZE yard truck acquisition would earn 168 Points for regional emission reductions.

WAIRE Points from NZE Yard Truck Acquisition: NZE yard trucks currently cost about \$150,000 while their diesel equivalent costs about \$100,000⁷. This incremental cost of \$50,000 would earn three WAIRE Points per NZE yard truck purchased. Similar to the methods used for on-road truck

² San Pedro Bay Ports, 2018 Feasibility Assessment for Cargo-Handling Equipment, September 2019.

<https://cleanairactionplan.org/documents/final-cargo-handling-equipment-che-feasibility-assessment.pdf/>

³ UC-Riverside College of Engineering – Center for Environmental Research & Technology, "Interim Report for the 8.9 liter LNG and Diesel Yard Tractor Emissions Testing," CEC Agreement #PIR-16-016, July 2020.

⁴ Cummins, "LPG Direct Injection Engine for Medium Duty Trucks," presentation by Sam Geckler and Saradhi Benarajan, PERC Webinar, May 28, 2020.

⁵ <https://www.prweb.com/releases/100-percent-renewable-propane-targeted-for-california-by-2030/prweb17426932.htm>

⁶ <https://cleanairactionplan.org/documents/final-cargo-handling-equipment-che-feasibility-assessment.pdf/>

⁷ <https://cleanairactionplan.org/documents/final-cargo-handling-equipment-che-feasibility-assessment.pdf/>

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acquisitions, at \$100,000 per ton cost effectiveness, a NZE yard truck acquisition would earn 40 Points for regional emission reductions.

SECTION 5b) ZE Yard Truck Usage

Emissions: From the DOORS data, the most common yard trucks operate a 175 hp, Tier 3 engine. Table 21 below shows the emission factors from the Carl Moyer Guidelines⁸ for this type of yard truck. Assuming that this type of yard truck operates 1,000 hours per year, and has operated for ten years, the emission reductions from switching to a ZE yard truck are shown in Equation 7 below.

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Pollutant	Emission Factor (EF) g/hp-hr	Deterioration Rate (DR) g/hp-hr-hr	Load Factor (LF)
NOx	2.32	0.00003	0.39
PM	0.088	0.000044	

Equation [7]

Equation [7]

$$Emissions = (hp) \times (LF) \times [((total\ hrs\ of\ use) \times (DR)) + (EF)] \times (hrs\ of\ use) \div 453.59 (gib)$$

Emissions Benefits of ZE Yard Truck

Equation 7a NOx: $175 \times 0.39 \times [((10 \times 1,000) \times 0.00003) + 2.32] \times 1,000 \div 453.59 = 394\ lbs$

Equation 7a DPM: $175 \times 0.39 \times [((10 \times 1,000) \times 0.000044) + 0.088] \times 1,000 \div 453.59 = 19.9\ lbs$

Thus, since a ZE yard truck eliminates all the emissions of the baseline diesel yard truck, 394 lbs of NOx and 19.9 lbs of PM are the emissions benefits that are eligible for WAIRE points under the two categories of regional and local emissions reductions, respectively.

Analogous to the on-road truck case in Section 1, regional emission reductions from switching to NZE yard trucks are assumed to equal 90% of the reduction compared to ZE yard trucks. Local emission reductions are assumed to be the same between ZE and NZE platforms; this is because NZE yard trucks (whether fueled by natural gas or propane) do not emit DPM.

Equation 7b (a version of Equation 7a for the baseline diesel vs. ZE yard truck) confirms the emissions benefits of an NZE yard truck. As indicated, the EF for NOx has been adjusted to be 90 percent lower than the baseline diesel EF. The DR used in Equation 7b had also been adjusted, to account for spark-ignition engine technology used for NZE engines (natural gas or propane) relative to a baseline diesel engine to which it is being compared. For the new DR, the same 90 percent factor is used, yielding a DR of $0.0003 \times .1 = 0.000030$. Below, we plug these changes into Equation 7b.

Emissions Benefits of NZE Yard Truck

Equation 7b NOx: $175 \times 0.39 \times [((10 \times 1,000) \times 0.00003) + 2.32 \times .1] \times 1,000 \div 453.59 = 39.2\ lbs$

Equation 7b DPM: $175 \times 0.39 \times [((10 \times 1,000) \times 0.000044) + 0.088] \times 1,000 \div 453.59 = 19.9\ lbs$

⁸ <https://www3.arb.ca.gov/msprog/mover/guidelines/current.htm>

17-9 Cont'd

Thus, since an NZE yard truck eliminates 90% of the NOx emissions and 100% of the DPM emissions relative to the baseline diesel yard truck, the emissions benefits that are eligible for WAIRE points under the two categories of regional and local emissions reductions, respectively are as follows:

Regional Emission Reductions = 394 lbs NOx – 39.4 lbs NOx = 354.6 lbs NOx

Local Emission Reductions = 19.9 lbs DPM – 0 lbs DPM = 19.9 lbs DPM

ZE Yard Truck Costs: Although purchase prices for ZE yard trucks are higher than their diesel equivalent, once purchased the operational costs are expected to be lower. An analysis by the ports of Long Beach and Los Angeles evaluated the Total Cost of Ownership (TCO) for battery-electric ZE yard trucks in comparison to diesel¹⁹. This analysis found a TCO for ZE yard trucks to be about \$450,000 (not including infrastructure costs) while equivalent diesel had a TCO of about \$375,000. Assuming a ~12,000 useful life of a yard truck, the annual incremental cost of operating a ZE yard truck for 1,000 hours is shown in Equation 8.

Equation [8]: $(\$450,000 - \$375,000) \times 1,000 \text{ hrs} \div 12,000 \text{ hrs} = \$6,250$

NZE Yard Truck Costs: Similarly, the purchase price for NZE yard trucks are higher than their diesel equivalent yard trucks, but operational costs are expected to be lower. The same analysis by the ports of Long Beach and Los Angeles evaluated the Total Cost of Ownership (TCO) for natural gas NZE yard trucks in comparison to diesel¹⁹. This analysis found the TCO for NZE yard trucks to be about \$402,000 (not including infrastructure costs) while equivalent diesel had a TCO of about \$375,000. Assuming a ~12,000 useful life of a yard truck, the annual incremental cost of operating an NZE yard truck for 1,000 hours is shown in Equation 8.

Equation [8]: $(\$402,000 - \$375,000) \times 1,000 \text{ hrs} \div 12,000 \text{ hrs} = \$2,250$

WAIRE Points from Using ZE Yard Trucks: Following the results from Equation 7a, using a ZE yard truck would earn 16 Points for regional emission reductions and 80 Points for local emission reductions. One cost Point would be earned following the results of Equation 7. Similar to the approach for on-road truck visits, a multiplier of three is applied to the sum of cost, regional, and local Points. Therefore the total Points for 1,000 hours of ZE yard truck usage is: $(16 + 80 + 1) \times 3 = 291$ Points.

WAIRE Points from Using NZE Yard Trucks: Following the results from Equation 7b, using a NZE yard truck would earn 15 Points for regional emission reductions and 80 Points for local emission reductions. One cost Point would be earned following the results of Equation 7b. Similar to the approach for on-road truck visits, a multiplier of three is applied to the sum of cost, regional, and local Points. Therefore the total Points for 1,000 hours of NZE yard truck usage is: $(15 + 80 + 1) \times 3 = 288$ Points.

17-9 Cont'd

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Commented [JL2]: SCAQMD wrote Equation 6 in the draft technical report. Victor Juan confirmed by email that this is a mistake, and should read "Equation 7"

Version 3/3/2020

WAIRE Menu Item	WAIRE Menu Sub-Item		Reporting Metric	Annualized Metric	Annualized Incremental Cost (\$/metric)	Annualized Regional Emissions Reduction (lb NOx/ metric)	Annualized Local Benefit (lb DPM/ metric)	Cost	Regional Emission Reduction	Local Emission Reduction	WAIRE Points	
Acquire NZE/ZE Trucks in Warehouse Operator Truck Fleet	Acquisition (Purchase Truck)	Class 8 Truck	NZE	Number of trucks	1 truck purchased	\$65,000	0	0	3	52	0	55
		Class 4 - 7 Truck	ZE			\$30,000	0	0	2	24	0	26
		Class 8 Truck				\$150,000	0	0	6	120	0	126
		Class 4 - 7 Truck				\$80,000	0	0	4	64	0	68
NZE/ZE Truck Visits	Use (One-way trips)	Class 8 Truck	NZE	Number of trips	365 truck visits	\$3,825	162.3	1.3	3	21	18	42
		Class 4 - 7 Truck	ZE			\$13,928	26.3	0.1	3	6	3	12
		Class 8 Truck				\$54,400	180.3	1.3	9	24	18	51
		Class 4 - 7 Truck				\$701	29.2	0.1	3	6	3	12
Acquire ZE Yard Truck	Acquisition: Purchase Yard Truck	ZE	Number of yard trucks	1 truck purchased	\$210,000	0	0	9	168	0	177	
Use ZE Yard Truck	Use: Onsite Yard Truck Use	ZE	Hours of use	1000	\$6,250	394	19.9	3	48	240	291	
GNA Creation if NZE Hostlers are Added as Option												
Acquire NZE Yard Truck	Acquisition: Purchase Yard Truck	NZE	Number of yard trucks	1 truck purchased	\$50,000	0	0	3	40	0	43	
Use NZE Yard Truck	Use: Onsite Yard Truck Use	NZE	Hours of use	1000	\$2,250	355	19.9	3	45	240	288	

Relative % to ZE 70.7%

17-11

Response to Comment Letter #17 - PERCResponse to 17-1

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention.

Response to 17-2

The WAIRE Menu includes both NZE and ZE on-road truck acquisition and use, but the WAIRE Menu only includes ZE yard trucks. There are key policy reasons supporting why ZE yard trucks are the only option considered. First, in the on-road sector ZE trucks are not at the same stage of commercial development as NZE trucks, which have been operating in commercial service for several years, especially for Class 8 trucks. However, ZE yard trucks are commercially available today and have been operating at warehouses since 2015. Additionally, because ZE yard trucks are located at an individual facility, they are well-suited to serve as an early beachhead for the longer term development of ZE vehicle solutions.²⁹⁸ By focusing PR 2305 on ZE yard trucks, warehouse operators are introduced to ZE technology to see how it works in their operations.

Further, because yard trucks primarily stay at the warehouse facility, their emissions can have a disproportionate impact on communities surrounding warehouses compared to on-road trucks with emission miles away from a facility. Many yard trucks idle as part of their operation at warehouse facilities, and the switch to ZE yard trucks would benefit public health of the communities surrounding the warehouse by not being burdened idling emissions. Although NZE engines have lower emissions than their conventional diesel counterparts, they do still have tailpipe emissions. Finally, although the commenter states that NZE yard trucks exist, there is no acknowledgement that yard trucks come in both on-road and off-road varieties. While propane or natural gas on-road yard trucks can meet CARB's standards for NZE, CARB currently does not have a certification standard for NZE off-road purposes. It is not clear how a default NZE definition would apply in the off-road setting. Nonetheless, a CEQA alternative has been included that evaluates additional NZE compliance options (including for yard trucks) within PR 2305. Further, the second draft staff report and the accompanying WAIRE Implementation Guidelines now explicitly allow NZE yard trucks to earn WAIRE Points through a Custom WAIRE Plan, and example calculations that warehouse operators could use are included.

Response to 17-3

It is encouraging to see that renewable propane development is being pursued and is emerging as a new fuel source. The reduction of greenhouse gas emissions is an important goal, however it is not one of the objectives of this proposed rule. The objective of this rule is the reduction of these criteria pollutant emissions in order to assist in meeting federal and state air quality standards, to facilitate emission reductions in other programs, and to provide public health benefits to communities around warehouses. While renewable propane may have climate benefits, traditional propane has a carbon intensity almost identical to diesel, and it is not clear how widely available renewable propane is for wide use.²⁹⁹

²⁹⁸ https://globaldrivetozero.org/public/The_Beachhead_Model.pdf

²⁹⁹ <https://ww3.arb.ca.gov/fuels/lcfs/dashboard/dashboard.htm>

Response to 17-4

Staff appreciates PERC's work in replicating the rule language and analysis on ZE yard trucks to present how NZE yard trucks could be included in both the draft PR 2305 rule language and the draft WAIRE Menu. However, given the reasons stated in the previous response to comment regarding the commercial availability of ZE, the operation of ZE yard truck at warehouses for several years, and emission impacts from combustion operations and idling to local communities surrounding warehouses, staff is proposing to maintain the inclusion of only ZE yard trucks in the draft PR 2305 rule language and WAIRE Menu. And as stated in previous response to comments, NZE technology has been analyzed as an alternative in the CEQA analysis and will be available for consideration by South Coast AQMD Governing Board members. Staff will maintain the comment letter with the provided draft language and calculations for reference should further analysis be required. Additionally, a supplemental discussion on a NZE alternative will be included as an appendix to the Draft Staff Report. Additional responses regarding the submitted materials are included below.

Response to 17-5

The information on the 300 NZE yard trucks ordered is helpful, but additional information about how many of those 300 NZE yard trucks have been certified and delivered, and if the facility installed CNG or propane fueling infrastructure at each of the locations the NZE yard trucks operate as part of the demonstration project. As stated previously, one of the reasons that only ZE yard trucks are present in the WAIRE Menu is that they are an established technology, with some warehouses operating them since 2015. While it is interesting to note that the Port's feasibility study stated that the NZE yard truck feasibility was equivalent to ZE yard trucks, and UCR documented the 90% or greater emission reduction, the remaining emissions would still impact the local community since the yard trucks stay onsite and may at times idle. The PERC provided proposed addition to the draft WAIRE Menu Technical Document does accurately replicate the analysis performed on ZE yard trucks including the 90% emission reduction of a conventional diesel yard truck for NO_x and complete reduction of PM, and the cost analysis. However, the 2018 Feasibility Assessment for Cargo-Handling Equipment referenced analyzes a near-zero LNG internal combustion engine, and not the propane model that is proposed. Though propane may be similar to natural gas such as LNG or CNG, the proposed analysis would be better served if actual emission reductions and costs for propane fuel were used.

Response to 17-10

Staff appreciates the effort PERC has exerted in replicating the analysis and calculation of the ZE yard trucks to provide a similar analysis for NZE yard trucks. However, it should be pointed out that there is a potential difference in that the 2018 Feasibility Assessment for Cargo-Handling Equipment referenced analyzes a near-zero LNG internal combustion engine and CNG or Propane models. Additionally, the propane quick tank replacement system may have additional costs not captured in the LNG yard truck analysis.

Response to 17-11

In reviewing the proposed WAIRE Menu addition of NZE yard trucks, staff observed that the general calculation methodology for the ZE yard truck was duplicated. Staff believes that there may be differences in emission reductions and costs between the LNG values used from the 2018 Feasibility Assessment for Cargo-Handling Equipment versus the costs for CNG or propane. It is not known whether the incremental costs for an LNG yard truck would differ from a CNG or propane yard truck. There were also some minor corrections on the acquisition of NZE yard trucks,

as the stated incremental cost of acquisition of \$50,000 when binned results in two WAIRE Points not 3, and there was rounding for the regional NOx benefit binning that resulted rounding 14.2 to 15 which impacted the three times multiplier which resulted in two more WAIRE Points than should have been attributed to NZE yard truck usage being 288 rather than the staff calculated 286 WAIRE Points.

Response to 17-12

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention.

CENTER FOR COMMUNITY ACTION & ENVIRONMENTAL JUSTICE
EARTHJUSTICE
EAST YARD COMMUNITIES FOR ENVIRONMENTAL JUSTICE
INLAND COALITION FOR IMMIGRANT JUSTICE
INLAND CONGREGATIONS UNITED FOR CHANGE
LONG BEACH ALLIANCE FOR CHILDREN WITH ASTHMA
NATURAL RESOURCES DEFENSE COUNCIL
SAN PEDRO & PENINSULA HOMEOWNERS COALITION
SIERRA CLUB
WEST LONG BEACH ASSOCIATION
WAREHOUSE WORKER RESOURCE CENTER

October 8, 2020

Wayne Nastri
 Executive Officer
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765

Re: Comments on the Warehouse Indirect Source Rule (Proposed Rule 2305)

Dear Mr. Nastri:

On behalf of the undersigned coalition of community and environmental organizations, we submit these comments on the warehouse indirect source rule. Our coalition represents the communities living and working adjacent to warehouses, who continue to be disproportionately harmed by the freight industry every single day. We appreciate the Air District staff’s continued work on the warehouse indirect source rule and request that the agency move expeditiously in the development and adoption of this important regulation. 18-1

For decades, the freight industry has been polluting communities living near warehouses. These communities are exposed to toxic pollution from the warehouse industry and face unacceptable health risks as a result. While the covid-19 pandemic continues to exacerbate health impacts to communities most affected by this industry, warehouses have been profiting – and polluting – more than ever due to consumers’ increased reliance on e-commerce,¹ further compounding existing health risks in nearby communities. These trends make clear that it is time to hold warehouses accountable for the harms imposed on countless residents living near these facilities. The warehouse indirect source rule is a critical measure that will address these growing disproportionate pollution burdens and provide communities 18-2

¹ See Justin Ho, *As imports boom, warehouses fill up, and businesses face a storage shortage*, Marketplace (Oct. 1, 2020), <https://www.marketplace.org/2020/10/01/imports-boom-warehouses-fill-up-businesses-face-storage-shortage-online-shopping-covid19/>.

with the basic health protections they deserve. A rule that meaningfully regulates this industry must ensure that warehouses clean up pollution in all communities.

18-2
(continued)

An effective warehouse rule must prioritize zero-emissions technology and infrastructure, and create a real pathway to a zero-emissions future. Zero-emissions technology is the only solution that will meaningfully address this industry’s air quality and health impacts. Our coalition does not support a rule that promotes investment in near-zero technologies, as this will only serve to slow the transition to a zero-emissions freight sector. Not only will the use of near-zero technology create barriers for zero-emissions operations and infrastructure, it will continue to perpetuate the harms imposed on our communities by the natural gas and oil industry and exacerbate the serious climate and health impacts. This rule must identify clear targets for the complete phase-out of natural gas and combustion technologies. The majority of air quality benefits will be attributable to the use and operation of trucks, and the Air District should take advantage of this opportunity to incentivize the shift towards zero-emissions trucks.

18-3

18-4

The Air District must also ensure the rule starts with sufficient stringency to provide relief to communities now. We remain concerned the compliance obligations will be paltry, which will not provide the necessary relief to communities breathing some of the dirtiest air in the nation. The industry will fight a regulation at whatever level it is set, so the Air District should let public health protection guide the stringency.

18-5

Moreover, the Air District must expand and clarify their concept of a “mitigation fund.” As advocates concerned with seeing real change in communities suffering the worst impacts of air pollution, it is imperative that the mitigation fund is not used as a “pay to pollute” scheme. We need details on the Air District’s strategy to ensure that warehouses actually adopt pollution abatement strategies, rather than paying their way to compliance. If the mitigation fund is used, we would like the Air District to consider requiring that the mitigation fund dollars enter the communities in which they are coming out of to provide real community benefits, such as EV subsidies for local residents.

18-6

Finally, we urge the Air District to move forward with this rule quickly. There have been numerous delays with this rulemaking process. Communities cannot continue paying for industry with their health, especially while we are still in the midst of a pandemic that puts communities suffering from poor air quality at even greater risk of serious illness and death. We respectfully request that the District ensure that community stakeholders are included in the rulemaking process, and to adopt the rule by March 2021.

18-7

We appreciate your consideration of these comments, and the staff’s hard work on this important rule. We look forward to working with the agency to develop a strong warehouse indirect source rule that takes into account community needs and cleans up the warehouse industry.

18-8

Sincerely,

Regina Hsu
Adrian Martinez
Michelle Ghafar
Earthjustice

Esther Portillo
Center for Community Action & Environmental Justice

Taylor Thomas
East Yard Communities for Environmental Justice

Javier Hernandez
Inland Coalition for Immigrant Justice

Tom Dolan, Ph.D.
Inland Congregations United for Change

Sylvia Betancourt
Long Beach Alliance for Children with Asthma

Heather Kryczka
Natural Resources Defense Council

Peter M. Warren
San Pedro & Peninsula Homeowners Coalition

Carlo De La Cruz
Sierra Club

Andrea Vidaurre
Warehouse Worker Resource Center

Theral Golden
West Long Beach Association

cc:

Philip M. Fine, Ph.D.
Deputy Executive Officer
Planning, Rule Development & Area Sources

Sarah Rees
Assistant Deputy Executive Officer
Planning, Rule Development & Area Sources

Ian MacMillan
Planning and Rules Manager
Mobile Sources/ISR

Response to Comment Letter #18 - CCAEJ -10/8/20Response to Comment 18-1

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention.

Response to Comment 18-2

Staff agrees with your assessment that air pollution emitted from indirect warehouse sources (i.e., diesel trucks serving warehouses) contribute to air pollution, and thus negative health impacts, in communities located near warehouses. South Coast AQMD has developed PR 2305 to reduce regional and local emissions of nitrogen oxides (NOx) and particulate matter (PM) associated with warehouses assist meet the federal ozone standards and reduce health risks in the community.

Response to Comment 18-3

The objective of this rule is the reduction of these criteria pollutant emissions in order to assist in meeting federal and state air quality standards, to facilitate emission reductions in other programs, and to provide public health benefits to communities around warehouses. South Coast AQMD acknowledges the commenter's support for ZE technology, and the strategy to phase-out NZE. The current WAIRE Menu reflects many options from which warehouse operators may choose, that utilized CARB's technical documents which reflect NZE having a 90% NOx emission reduction as compared to 100% reduction by ZE technology. Based on the greater emission reductions resulting from ZE trucks, the WAIRE menu reflects more WAIRE Points attributed to ZE trucks and are awarding points for ZE charging and Hydrogen fueling infrastructure investments. Currently, the commercially available options for Class 8 Heavy-Duty trucks remain to be conventional diesel and NZE trucks, with the NZE trucks having an incrementally higher purchase price with an established natural gas fueling infrastructure. Staff acknowledges ZE trucks as emerging from demonstration projects, but with future release dates for commercial availability, and with a still developing infrastructure foundation. As the prevalence of ZE trucks and ZE charging infrastructure develops, staff sees the incremental costs of ZE decreasing lower than NZE and at a time may be even with the cost of conventional diesel technology when ZE technology does become widespread. Based on the current commercial availability, the existing NZE infrastructure, and unknown timeline for ZE trucks and infrastructure staff is recommending keeping NZE on-road trucks on the menu. However, NZE fueling stations are not offered on the WAIRE Menu. The second draft staff report and the accompanying WAIRE Implementation Guidelines now explicitly allow NZE yard trucks to earn WAIRE Points through a Custom WAIRE Plan, and example calculations that warehouse operators could use are included.

Response to Comment 18-4

The WAIRE Menu reflects more WARIE Points attributed to ZE trucks than to NZE trucks and are offering WAIRE Points for ZE charging and Hydrogen fueling infrastructure investments. As mentioned in Response to Comment 18-3, as the prevalence of ZE trucks and ZE charging infrastructure develops, staff sees the incremental costs of ZE decreasing lower than NZE technology, and may even with the cost of conventional diesel technology when the technology become widespread. Based on the current commercial availability, the existing NZE infrastructure, and unknown timeline for ZE truck and infrastructure availability, staff is recommending maintaining NZE trucks on the WAIRE Menu, which could be modified in future revisions of PR 2305.

Response to Comment 18-5

The recommended stringency was set after considering many factors including the impacts on emission reductions and public health benefits, modeled availability of trucks to turnover, costs, and the potential for warehouse relocation. The current draft of PR 2305 includes a recommended stringency of 0.0025 WAIRE Points per WATT with a three-year stringency phase-in. This stringency is anticipated to provide about \$3.5 billion in monetized public health benefits over ten years, with 42-49 premature deaths avoided each year, along with additional health benefits (e.g., reduced asthma attacks, etc.).

Response to Comment 18-6

PR 2305 sets the mitigation fee at \$1,000 per WAIRE Point (see PR 2305 section (d)(5)), which is designed to be within the range of the cost of most WAIRE Menu options. The mitigation fee is not meant as a way to avoid PR 2305's purpose of regional and local emission reductions of NOx and PM. The mitigation fees are meant to be pooled together and subsidize incentives for NZE and ZE trucks or ZE infrastructure to benefit the community surrounding the warehouse that paid the mitigation fee, and staying in the county where the warehouse is located. A short description of the proposed program is included in the Preliminary Draft Staff Report at the end of Chapter 2. Additionally, more specific requirements will be included for the Board's consideration in the resolution that would be adopted if they approve PR 2305.

Response to Comment 18-7

PR 2305 and PR 316 are anticipated to go before the Governing Board for its consideration in April 2021.

Response to Comment 18-9

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention.

From: [Jiang, Hao](#)
To: [Ian MacMillan](#)
Cc: [Victor Juan](#)
Subject: Warehouse rule - PR 2305
Date: Wednesday, November 04, 2020 5:21:34 PM

Ian,

I have following suggestions for you to consider.

- (1) To eliminate possible perplexity in rule applicability. I suggest to revise the rule applicability as:
 - (b) Applicability**
This rule applies to owners and operators of warehouses located in the South Coast Air Quality Management District (South Coast AQMD) jurisdiction with greater than or equal to 100,000 square feet of indoor floor space in a single building that *is maybe* used for warehousing activities by one or more warehouse operators.
19-1

- (2) For situations when a large building (>100,000 sq.ft.) owner installed a physical barrier or established policy to limit floor space for warehouse activity to less than 50,000 sq.ft., rule should exempt this as well.
 - (g) Exemptions**
(1) Operators In Warehouses That Have Less Than 50,000 Square Feet That They May Use For Warehousing Activities
Warehouse operators who can only use less than 50,000 square feet of a warehouse for warehousing activities due to *physical limitation, self-imposed administrative control or* terms of their lease are not subject to the requirements in subdivision (d)(1) unless the same parent company owns or controls multiple operators in the same building who collectively use more than 50,000 square feet of space for warehousing activity.
19-2

- (3) To assist regulated warehouses in complying with rule recordkeeping requirement, I suggest AQMD to create a recordkeeping template for warehouse to use.
 19-3

Thank you

Hao Jiang, P.E.
 Environmental Affairs
 Disneyland Resort
 714-781-4504
 Hao.jiang@disney.com

Response to Comment Letter #19 Disneyland Resort
Response to Comment 19-1

The applicability of PR 2305 to warehouses greater than or equal to 100,000 square feet of indoor floor space in a single building that may be used for warehousing activities is an applicability that has been revised several times to promote clarity, and adequately capture the population of warehouses that have sufficient warehousing activity that impact the air quality of both the region and the neighboring community of the warehouse. The suggestion of removing “may be” from the applicability cannot be considered because the space used at a warehouse is dynamic and can be modified at any time to accommodate higher product levels, and space can be seasonal to account for the influx of goods movement and storage during the holiday season. Increases in use due to changes in activity or due to seasonal fluctuations results in added truck trip activity which results in added regional and local NOx and PM emissions. Additional clarification has been added however to the definition for ‘warehousing activity’ to ensure that PR 2305 is focused on those kinds of operations.

Response to Comment 19-2

The proposed revision regarding the exemption provision to include a clause regarding “physical limitation” and “self-imposed administrative control” could lead to circumvention of PR 2305 as added physical limitations or self-imposed administrative control can easily be removed at any time by the warehouse operator to adjust to the demands of additional or seasonal changes. Some physical limitations are inherently included in the rule language already in that it already assumes that any permanent physical limitation in a building that prevent warehousing activities in spaces greater than 50,000 sq. ft. The suggestion to include additional language for “physical limitations” and “self-imposed administrative control” cannot be considered as the warehousing industry is dynamic and could adjust the warehouse square footage to accommodate increased demand or seasonal changes for goods storage or movement needs.

Response to Comment 19-3

Template forms will be included as part of the online portal used for reporting that will be developed if PR 2305 is approved by the Board.

CENTER FOR COMMUNITY ACTION & ENVIRONMENTAL JUSTICE
EARTHJUSTICE
EAST YARD COMMUNITIES FOR ENVIRONMENTAL JUSTICE
SIERRA CLUB
URBAN & ENVIRONMENTAL POLICY INSTITUTE
WEST LONG BEACH ASSOCIATION

December 3, 2020

Chair Burke and Members of the Governing Board
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Re: Warehouse Indirect Source Rule

Dear Chair Burke and Members of the Governing Board:

On behalf of the undersigned coalition of community and environmental organizations, we submit these comments on the warehouse indirect source rule. Our coalition represents the communities living and working adjacent to warehouses, who continue to be disproportionately harmed by the freight industry every single day. We appreciate the Air District staff’s continued work on the warehouse indirect source rule and request that the agency move expeditiously in the development and adoption of this important regulation. 20-1

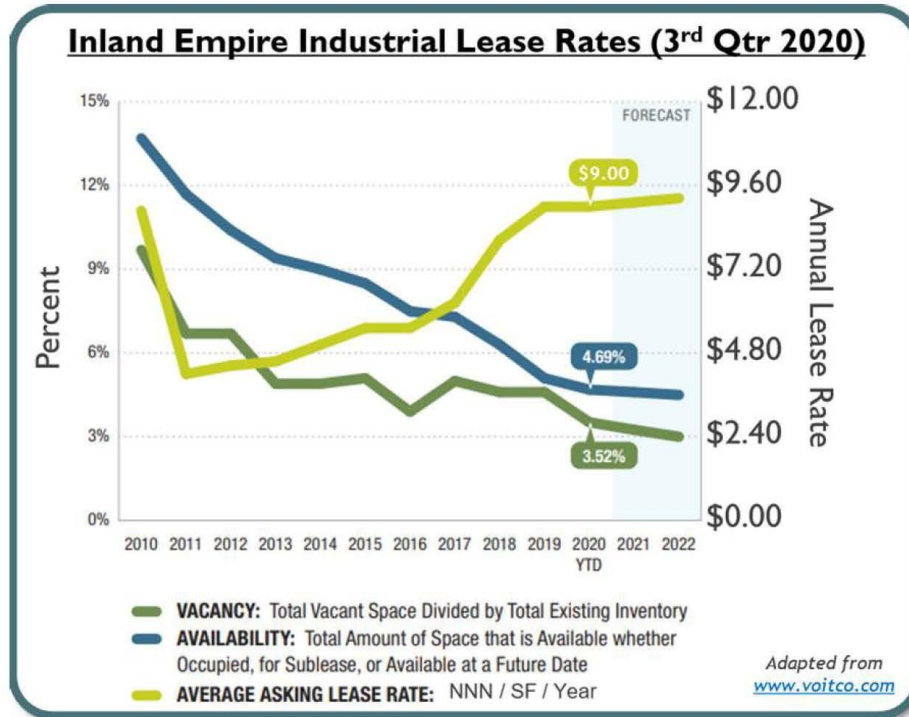
For decades, the freight industry has been polluting communities living near warehouses. These communities are exposed to toxic pollution from the warehouse industry and face unacceptable health risks as a result. The Governing Board’s agenda is replete with information showing that mandatory programs to clean up the freight industry should be a top priority for 2021. First, the draft Community Emission Reduction Plan (CERP) for Southeast Los Angeles in Agenda Item 28 identifies the warehouse indirect source rule as a critical element of the effort to address truck and traffic pollution.¹ This is similar to all the other CERPs the agency has completed under AB 617. Second, Agenda Item 5 notes that large quantities of incentive dollars targeted towards the freight industry have largely gone unused. This indicates that voluntary approaches are not sufficient because even when the Air District can pay industry to clean up, it does not necessarily avail itself of these funds. The fact that no marine projects in our region applied for the millions of dollars of available funding is offensive to communities forced to breathe the dirty diesel soot emanating from the ports. Finally, we are reminded in Agenda Item 30 that we have failed yet again to meet another federal air quality standard. These factors all point to the need for mandatory programs to clean up the freight industry with no rule more urgent to adopt than the warehouse indirect source rule. 20-2
20-3
20-4

While the covid-19 pandemic continues to exacerbate health impacts to communities most affected by this industry, the freight industry is expanding greatly. For example, the San Pedro Bay Ports have hit historic milestones of freight volumes during several months this year. In addition, warehouses have been profiting – and polluting – more than ever due to consumers’ increased reliance on e- 20-5

¹ Draft CERP, at 5b-3, available at <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2020/2020-Dec4-028.pdf?sfvrsn=6>.

commerce,² further compounding existing health risks in nearby communities. During the last Working Group meeting the AQMD Staff presentation included this graphic showing warehouse vacancy rates are very low even as lease rates are hitting the highest levels seen in a decade in the Inland Empire.

20-5
(cont.)



These trends make clear that it is time to hold warehouses and other freight facilities accountable for the harms imposed on countless residents living near these facilities. The warehouse indirect source rule is furthest along and is a critical measure that will address these growing disproportionate pollution burdens and provide communities with the basic health protections they deserve.

20-5
(cont.)

We appreciate your consideration of these comments, and the staff’s hard work on this important rule. We look forward to working with the Governing Board to develop a strong warehouse indirect source rule that takes into account community needs and cleans up the warehouse industry.

20-6

Sincerely,

Ivette Torres
Center for Community Action & Environmental Justice

² See Justin Ho, *As imports boom, warehouses fill up, and businesses face a storage shortage*, Marketplace (Oct. 1, 2020), <https://www.marketplace.org/2020/10/01/imports-boom-warehouses-fill-up-businesses-face-storage-shortage-online-shopping-covid19/>.

Adrian Martinez
Regina Hsu
Michelle Ghafar
Earthjustice

Taylor Thomas
East Yard Communities for Environmental Justice

Carlo De La Cruz
Sierra Club

Jessica Tovar
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Sarah Rees
Assistant Deputy Executive Officer
Planning, Rule Development & Area Sources

Ian MacMillan
Planning and Rules Manager
Mobile Sources/ISR

Response to Comment Letter #20 - CCAEJ - December 3, 2020Response to Comment 20-1

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention.

Response to Comment 20-2

PR 2305 has continually considered the impacts of warehouse operations on local communities, including the AB617 communities. Staff has been engaged with the AB617 Community Steering Committees, and has continued to update them on the progress of the warehouse ISR. In addition, a community workshop was held to better explain an overview of the rule and how it would be a benefit to the local community. Staff prioritized efforts to solicit feedback and comment from the community, as a way to inform revisions to the draft rule and staff's approach to the development of PR 2305. The Preliminary Draft Staff Report in Chapter 1 also notes that several AB 617 CERP's have included reference to PR 2305.

Response to Comment 20-3

The commenter's reference to Agenda Item 5 related to the undersubscription of the VW Mitigation Trust which is in the first year for the program. Part of the reason for the unused incentive funds was that the program was undersubscribed partially due to the incentive funding amounts being set lower, and thus not being competitive with the previously mentioned established incentive programs. The commenter's point that sufficient demand is needed to fully utilize incentive funding is correct. This can occur through mechanisms like higher incentive levels, complementary strategies across different incentive programs, and through other market drivers, such as regulations.

Response to Comment 20-4

Staff agrees that slow progress to meeting federal air quality standards underscores the need for addressing the immediate needs to reduce emissions in the near term to assist in attainment of the 2023 and 2031 federal ozone standards. PR 2305 stems from the 2016 AQMP as a strategy to reduce regional NOx as a way to meet attainment with the federal and state ambient air quality standards. PR 2305 is being developed to reduce mobile source emissions attracted to warehouses toward the immediate federal ozone attainment goals and to facilitate the implementation of other related rules and regulations.

Response to Comment 20-5

COVID-19 has had a dramatic impact on the health of local communities, while at the same time increasing activity in the logistics industry. The consistently low vacancy rates and higher lease rates mentioned by the commenter were analyzed in the development of PR 2305, to help address the disproportionate burden of air pollution in the communities neighboring warehouses and reduce emissions. PR 2305 is fully defined with the recommended stringency and stringency phase-in determined, while analyzing the emission and cost impacts of the stringency on the range of options offered on the WAIRE Menu.

Response to Comment 20-6

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention.

Kevin Maggay
Environmental Affairs
kmaggay@socalgas.com
858-254-7556



January 14, 2021

Ian MacMillan
Planning & Rules Manager
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Dear Mr. MacMillan,

Thank you for the opportunity to provide comments on the Proposed Rule 2305: Warehouse Indirect Source Rule (ISR Rule). SoCalGas looks forward to working with the South Coast Air Quality Management District on this effort. While the rule is not in a formal comment period, SoCalGas would like to provide the following comments to assist in its further development.

21-1

Early emission reductions should be weighted

The concept of an ISR Rule was included in the 2016 Air Quality Management Plan (AQMP) with the purpose of achieving 2023 attainment. The early focus of the ISR Rule should remain on achieving State Implementation Plan (SIP) creditable emission reductions to meet 2023 attainment. With that in mind, the ISR Rule should include provisions that heavily weight actions to achieve early, creditable emission reductions. Truck trips with technologies cleaner than baseline diesel would be an example of an action that would get immediate SIP creditable emission reductions to help meet 2023 attainment and should therefore be awarded weighted Warehouse Action and Investments to Reduction Emissions (WAIRE) points. Actions to reduce greenhouse gases or that merely enable emission reductions such as solar panels and infrastructure, respectively, should not be eligible for weighted points because they do not directly achieve SIP creditable emission reductions.

21-2

The incremental cost of hydrogen is not included in the WAIRE point calculations

Zero emission trucks are grouped together regardless of the technology – plug-in or hydrogen – and generate the same number of WAIRE points per trip. However, the number of WAIRE points generated

21-3

are partly determined by the incremental cost. Hydrogen, which has a higher incremental cost than plug-in technologies should therefore generate more WAIRE points. The WAIRE menu should include a separate line item for hydrogen powered trucks and the WAIRE points should be recalculated based on its incremental cost.

21-3
(cont'd)

Emissions reduction calculations may be overestimated when relying on EMFAC assumptions

The emission calculations for heavy-duty truck trips are developed using EMFAC vehicle mile travelled (VMT) data based on existing diesel trucks. Plug-in heavy-duty trucks are significantly limited in the number of miles they can travel because of range capabilities as well as charging downtime. It is not realistic to believe that current plug-in truck technologies can do the same number of daily or annual VMTs as diesel trucks, therefore the emission reductions would be overstated. The amount of WAIRE points a plug-in truck can generate should be limited by its mileage. Other zero and near-zero emission technologies that have long range capabilities should be assumed to achieve the same VMT as diesel.

21-4

Entities should have options to claim more emission reductions and WAIRE points based on operations

The ISR Rule should include provisions that allow entities to claim more emission reduction and WAIRE points than the default based on operations. As an example, VMT is the metric that drives emissions and emission reductions. Trucks in longer range operations inherently achieve more emission reductions when being done by cleaner technologies. Operations that travel more miles than the default EMFAC VMT should have a mechanism to demonstrate that they are achieving more mileage and therefore more emission reductions. Achieving more emission reductions should then result in more WAIRE points.

21-5

Thank you again for the opportunity to comment and we look forward to working with you on this rule.

21-6

Sincerely,



Kevin Maggay
Environmental Affairs
SoCalGas

CC: Sarah Rees (SCAQMD)
Priscilla Hamilton (SoCalGas)
Dan McGivney (SoCalGas)

Response to Comment Letter – 21_SoCalGasResponse to Comment 21-1

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention.

Response to Comment 21-2

Staff intends to pursue State Implementation Plan (SIP) creditable emission reductions for PR 2305, but the main purpose of the PR 2305 is to reduce regional and local NO_x and PM emission reductions toward our immediate need to meet the 2023 and 2031 federal ozone attainment standards, and to reduce emissions and exposures for local communities. Additional information regarding the proposed approach to obtaining SIP credit for PR 2305 can be found in Appendix D of PR 2305's Preliminary Draft Staff Report (PDSR). Due to the nature of the proposed rule and the accounting rules from EPA, SIP credit for all of the emission reductions cannot be claimed at time of rule adoption. However, the emission reductions evaluated in the Preliminary Draft Staff Report are expected to be SIP creditable, for example through future updates to CARB's EMFAC tool. The best estimate is that about 2.5 – 4 tpd of NO_x reduction can be achieved by the rule, however continued tracking will be a necessary component to evaluate rule progress if it is approved by the Board.

Staff agrees with the importance of achieving emission reductions as soon as possible to help with our immediate ozone attainment goals for 2023 and 2031. Early action in complying with PR 2305 is beneficial to warehouse owners and operators because complying with PR 2305 will help them complying with other upcoming state regulations such as CARB's Transport Refrigeration Unit (TRU) or the Low NO_x Omnibus regulations. Warehouse operator could purchase new equipment in advance of the CARB regulations in order to earn WAIRE Point for compliance efforts years in advance of the actual implementation dates. In addition, PR 2305 has an early action provision that allows WAIRE Point banking ahead of the WAIRE Program implementation phase in. As an example, a warehouse operator who operates a 150,000 square foot warehouse has an initial compliance period does not start until 2023, but could start earning WAIRE Points as early as January 1, 2022 and the three year banking period would not start until the warehouse officially phases in in 2024. Finally, PR 2305 is designed to be flexible to meet the varied needs of industry, and how those needs can change year to year for any individual facility. Options like solar panels and infrastructure are important components because they can help facilitate emission reductions, and are onsite actions that warehouse operators can potentially take.

Response to Comment 21-3

Staff analyzed the installation of Hydrogen fueling infrastructure separately from electric charging stations due to the inherent differences in the construction and operation of these technologies. However, the analysis of ZE truck acquisitions and usage were calculated together for both electric and hydrogen fuel cell trucks. The lower cost for electric trucks was included in the draft WAIRE Menu Technical Report with the assumption that warehouse operators will choose the lower cost option. However, if hydrogen trucks make sense for a warehouse operators (e.g., by becoming cheaper than electric counterparts), they will receive the same number of WAIRE Points due to the same level of emission reductions. Because emission reductions are one of the primary goals of PR 2305, no extra WAIRE Points were provided for hydrogen trucks that have the same emissions benefit as electric trucks.

Response to Comment 21-4

WAIRE Points are earned for every truck trip to a facility and annual mileage per truck is not considered. The mileage per trip assumed for trucks is within the range of commercial and pre-commercial ZE trucks (~40 miles per trip for tractors, ~14 miles per trip for straight trucks) and is therefore appropriate for use. While electric trucks do not currently have the range to travel many hundreds of miles, the emissions analysis and WAIRE Points do not assume this is the case, and emission reductions are not overestimated.

Response to Comment 21-5

VMT calculations are impractical for warehouse operators to make in the context of PR 2305 for many reasons. First, trucking companies have expressed concern that they do not want to share where they go with warehouse operators as it can affect business competition. Second, determining how much of a truck load is dedicated to one warehouse's VMT is not clear when a single load could contain goods from or going to multiple destinations. Finally, the administrative burden of tracking this VMT is impractical for a warehouse operator, and for South Coast AQMD to manage for 4,000 warehouse operators subject to PR 2305.

Response to Comment 21-6

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention.

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distinctionscommenter.turncommenter'scommenter'scommenter'scommenter

TESLA Summary of Comments on Draft Proposed Rule 2305

Page: 1


PROPOSED RULE 2305 WAREHOUSE INDIRECT SOURCE RULE – WAREHOUSE ACTIONS AND INVESTMENTS TO REDUCE EMISSIONS (WAIRE) PROGRAM

(a) Purpose

The purpose of this rule is to reduce local and regional emissions of nitrogen oxides and particulate matter, and to facilitate local and regional emission reductions associated with warehouses and the mobile sources attracted to warehouses in order to assist in meeting state and federal air quality standards for ozone and fine particulate matter.


(b) Applicability

This rule applies to ¹ owner and operators of warehouses located in the South Coast Air Quality Management District (South Coast AQMD) jurisdiction with greater than equal to 100,000 sq ar feet of indoor floor space in a single building ~~dedicated to that~~ may be used for warehousing activities by one or more warehouse operators.

 Number: 1 Author: nderrickson Subject: Sticky Note Date: 12/16/2020 11:11:48 AM

One key issue we see here is if a warehouse owner/operator leases or contracts for (but doesnt own) an all-electric fleet and uses off-site charging, there would not qualify for earning points. Could the owner/operator be in compliance if they demonstrate use of electric vehicles and charging without owning them on site?

Relatedly, since points can't be earned for activities required by CARB, would warehouse owners/operators already required to electrify their fleets and charging have to go above the CARB requirement for locating charging stations and vehicles at specific locations?

 Number: 2 Author: nderrickson Subject: Highlight Date: 12/4/2020 5:27:39 PM

22-1

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tractor is parked at a warehouse.

1 ELECTRIC CHARGER means an electric charging station for vehicles. Each unique plug that can charge an individual vehicle at any time, regardless of whether other electric chargers/plugs are operating, counts as one electric charger. This equipment is also referred to as Electric Vehicle Supply Equipment (EVSE).

FUEL TYPE means the fuel used to power a vehicle, such as electricity, hydrogen, natural gas, gasoline, or diesel fuel.

2 LEVEL 2 CHARGER means electric vehicle supply equipment (EVSE) that can deliver an electric charge up to a rate of 19.2 kilowatts (kW).

3 LEVEL 3 CHARGER means EVSE that can deliver an electric charge between 19.2 and 50 kW

4 LEVEL 4 CHARGER means an EVSE that can deliver an electric charge between 51 and 150kW

5 LEVEL 5 CHARGER means an EVSE that can deliver an electric charge above greater than 151 kW.

6 NEAR-ZERO EMISSIONS (NZE) TRUCKS means trucks or tractors with engines that meeting the California Air Resources Board's

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(Version 10/6/2020)

Number: 1 Author: nderrickson Subject: Highlight Date: 12/16/2020 10:58:12 AM

This definition is confusing around unique plug. Some charging station stalls have two plugs, CCS and Chademo, and only one of the plugs can be used at a time to charge an EV.

We recommend using the definition outlined in the California Energy Code or something more similar to:

"Electric Vehicle Charging Station" or "Electric Vehicle Supply Equipment" means any level of equipment outlined in Article 625 of the California Electrical Code for the purpose of delivering electricity from a source outside an electric vehicle into a plug-in electric vehicle."

Number: 2 Author: nderrickson Subject: Highlight Date: 12/4/2020 6:05:51 PM

Number: 3 Author: nderrickson Subject: Sticky Note Date: 12/16/2020 11:00:42 AM

There are already legally established EV charging levels. These levels should be consistent with them.

LEVEL 1 CHARGER means EVSE that can deliver an electric charge at a rate up to 120-volts. Typically 1kW - 1.4 kW rating.

LEVEL 2 CHARGER means EVSE that can deliver an electric charge at a rate up to 240-volts. Typically 4.8kW to 17.3kW rating.

LEVEL 3 CHARGER or DIRECT CURRENT FAST CHARGER means EVSE that can deliver an electric charge at a rate up to above 480-volts. Typically up to 120+kW.

There may be a desire to also include a higher level charger that serves the Class 7/8 trucks which need charging beyond ~300kW. We should discuss this more given that the industry is working collaboratively on a universal high powered charger.

22-2

22-3

(d) Requirements

(1) Warehouse Points Compliance Obligation

Beginning with the Initial Reporting Date in Table 21, a warehouse operator shall earn the applicable WAIRE Points, for the prior 12-month period from July 1 through June 30, in the amount identified in Table 4-2 as specified in subparagraph (d)(1)(A). WAIRE Points shall be earned for actions and investments completed during the compliance period while the warehouse operator occupied the warehouse, except as specified in paragraph (d)(3). Subdivision (d) only applies to Only warehouse operators in buildings with greater than or equal to 100,000 square feet of floor area dedicated to warehousing that may be used for warehousing activities and who operate

PR2305 - 4

(Version 10/6/2020)

Number: 1 Author: nderrickson Subject: Highlight Date: 12/16/2020 11:08:20 AM

One conceptual issue is that the program seems to capture all trips to and from a warehouse, but doesn't distinguish between trucks that are or aren't actually domiciled at that warehouse. If, for example, a long-haul truck brings goods to a warehouse from 600 miles away, that would count as one trip even though there's currently no cost-effective way to electrify that trip (it would require a public charging network, which is outside of the scope of the operator). Similarly, if you're going back and forth between two warehouses in their jurisdiction, would that count as 2 trips for each warehouse, 4 trips total?

22-4

Number: 2 Author: nderrickson Subject: Highlight Date: 12/4/2020 6:08:59 PM

It might be helpful to spell out what WAIRE stands for in the definition section. Does WAIRE mean Warehouse Compliance Obligation Points?

22-5

Proposed Rule 2305

(B) The Weighted Annual Truck Trips (WATTs) at a warehouse include all actual truck trips that occurred at a warehouse while the warehouse operator was responsible for operations during the 12-month compliance period. If a warehouse is occupied by more than one warehouse operator, the WATTs are calculated only for truck trips to or from that operator. Actual truck trip data to a warehouse shall be collected by the warehouse operator and WATTs shall be calculated according to the following equation and as specified in the WAIRE Program Implementation Guidelines.

$$WATTs = [Class 4-2b to 7 truck trips] + [2.5 \cdot Class 8 truck trips]$$

Where:

Class 4-2b to 7 truck trips = All trucks or tractors that entered or exited a warehouse truck gate(s) or driveway(s) that are truck class 2b, 3, 4, 5, 6, or 7. If truck class

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(Version 10/6/2020)

Number: 1 Author: nderrickson Subject: Highlight Date: 12/4/2020 6:13:44 PM

Does this mean all truck trip that occurred to and from the warehouse? Only from vehicles that are engaged in warehouse commercial operation? All trucks that leave or arrive at the warehouse? There could be some loop holes depending on how you write this.

Perhaps add in what is outlined below: "trucks are all straight trucks that entered or exited a warehouse truck gate(s) or driveway(s)."

22-6

Number: 2 Author: nderrickson Subject: Highlight Date: 12/4/2020 6:12:58 PM

Is 2.5 based off of something particular? Or just a general approximation of emissions differences between lower classes and class 8?

22-7

- (C) If a warehouse operator does not have information about the number of truck trips at a warehouse due to a force majeure event such as a destruction of records from a fire, the WATTs shall be calculated according to the following equation.

$$WATTs = Days\ per\ Year \times Warehouse\ Size \times WTTR$$

Where:

Days per Year = The number of days that the warehouse operator has operational control of the warehouse during the 12-month compliance period

Warehouse Size = Warehouse size in thousand square feet (tsf), as defined in subdivision (c)

WTTR = Weighted Truck Trip Rate, where:
 Warehouses $\geq 200,000$ = 0.95 trips/tsf/day
 Warehouses $\geq 100,000$ = 0.67 trips/tsf/day
 Cold Storage Warehouses = 2.17 trips/tsf/day

(2) Earning WAIRE Points

WAIRE Points shall only be earned through completing actions in the WAIRE Menu in Table 3 and as described in (d)(3), or by completing actions in an approved Custom WAIRE Plan as described in (d)(4), or by choosing to pay a mitigation fee as described in (d)(5) in lieu of completing actions in the WAIRE Menu or in an approved Custom WAIRE Plan.

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(Version 10/6/2020)

Number: 1 Author: nderrickson Subject: Sticky Note Date: 12/4/2020 6:17:10 PM
 Should we add in an option for those warehouses who don't have the current capacity to track and report this data to also be able to use the formula? We could add in something like " or lack of internal capabilities". We would need to think through if companies would default to this and if this equation under estimates. It may be a good concession for some of the business interests on burdensome reporting.

Number: 2 Author: nderrickson Subject: Highlight Date: 12/4/2020 6:17:28 PM

22-8

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 Number: 1 Author: nderrickson Subject: Highlight Date: 12/4/2020 6:18:51 PM

- (A) A description how the proposed actions will achieve quantifiable, verifiable, and real NOx and DPM emission reductions as quickly as feasible, but later than three years after plan approval; and
 - (B) A quantification of expected NOx and/or DPM emission reductions from the proposed project within the South Coast AQMD and within three miles of the warehouse; and
 - (C) A description of the method to be used to verify that the proposed project will achieve NOx and/or DPM emission reductions; and
 - (D) A schedule of key milestones showing the increments of progress to complete the proposed project; and
 - (E) A description of the location and a map of where the proposed project will occur; and
 - (F) Any expected permits or approvals required by other private parties, or South Coast AQMD, or other federal, state, or local government agencies to implement the proposed plan.
- (iv) Any proposed plan that relies on VMT reduction must demonstrate that these reductions are surplus to what is included in the most recent approved Regional Transportation Plan (RTP) and Air Quality Management Plan (AQMP).
- (B) Review of Custom Option Plan Applications
- (i) A Custom WAIRE Plan application must be submitted at least 9 months before an Annual WAIRE Report is due for the year in which the Plan will earn Points.
 - (ii) Within 30 days of receipt of the Custom Option Plan, the Executive Officer will conduct an initial review of the Custom Option Plan and confirm receipt.
 - (iii) The Executive Officer shall approve or reject the Custom Option Plan within 3 months of submittal. If no formal approval or rejection is received by the applicant, the application is presumed rejected unless otherwise provided

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(Version 10/6/2020)

 Number: 2 Author: nderrickson Subject: Highlight Date: 12/4/2020 6:20:16 PM

That is quite a long time before. I wonder if there will be push back on this timing from business interests.

22-9

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(4)(5) Mitigation Fee

In lieu of earning the required number of WAIRE Points in paragraph (d)(3) or (d)(4) If a warehouse operator does not earn a sufficient number of WAIRE Points to may choose to satisfy all or any remaining part of their WAIRE Points Compliance Obligation in (d)(1), they shall pay through payment of a mitigation fee to make up the difference according to the schedule below. The mitigation fee rate shall be equal to in the amount of 21,000XX for each WAIRE Point.

(A) In any one compliance year, if a warehouse operator does not complete at least 50% of their WAIRE Points Compliance Obligation through the earning of WAIRE points from Table 3, the following year the mitigation fee rate shall be ten percent more than the dollar value per WAIRE Point that the warehouse operator paid in the previous year.

(5)(6) Transferring WAIRE Points

WAIRE Points are not transferable, except as specified below.

(A) Transferring WAIRE Points to a Different Warehouse

3 a warehouse operator conducts warehousing activities at more than one warehouse, then WAIRE Points earned for one warehouse may be used at the other warehouse(s) under the operational control of that am warehouse operator. Only those points that are earned

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(Version 10/6/2020)

1	Number: 1 Author: nderricksonSubject: Highlight Date: 12/4/2020 6:21:11 PM and/or owner?	22-10
1	Number: 2 Author: nderricksonSubject: Highlight Date: 12/4/2020 6:30:29 PM Where do the mitigation fee funds go?	22-11
1	Number: 3 Author: nderricksonSubject: Highlight Date: 12/4/2020 6:31:02 PM This flexibility is good and important to include.	22-12

Proposed Rule 2305

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Number: 1 Author: nderrickson Subject: Highlight Date: 12/4/2020 6:33:25 PM

22-13

- (D) the warehouse has an alternative fueling station(s) or electric charging station(s) located onsite, the Initial Site Information Report shall include
- (i) Number of electric chargers/alternative fueling stations installed. The report must include the level for each electric charging station. For alternative-fueling stations, the report must include the fuel type, maximum fuel dispensing rate, the maximum amount of fuel that can be dispensed daily, and the pressure of the fueling system, if applicable.
 - (ii) Types of vehicles served;
 - (iii) Total fuel dispensed and/or charging provided in the previous 12-month period.
- (E) If the warehouse operator has yard trucks that are based-used at that site-warehouse facility, the Initial Site Information Report shall include:
- (i) Number of yard trucks, and indicate which of these are registered as motor vehicles under Vehicle Code section 4000, et seq. by onroad and offroad classification;
 - (ii) Fuel type and engine size; and
 - (iii) Total annual hours of operation of all yard trucks.
- (F) If the warehouse has onsite alternative energy generation equipment and/or onsite energy storage equipment, the Initial Site Information Report shall include:
- (i) The type and rated capacity of the alternative energy generation system in kilowatts and kilowatt-hours per year, and/or rated capacity of the energy storage system in kilowatt-hours, as applicable.
 - (ii) The total energy generation and/or usage of the energy storage system in kilowatt hours expected during the next applicable 12-month compliance period in subdivision (d).

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(Version 10/6/2020)


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(Version 10/6/2020)

Table 1-2 – Annual Variable

WAIRE Report Year*	Annual Variable
First Year	<input checked="" type="checkbox"/> X
Subsequent Years	XX
Etc.	XX
	XX
	XX

* This is the year that a warehouse submitted its Annual WAIRE Report.

 Number: 1 Author: nderrickson Subject: Highlight Date: 12/4/2020 6:40:17 PM

Is there any more information on what the annual variable might be, how it is calculated, and the strategy around it?

22-14

Table 3 WAIRE Menu

Action/Investment	Action/Investment Details	Reporting Metric	Annualized Metric	WAIRE Points per Annualized Metric	Discounted WAIRE Points Subparagraph (d)(5)(A)
Acquire ZE/NZE Trucks in Warehouse Operator Fleet	ZE Class 8	Number of trucks	One truck/acquired	126	126
	ZE Class 4-7			68	68
	ZE Class 2b-3			14	14
	NZE Class 8			55	55
	NZE Class 4-7			26	26
ZE/NZE Truck Visits	ZE Class 8	Number of visits	365 truck visits	51	51
	ZE Class 4-7			12	9
	ZE Class 2b-3			9	6
	NZE Class 8			42	24
	NZE Class 4-7			12	9
Acquire ZE Yard Truck		Number of yard trucks	One yard truck acquired	177	177
Use ZE Yard Truck		Hours of use	1,000 hours	291	51
Install Onsite ZE Charging or Fueling Infrastructure	Level 4 EVSE Purchase	Number of EVSE purchased	One EVSE purchased	51	51
	Level 4 EVSE Purchase			51	51
	Level 3 EVSE Purchase			26	26
	Level 2 EVSE Purchase			5	5
	TRU Plug EVSE Purchase			1	1
	Begin construction on Level 3, 4, or 5 charger project	First day of construction	One construction project	2	2
	Begin construction on Level 2 charger project			9	9
	Begin construction on TRU Plug project			5	5
	Finalize Level 3, 4, or 5 charger project			59	59
	Finalize Level 2 charger project			9	9
Finalize TRU Plug project	7	7			
Hydrogen (H ₂) Station	2	2	2	2	
Use Onsite ZE Charging or Fueling Infrastructure	Vehicle Charging	Kilowatt-hours (kWh) of dispensed electricity	165,000 kWh	42	24
	TRU Charging	Kilowatt-hours (kWh) of dispensed electricity	10,638 kWh	10	3
	H ₂ Station Usage	Kg of dispensed H ₂	6,152 kg	43	25
Install Onsite Solar Panels	Rooftop	Size of system in kW	100 kW system	73	73
	Canopy			27	27
Use Onsite Solar Panels		Energy production in kWh	165,000 kWh	2	2
Install High-Efficiency Filters or Filter Systems in Residences, Schools, Daycares, Hospitals, or Community Centers	Install Stand-Alone System	Number of systems installed	25 systems	55	55
	Install Filters	Number of filters installed	200 filters	51	51

PR2305 - 19

(Version 10/6/2020)

- 11 Number: 1 Author: nderrickson Subject: Highlight Date: 12/16/2020 11:04:37 AM
 This should be updated to the levels of charging based off of the aforementioned already established charging levels 1- 120V, 2 - 240V, 3 or DCFC - 480+V and perhaps adding a high powered charger as well for Class 7/8 trucks. 22-15

 The way points are calculated may be best and fairly determined through a scaled \$/kWh charge rate for the different levels of charging and also a scaled cost for the different construction costs for different levels of charging. For example, the point calculation should not disincentivize higher powered, more expensive charging stations.
- 11 Number: 2 Author: nderrickson Subject: Highlight Date: 12/16/2020 11:12:50 AM
 Can you explain what a "TRU Plug EVSE Purchase" is? 22-16
- 11 Number: 3 Author: nderrickson Subject: Highlight Date: 12/16/2020 11:21:57 AM
 The hydrogen fueling station is worth much more than points for an EV charging station. Usage points should be scaled so they are equivalent between vehicle miles traveled. 22-17

Response to Comment Letter #22 - Tesla - December 16, 2020

Tesla submitted an email with a Word Version of the PR2305 with tracked changes and comments, a subsequent call and conversation was held with Tesla on 01/27/2021.

Response to Comment 22-1

Staff is aware of the different business models of warehouse owners with a number warehouse operators also owning and operating a fleet. The WAIRE Menu includes actions and investments for NZE or ZE truck visits of Class 2b-7 or Class 8 whether or not the warehouse operator owns the fleet. Based on the analysis of staff, many warehouse operators do not own their own fleet, but can contract with fleets with NZE or ZE trucks. Additionally, if the warehouse operator installed ZE charging infrastructure, the warehouse operator would earn WAIRE Points for the installation and also the usage of the ZE charging infrastructure based on the annual metrics as listed on the WAIRE Menu. At the present time, there are no adopted CARB Regulations that require operating a ZE fleet or installation of ZE charging infrastructure. One of the purposes of PR 2305 is to facilitate other local or regional reductions. Having the ZE truck acquisition and use along with ZE infrastructure installation and use, motivates early action on those other regulations for early adoption of ZE technology. When other regulations require and implement deadlines to electrify their fleets or use ZE chargers, then WAIRE Points would no longer be earned for those actions that no longer go above and beyond U.S. EPA, CARB, or South Coast AQMD rules and regulations.

Response to Comment 22-2

Staff agrees that some charging station stalls will include two plugs, but WAIRE Points will only be earned for the use of one plug, and the installation of an optional plug is not necessary and will not earn additional WAIRE Points. A two plug charging station stall, may increase utilization which would result in more WAIRE Points earned for the increased usage. The definition provided for Electric Charger, is specifically worded for the WAIRE Program menu-based point system concept.

Response to Comment 22-3

Staff agrees with the comment on the defined levels for the range and level of chargers, and has revised the rule to reflect the different ranges of chargers. The charger level references were removed in favor of listing ranges of charger kW ratings, and the 240-volts electric charge rate was included in the Electric Charger definition.

Response to Comment 22-4

The analysis of truck trips assumes a certain number of miles per trip depending on the class of the trucks and if the warehouse is a cold storage facility or not, and also factors in a discounting for overlapping trips. Providing for these factors, a truck trip was assumed to be 39.9 miles. We recognize that some actual trips will be longer, as in the long haul example provided in the comment of 600 miles, and some actual trips will be shorter, but the trip length is assumed to be an average.

Response to Comment 22-5

WAIRE stands for Warehouse Actions and Investments to Reduce Emissions, and is spelled out on the main heading of PR 2305, but not on the header section d. The header for section (d) has been revised to avoid confusion.

Response to Comment 22-6

For the WATTs calculation, the Class 2b-7 straight trucks and the Class 8 tractors engaged in commercial operations are to be counted to determine the WATTs. Truck trips for such activities

as correspondence mail deliver or vendor service trucks will not be counted as part of the truck trips to determine the WATTs.

Response to Comment 22-7

The 2.5 coefficient for the Class 8 truck trips represents the approximately 2.5 times more emissions or activity of Class 8 tractors than the smaller Class 2b-7 straight trucks.

Response to Comment 22-8

Truck trip count data should be representative and verifiable, and utilize a method of counting that can meet that standard. The subsection of the rule highlighted in the comment, is in the event of force majeure when due to an event such as a fire that destroys the truck trip count data. This alternative calculation can only be used in the extreme case where data is lost and a warehouse operator must use the Weighted Truck Trip Rate (WTTR). There is no reliable correlation between the size of a warehouse and the number of truck trips, and that poor relationship can be seen in the high number of truck trips for small cold storage or cross dock warehouses. Therefore the use of the WTTR is only in the extreme case of truck trip data loss due to force majeure. Nevertheless, the WAIRE Program Implementation Guidelines provide for a variety of methods that can be utilized by a warehouse operator to provide truck trip count data. The purpose of the alternatives methods is to provide warehouse operators with the flexibility to choose a methodology that is best adaptable to their operations and thereby reduce any burden from reporting.

Response to Comment 22-9

There is an immediate need and legal obligation in the South Coast AQMD jurisdiction to meet the federal ozone standards in 2023 and 2031. To do so NO_x and PM emissions must be reduced as quickly as feasible, so it is necessary to have time limits on the Custom WAIRE Plans. Without the deadlines, project development could take years and never meet the potential emission reductions outlined in the Custom WAIRE Plan applications. Additionally, there are deadlines in the Custom WAIRE Plan application process to provide adequate time for the warehouse operator to implement the Custom WAIRE Plan once approved in order to earn WAIRE Points, and there are also time lines for which approved plans will be available for public review.

Response to Comment 22-10

Most of the requirements of the PR 2305 are the responsibility of the warehouse operator. The warehouse owner is mainly required to provide limited reporting. However, there are cases where the warehouse owner is also the warehouse operator or if the warehouse operator wishes to comply with PR 2305 on behalf of the warehouse operator and then transfer those WAIRE Points. The requirement to earn WAIRE Points or pay the optional mitigation fee to meet the WPCO is the responsibility of the warehouse operator and not the warehouse owner. Therefore, the warehouse owner would never be responsible for paying the mitigation fee.

Response to Comment 22-11

The mitigation fee funds would be pooled to subsidize incentive programs toward NZE or ZE trucks or ZE charging infrastructure back to the communities surrounding the warehouse that paid the mitigation fee. More details on the mitigation fee program will be developed, and brought to the South Coast AQMD Governing Board, as it is not currently known how many warehouse operators will actually choose to pay the optional mitigation fee in lieu of the lower cost WAIRE Menu options such as NZE or ZE truck visits.

Response to Comment 22-12

Staff acknowledges that there are warehouse operators that have operational control over other applicable warehouses. The provision to allow the limited transfer of excess WAIRE Points, does

include conditions such as discounting the local benefit component of the WAIRE Points as that local benefit should stay near the community where the local benefit was generated. This limited transfer provision of excess points to other warehouses under the same operational control allows warehouse operators to implement larger scale projects one warehouse at a time, rather than be limited to smaller projects at each warehouse due to the high capital expenses of large projects.

Response to Comment 22-13

The comment bubble on page 8 of PR 2305, just has highlighted text, but no entry in the comment bubble and appears to relate to the charging infrastructure component of the Initial Site Information Report. No response will be provided as it appears to just be a highlighted section.

Response to Comment 22-14

The annual variable is related to the phase in of the recommended stringency, which was not available on the draft the comment bubbles address. In the latest draft of PR 2305, the recommended stringency is 0.0025 WAIRE Points per WATT with a phase-in of 3 years. In order to phase-in the stringency over three-years, the annual variable is set to successive thirds, with the First Year Annual Variable being 1/3, the Second Year Annual Variable being 2/3, and the Third Year Annual Variable reaching full stringency of 1 for that year and each year thereafter.

Response to Comment 22-15

As stated in the previous response to comments, the charging levels were revised to clarify charging ranges for chargers above 19.2 kW and up to 350 kW. Staff acknowledges the potential for charging levels higher than 350 kW. In the event a warehouse operator would like install or use higher charging level chargers, they may earn WAIRE Points by submitting a Custom WAIRE Plan application. In that application they can analyze the new technology and higher charging levels to calculate the WAIRE Points that may be earned. Once the Custom WAIRE Plan is approved, the warehouse operator may start earning WAIRE Points.

Response to Comment 22-16

The TRU Plug EVSE purchase is the purchase of the wall or pedestal plug unit that trailer TRUs may plug into at cold storage warehouse or other facilities that get regular deliveries of time sensitive goods in TRU equipped trucks or trailers.

Response to Comment 22-17

The methodology on calculating the WAIRE Points for the WAIRE Menu actions and investments considers cost effort. At this time the cost of hydrogen fuel and hydrogen fueling equipment is expensive but is expected to decrease in time. The high costs of hydrogen fueling stations is reflected in the higher amount of WAIRE Points attributed to the hydrogen fueling stations. Though the cost may be higher, some warehouses may decide on fuel cell technology because it may be more beneficial to their business model.

**CENTER FOR COMMUNITY ACTION & ENVIRONMENTAL JUSTICE
 EARTHJUSTICE
 EAST YARD COMMUNITIES FOR ENVIRONMENTAL JUSTICE
 LONG BEACH ALLIANCE FOR CHILDREN WITH ASTHMA
 NATURAL RESOURCES DEFENSE COUNCIL
 PARTNERSHIP FOR WORKING FAMILIES
 SAN PEDRO & PENINSULA HOMEOWNERS COALITION
 SIERRA CLUB
 THE LOS ANGELES COUNTY ELECTRIC TRUCK & BUS COALITION
 WAREHOUSE WORKER RESOURCE CENTER
 WEST LONG BEACH ASSOCIATION**

February 5, 2021

Ian MacMillan
 Planning and Rules Manager
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765

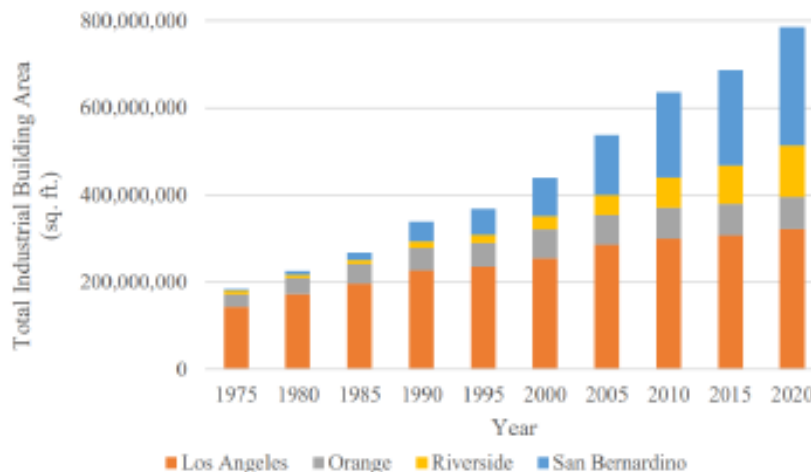
Re: Comments on the Warehouse Indirect Source Rule (Proposed Rule 2305)

Dear Mr. MacMillan,

On behalf of the undersigned coalition of organizations, we submit these comments on Proposed Rule 2305. We appreciate staff's continued work on the warehouse indirect source rule, but we remain concerned that the current proposal will not meaningfully regulate an industry that has polluted communities for years. As demonstrated in the figure below, the warehouse industry has grown steadily in the South Coast Air Basin in the past two decades,¹ and nearby communities continue to be disproportionately impacted by the polluting trucks visiting these facilities.

23-1

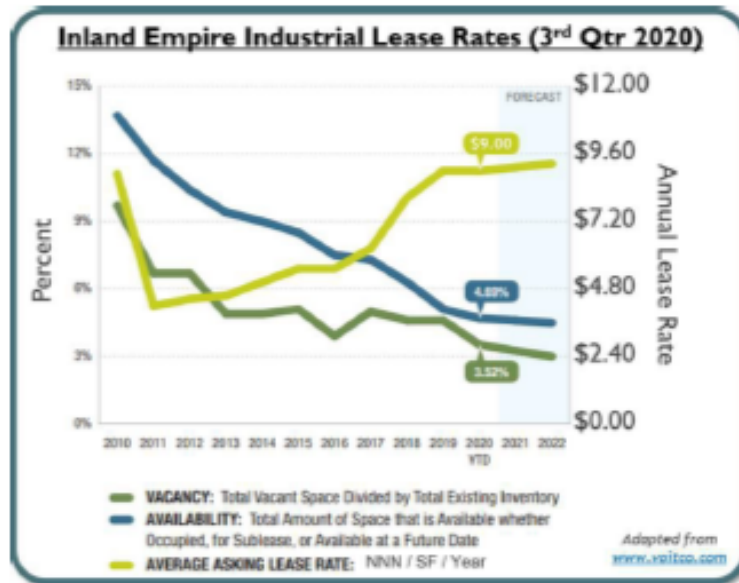
Figure 10: Industrial Building Growth by County



¹ SCAQMD, Preliminary Draft Staff Report, 45.

The ongoing covid-19 pandemic has exacerbated the unacceptable health risks that these frontline communities face every day. Last year, this public health crisis coincided with one of the worst smog seasons in the South Coast Air Basin in decades – with a total of 157 days of ozone pollution levels exceeding state and federal air quality standards.²

Meanwhile, the warehouse industry has reported record-breaking profits during the pandemic as consumers increasingly rely on e-commerce. Last year, the San Pedro Bay Ports hit record freight volumes for several months. At the Port of Long Beach, December 2020 was the Port’s busiest month in its 110-year history, and 2020 was the Port’s “all-time busiest year.”³ This increased port activity has only accelerated the expansion of an already booming warehouse industry, further compounding the health burdens on nearby communities.⁴ In the Inland Empire, warehouse vacancy rates have reached their lowest in a decade while lease rates have increased.



A strong warehouse indirect source rule will address these growing disproportionate pollution burdens, provide basic health protections to our communities, and put the South Coast on track to attain federal and state ambient air quality standards. But the Air District must prioritize public health and take into account community needs in the development of this rule.

I. The Air District must increase the proposed stringency in order to meaningfully address public health concerns.

We oppose the current proposed stringency value of 0.0025 WAIRE points/WATT and urge the Air District to evaluate and consider higher stringency values for the final rule. The undersigned

23-2

² Tony Barboza, *L.A. began 2020 with a clean-air streak but ended with its worst smog in decades*, Los Angeles Times (Dec. 6, 2020), <https://www.latimes.com/california/story/2020-12-06/2020-la-air-quality-southern-california-pollution-analysis>.

³ Port of Long Beach, *Port Moves a Record 8.1 Million TEUs in 2020*, Jan. 15, 2021, <https://www.polb.com/port-info/news-and-press/port-moves-a-record-8-1-million-teus-in-2020-01-15-2021/>.

⁴ See Justin Ho, *As imports boom, warehouses fill up, and businesses face a storage shortage*, Marketplace (Oct. 1, 2020), <https://www.marketplace.org/2020/10/01/imports-boom-warehouses-fill-up-businesses-face-storage-shortage-online-shopping-covid19/>.

organizations have repeatedly asked for a rule that starts with sufficient stringency to provide relief to communities sooner.

The Air District has identified several factors that were taken into consideration in determining the stringency.⁵ We disagree with the agency's approach of "balancing all factors." Public health concerns are unequivocally of greater importance than the financial impact to an industry that profits at the expense of our communities' health. As the Air District has acknowledged, the warehouse industry is experiencing record profits and all-time low vacancies. Despite increasing rents and cargo diversion, the industry continues to grow in the region and facilities are not choosing to leave the area.⁶ The industry can, and must, shoulder these regulatory costs. A transformation of the warehouse industry is long overdue, and public health must be the single most important factor in guiding the stringency of this rule.

The current range of stringency values, if implemented, is far too low to bring about meaningful change to warehouse operations.⁷ The lowest stringency value studied by the Air District (0.0001) would only reduce, at a maximum, 1.5 tons per day of nitrogen oxide emissions and 0.01 tons per day of diesel particulate matter emissions.⁸ Due to the annual variable and phase-in schedule, the full stringency would not even apply to many warehouses for years.⁹ These emissions reductions will not be sufficient to bring relief to communities living adjacent to warehouse facilities in the near future. We request that the agency analyze a stringency value of 0.0075 WAIRE points per WATT at a minimum. The Air District's analysis shows that a stronger rule would not result in warehouses leaving the region, and a higher stringency value is necessary to bring about a transformation of this industry.

While we appreciate that staff has provided the scenario analysis tool and WAIRE calculator for public use, these tools are inaccessible to community members. The calculator, scenario analyses, and draft staff report do not clarify the specific factors used to calculate the stringency value and, ultimately, a regulated facility's points obligation. It is unclear whether the agency's analysis accounts for demographics in affected communities, data that is critical to identifying environmental justice communities and sensitive receptors located near facilities. We have repeatedly emphasized that facilities located in environmental justice communities and neighboring sensitive receptors must receive a higher points obligation or attain zero-emissions operations on an accelerated timeline. The draft proposed rule does not account for this, and we request that the Air District include a demographic variable in the points obligation calculation.

23-2
(continued)

II. A strong warehouse ISR must prioritize zero-emissions technology.

As noted in our previous comment letters, a strong warehouse indirect source rule must prioritize zero-emissions technology and infrastructure, the only solution that will effectively address the air quality and health impacts caused by this industry. Yet, the Air District's scenario analysis continues to overestimate the emissions reductions for near-zero technologies. For example, facilities earn the same amount of points for NZE class 4-7 truck visits and ZE class 4-7 truck visits.¹⁰ This obscures the real costs of near-zero technologies – further investment in natural gas and oil infrastructure that will

23-3

⁵ Preliminary Draft Staff Report, 6.

⁶ *Id.* at 58.

⁷ SCAQMD, *Warehouse ISR Working Group Presentation* (Dec. 17, 2020), slides 21-22.

⁸ *Id.* at slide 22.

⁹ Preliminary Draft Staff Report, 29.

¹⁰ *Id.* at 97.

perpetuate harm in frontline communities. We request that the Air District update the WAIRE menu to incentivize investment in zero-emissions technology and infrastructure.

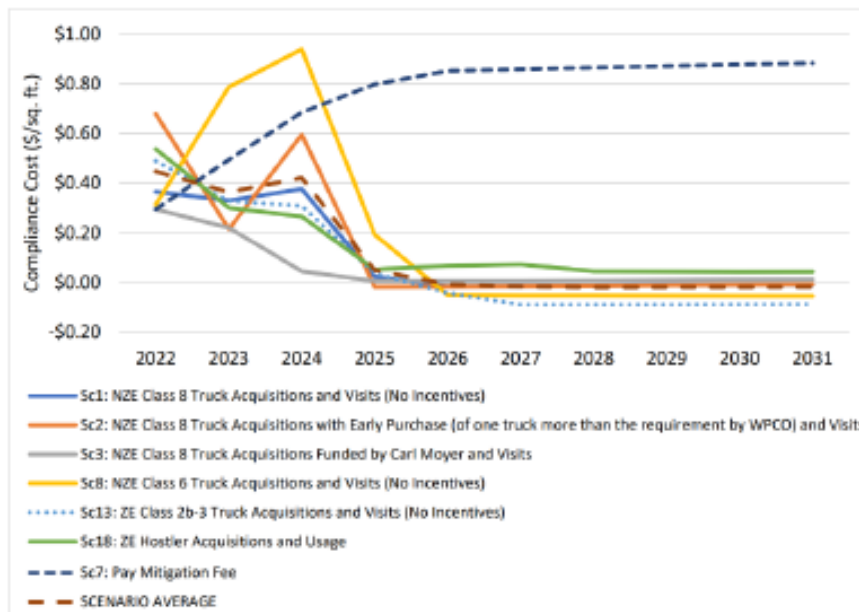
A rule that incentivizes zero-emissions technology will protect the health of our communities and create quality jobs. The transition towards zero-emissions will require the installation of charging infrastructure, on-site solar panels, and the manufacturing of electric vehicles – all of which will lead to meaningful job opportunities in the implementation of cleaner technologies at warehouses. The manufacturing of zero-emission buses and solar panel installation on larger commercial buildings have created and broadened access to unionized jobs with quality wages and benefits for workers. The warehouse indirect source rule can facilitate a similar transformation that will further increase demand for quality jobs in the greening energy, transportation, and manufacturing sectors. The Air District should not waste an opportunity to develop a rule that will lead to significant emissions reductions and create access to good jobs.

23-3
(continued)

III. The rule must not allow for a “pay-to-pollute” compliance option.

We remain concerned about the mitigation fee option as it allows regulated facilities to pay their way into compliance, rather than invest in on-site WAIRE menu items to clean up operations. Although the scenario cost analysis estimates that the mitigation fee will be a more costly option and not frequently used, the agency’s projections show that the \$1000/point fee remains a cheaper compliance pathway in the initial phases of the rule.¹¹

Figure 14: Potential Bounding Analysis Costs from Truck Acquisition and Subsequent Usage Scenarios



23-4

In order to incentivize investment in the WAIRE menu items, we ask that staff consider a higher mitigation fee. In the event that warehouses opt to pay their way into compliance, the Air District should require that these funds are spent in the communities surrounding those facilities.

IV. The Air District should release data on warehouse facilities that is relevant to compliance.

¹¹ *Id.* at 66.

In order to ensure proper public engagement, the Air District must make certain information relevant to compliance available to the public. Specifically, we request that the agency release the following data: the number of truck trips to each regulated facility; the number of trucks and tractors serving a warehouse, by truck class and fuel type; the trucking companies servicing the regulated facilities; and the truck routes to and from each facility.

23-5

This information is critical to understanding the impacts of warehouses in nearby communities. There is no legal rationale to withhold this information from the public. Such data does not constitute confidential business information and will be essential for proper enforcement of the rule.

V. We cannot afford further delays of the warehouse indirect source rule.

Finally, the Air District must adopt the warehouse indirect source rule as expeditiously as possible, and no later than April. We appreciate staff's continued work on this critical regulation, but the rule has experienced numerous delays while the freight industry continues to pollute communities living near warehouses. The Air District has the opportunity to adopt a strong and equitable warehouse indirect source rule that will provide significant health benefits to frontline communities. We ask that staff continue to engage with community members so that community needs and concerns can be addressed in the development of this rule.

23-6

We appreciate your consideration of these comments and the staff's work on this important rule. We look forward to continuing to work with the Air District to develop a regulation that prioritizes public health.

Sincerely,

Regina Hsu
Michelle Ghafar
Adrian Martinez
Earthjustice

Ivette Torres
Center for Community Action & Environmental Justice

Taylor Thomas
East Yard Communities for Environmental Justice

Sylvia Betancourt
Long Beach Alliance for Children with Asthma

Heather Kryczka
Natural Resources Defense Council

Kathy Hoang
Partnership for Working Families

Peter M. Warren
San Pedro & Peninsula Homeowners Coalition

Carlo De La Cruz
Sierra Club

Yasmine Agelidis
The Los Angeles County Electric Truck & Bus Coalition

Andrea Vidaurre
Warehouse Worker Resource Center

Theral Golden
West Long Beach Association

cc:

Wayne Natri
Executive Officer
South Coast Air Quality Management District

Sarah Rees
Assistant Deputy Executive Officer
Planning, Rule Development & Area Sources

Victor Juan
Program Supervisor
South Coast Air Quality Management District

Response to Comment Letter –23_CCAEJ – 2/5/2021Response to Comment 23-1

Thank you for your participation in the rule development process and your comments in support of a warehouse ISR.

Response to Comment 23-2

The recommended stringency is 0.0025 WAIRE Points per WATT, which will be phased-in over three-years will results in annual variables of 0.33, 0.67, and 1, when full stringency is reached. The recommended stringency of 0.0025 WAIRE Points per WATT was analyzed in various scenarios to analyze the complex structure of warehouse operations in the development of PR 2305, to reduce regional and local emissions of NOx and particulate matter, and to help address the disproportionate burden of air pollution in the communities neighboring warehouses. Staff devised calculations of the WPCO and the WAIRE Menu that are designed to be equitable and promote the implementation of cleaner technologies to help address state and federal attainment standards and the disproportionate impacts of air pollution faced by disadvantaged communities.

Response to Comment 23-3

Staff understands the importance of prioritizing zero emission technology. Currently, the WAIRE Menu includes both NZE and ZE on-road trucks because on-road ZE trucks are not commercially available in all sizes and some of the ZE trucks are in the demonstration phase and not yet ready for commercial availability. By allowing NZE technology in part of the WAIRE Menu, NZE can provide at least a 90% reduction in NOx emissions when compared to conventional diesel fueled trucks. The reduction of diesel fueled trucks can produce emission reductions in the near term which can increase the public health benefit to the communities surrounding the warehouse, as on-road ZE trucks and ZE charging and fueling infrastructure are developed and become widespread and commercially available.

Response to Comment 23-4

The mitigation fee is an option warehouse operators can use, including to make up shortages in the warehouse operator's WPCO and provide options for warehouse operators that best address their individual business needs in complying believe paying such a fee is a more optimal way to comply with their WPCO than the other compliance options in the rule. The mitigation fee of \$1,000 per WAIRE Point was analyzed to be within a similar range of cost as the other WAIRE Menu options and is not meant as a way to allow for a "pay-to-pollute" compliance option. There are less expensive options for the warehouse operators to meet their WPCO, so the current cost of the mitigation fee may not be the most cost-effective option for warehouse operators. With the WAIRE Program being a new regulatory concept, staff is not sure how many warehouse operators would actually opt to pay the mitigation fee in lieu of choosing an item off the WAIRE Menu. Each warehouse owner and operator will make decisions on which WAIRE menu items to pursue, based on their specific situation and circumstances. The mitigation fee funds would be tracked to ensure the funds are used to incentivize NZE and ZE trucks and ZE charging and fueling infrastructure in the communities surrounding the warehouses that paid the mitigation fees.

Response to Comment 23-5

Staff understands the needs for public engagement. Staff will be reporting on the effectiveness of the WAIRE Program to the South Coast AQMD Mobile Source Committee on an annual basis. This annual reporting will ensure that all aspects of the WAIRE Program are evaluated and a

version of the annual update report will be released for public review. Custom WAIRE Plan applications would also be released for public review prior to their approval.

Response to Comment 23-6

Thank you for your comments and support of PR 2305. We look forward to working with you in the future.



February 16, 2021

South Coast AQMD Board Members, Mobile Source Committee

- The Honorable William A. Burke, Ed.D., Chair
- The Honorable Sheila Kuehl, Los Angeles County Representative, Vice Chair
- The Honorable Lisa Bartlett, Orange County Representative
- The Honorable Larry McCallon, Cities of San Bernardino County Representative
- The Honorable Manuel Perez, Riverside County Representative
- The Honorable Carlos Rodriguez, Cities of Orange County Representative

cc: Matt Miyasato, Ph.D., Deputy Executive Officer
 Ian MacMillan, Planning and Rules Manager
 (Submitted electronically)

RE: Inclusion of Near-Zero Emission Terminal Tractors Under Proposed Rule 2305 (WAIRE)

Dear Chairman Burke and Members of the South Coast AQMD Board’s Mobile Source Committee:

The signatories to this letter represent a broad coalition employing many hundreds of people who live and work throughout Southern California. Our companies and organizations manufacture, sell, service, support, operate and/or provide renewable and traditional fuels for heavy-duty vehicles (HDVs) powered by state-of-the-art, ultra-low-emission engines. These commercially available on- and off-road HDVs – which are certified to CARB’s lowest-tier “Optional Low-NOx-Standards” (OLNS) – are fueled by propane or natural gas. As you know, such engines are commonly referred to at the South Coast AQMD as being “Near-Zero Emission” (NZE). All NZE engine types can routinely use renewable low-carbon fuels as “drop-in” replacements for their fossil-fuel versions. The result is that NZE HDVs deliver 90+ percent NOx reductions relative to current heavy-duty engine standards, along with deep greenhouse gas (GHG) reductions when renewably fueled.

We appreciate the opportunity to comment on South Coast AQMD’s Proposed Rule (PR) 2305. It appears likely that staff will propose this Indirect Source Rule (ISR) for Board adoption at your April 2021 meeting.

Our coalition of companies and organizations does not oppose the spirit and intent of PR 2305. In fact, we strongly support your efforts to dramatically reduce NOx emissions from HDVs (both on- and off-road) serving large warehouse and distribution centers in the South Coast Air Basin. Our coalition members have made – and will continue to make – major contributions to reducing HDV NOx emissions in the SCAB.

24-1

We are writing to urge you to make a simple, logical, and important modification to the currently defined rule. Specifically, for all the compelling reasons described below, we ask that you direct staff to add NZE terminal tractors (aka yard hostlers, yard tractors, etc.) as a compliance pathway under PR 2305.

24-2

NZE Terminal Tractors Will Provide Highly Cost-Effective NOx Reductions at Warehouse Facilities

We note and appreciate that your staff has embraced NZE on-road trucks as a compliance pathway in drafting PR 2305. Staff has acknowledged that NZE HDVs (regardless of fuel or technology) provide the most cost-effective and expedient means to dramatically reduce (90+ percent) HDV NOx emissions in the SCAB. Most importantly, staff has recognized that the same cost-effective NOx-reduction benefits are achievable from NZE off-road terminal tractors. Unfortunately, PR 2305’s draft language does not currently allow NZE terminal tractors as a compliance pathway within the “WAIRE” point system.

In effect, staff appears set on pursuing a specified technology mandate for off-road HDVs under PR 2305. *This diverges from the South Coast AQMD’s longstanding practice of, and support for, promulgating emissions-performance requirements to reduce HDV emissions, without unfairly favoring any particular type of HDV fuel/technology.* As has been recognized by Board members and executive management at the District, natural gas and propane fueled HDVs (on- and off-road) are now achieving NOx emission levels as low as the grid-generated emissions that result from charging comparable battery-electric HDVs. Yet, the draft rule’s current composition disallows compliance with terminal tractors powered by these two types of commercially available NZE engines.

Simply stated, this policy is contrary to the District’s urgent mission to restore healthful air quality in the SCAB, and expeditiously achieve ozone attainment. Additionally, it will unnecessarily impose hardship on the entities regulated under the rule. Specifically, if PR 2305 allows only ZE off-road HDVs, it will impose higher infrastructure costs on terminal tractor fleets. This is because the draft rule provides only two compliance options for terminal tractors, as follows:

- 1) Battery-electric terminal tractors are important early-commercial platforms that will work well in many warehouse and distribution center applications. Heavy-duty battery-electric vehicles are very promising for off-road use (including terminal tractors), but adopting facilities will need to overcome significant challenges involving charging infrastructure, site upgrades and permitting.
- 2) Hydrogen fuel cell tractors are also very promising, although they are several years behind battery electric tractors for commercial maturity. Essentially, they are pre-commercial products in the late stages of R&D. Similar to the case of battery-electric HDVs, facilities seeking to deploy fuel cell HDVs will need to overcome significant challenges associated with fuel and fueling infrastructure. In particular, hydrogen fuel is not yet readily available for use in the transportation sector, especially in HDV applications.

Expanding PR 2305 to allow NZE terminal tractors (regardless of fuel type) will provide additional lower-cost compliance options, for both capital costs and fueling infrastructure. NZE propane and natural gas terminal tractors entail relatively modest incremental capital costs over their baseline terminal tractor counterparts. They are likely to provide lower total cost of ownership (TCO) than either type of ZE platform noted above (Staff’s analysis for on-road NZE trucks in Table 9 of the PR 2305 Technical Report acknowledges this). Many warehouses and distribution facilities already have access to propane or natural gas fuel. Propane-fueled NZE terminal tractors can use innovative “pony tank” systems that enable quick tank swaps, with no new infrastructure required.

Board Action is Needed to Support Staff in Modifying PR 2305 for this Simple Change

Unless your Board intervenes to redirect staff, PR 2305 will prevent fleets and facility operators from choosing the most expeditious, lowest total-cost-of-ownership pathway to dramatically reduce NOx (and carcinogenic diesel particulate emissions) from terminal tractors serving large warehouse and distribution centers. PR 2305 will unnecessarily restrict compliance pathways and prescribe a rigid, uneconomic approach that fails to capitalize on

24-2
Cont.

24-3

cost-effective NOx benefits that are readily obtainable from NZE tractors. And as noted, when fueled with drop-in renewable fuels (natural gas or propane), NZE terminal tractors will provide exceptionally low GHG emissions.

Staff clearly needs help from your Board to rectify this situation and improve PR 2305 as a means to rapidly obtain HDV NOx reductions. For many months, our coalition members have engaged with Staff to describe the cost-effective clean-air benefits that can be realized with use of NZE terminal tractors. We have suggested specific (yet modest) changes to PR 2305. To their credit, Staff members have listened to our concerns. We believe Staff genuinely seeks a more diverse, performance-oriented final Rule 2305 that will achieve fast, cost-effective NOx reductions, as strongly needed for timely ozone attainment. Unfortunately, they indicate that any decision to modify PR 2305 language to include NZE terminal tractors must come at the direction of Board members. This is apparently due to intense, sustained pressure on Staff exerted by certain factions demanding the rule contain an exclusionary, “ZE-only” compliance pathway for terminal tractors regardless of the emission and cost-effectiveness advantages provided by NZE terminal tractor platforms.

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Respectfully, we request that you direct Staff to modestly revise PR 2305 to include NZE terminal tractors as compliance pathways. To reiterate, our coalition members support the *non-exclusive* use of ZE terminal tractor platforms as ISR compliance pathways. In fact, some of our coalition members are also developing and/or supporting battery-electric and/or hydrogen fuel cell terminal tractor products and technology. Nonetheless, we believe that – for all the important and compelling reasons further discussed herein – the Board should immediately intervene to allow both ZE and NZE terminal tractors. As noted, Staff has already adopted this exact rationale in allowing NZE on-road trucks as compliance pathways under PR 2305.

NZE Off-Road HDVs Are Fully Consistent with Past and Emerging AQMP Control Measures

Below are additional compelling reasons to permit use of NZE terminal tractors for compliance under PR 2305; all are based on the South Coast AQMD’s long-standing policies and world-leading technology advancement efforts.

1. For the emerging 2022 Air Quality Management Plan, the District has initiated development of new mobile source strategies that will help achieve SCAB attainment of the 2015 8-hour ozone standard (70 ppb). To support development of these critical 2022 AQMP strategies, the District established “Mobile Source Working Groups” in conjunction with CARB. Notably, draft MOU Elements for the 2022 AQMP emphasize the need to “accelerate Zero Emission (ZE) and Near Zero Emission (NZE) cargo handling equipment (CHE).”¹
2. South Coast AQMD’s Resolution No. 17-2,² used for adopting the 2016 AQMP and submitted into the California SIP, includes the following critical statements (emphasis added):

“WHEREAS, an accelerated deployment of current and emerging near-zero emission natural gas engine technologies will provide significant, cost-effective and near-term benefits to regional and local air quality, energy supply security, and public health;” (Page 4, amended 3/3/17)

“BE IT FURTHER RESOLVED, that the mobile source incentive program for heavy-duty vehicles outlined in the 2016 AQMP place priority on the most cost-effective technologies to reach short-term air quality goals such as current and emerging near-zero emission natural gas engine technologies.” (Page 10, amended 3/3/17)

3. The 2016 (most-current) AQMP³ includes nearly 70 individual references to NZE vehicles and equipment. It repeatedly emphasizes the high importance assigned by Staff for rapid, near-term deployment of NZE HDVs to meet ozone attainment goals. Specific examples of such passages in the AQMP include the following (emphasis added):

24-4

¹ South Coast Air Quality Management District and California Air Resources Board, “An Overview of CARB’s Mobile Source Strategies: 2022 AQMP Mobile Source Working Group, staff presentation, December 16, 2020, <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/presentation-2022-aqmp-mobile-sources-wg-final.pdf?sfvrsn=12>.

² South Coast AQMD, “Attachment A, Resolution No. 17-2,” adopted by the Board, March 3, 2017, [aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/resolution.pdf?sfvrsn=6](http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/resolution.pdf?sfvrsn=6).

³ South Coast AQMD, “Final 2016 Air Quality Management Plan,” March 2017, <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15>.

- “More stringent mobile source emission standards are desperately needed to spur further development and production of zero- and near-zero emission technologies.” (Preface)
- “Given the fast-approaching deadlines – as early as 2022 and 2023, and given that the majority of the zero and near zero technologies needed for attainment have already or will soon be commercially available, it is now possible to specify the technologies and the implementation pathways to attainment” (Page ES-4)
- “The 2016 AQMP control strategy strongly relies on a transition to zero and near-zero emission technologies in the mobile source sector, including automobiles, transit buses, medium- and heavy-duty trucks, and off-road applications. The plan focuses on existing commercialized technologies and energy sources including their supporting infrastructure, along with newer technologies that are nearing commercialization based on recent demonstration programs and limited test markets. Prioritizing and expanding funding in Environmental Justice (EJ) areas will be sought.” (Page ES-5).
- “Additional demonstration and commercialization projects will be crucial to help deploy and reduce costs for zero and near-zero emission technologies. A key element of Plan implementation will be private and public funding to help further the development and deployment of these advanced technologies. Many of the same technologies will address both air quality and climate goals, such as increased energy efficiency and reduced fuel usage.” (Page 4-1)
- “The SCAQMD will continue to support technology demonstration projects for both mobile and stationary sources and will work to create new or expanded funding opportunities for earlier deployment of cleaner technologies, thus contributing to a smooth transition to zero and near-zero emission technologies in the mobile and stationary source sectors. The SCAQMD will prioritize distribution of incentive funding in environmental justice (EJ) areas and seek opportunities to expand funding to benefit the most disadvantaged communities.” (Page 4-3)
- “Mobile sources such as trucks, locomotives, and cargo handling equipment have technological potential to achieve zero- and near-zero emission levels.” (Page 4-8)
- “All technologies and fuels should be able to compete on an equal footing to meet environmental needs. This policy is consistent with the current priority on maximizing emission reductions utilizing zero emission technologies in all applications that are shown to be cost-effective and feasible. In other applications, near-zero technologies remain essential to meet all attainment goals.” (Page 4-9)
- “In the longer-term, there is a need to significantly increase the penetration and deployment of near-zero and zero-emission vehicles, greater use of cleaner, renewable fuels (either alternative fuels or new formulations of gasoline and diesel fuels), and additional emission reductions from federal and international sources such as locomotives, ocean-going vessels, and aircraft.” (Page 4-23)
- “Lastly, one measure seeks to recognize the criteria pollutant emission reduction benefits of existing incentives programs such as the Carl Moyer Memorial Air Quality Standards Attainment Program and Proposition 1B – Goods Movement Emission Reduction Program. The measures call for greater emission reductions through accelerated turnover of older vehicles to the cleanest vehicles and equipment currently available and increased penetration of commercially-available near-zero and zero-emission technologies through incentives programs in the near-term.” (Page 4-24)
- “However, additional research and demonstration are needed to commercialize zero- and near-zero emission technologies for the heavier heavy-duty vehicles (with gross vehicle weight ratings greater than 26,000 pounds).” (Page 4-24)
- “MOB-13 – OFF-ROAD MOBILE SOURCE EMISSION REDUCTION CREDIT GENERATION PROGRAM: This measure seeks to accelerate the early deployment of near-zero and zero-emission off-road equipment through the generation of MSERCs that can be used for purposes of recognizing mobile source emission reductions at facilities affected by proposed AQMP measures MOB-01 through MOB-04 and EGM-01.” (Page 4-33)
- “FURTHER DEPLOYMENT OF CLEANER TECHNOLOGIES: OFF-ROAD EQUIPMENT: This measure is designed to achieve further emission reductions for the Basin’s attainment needs through a suite of additional actions,

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including greater penetration of near-zero and zero-emission technologies through incentive programs, and emission benefits associated with the potential for worksite integration and efficiency, as well as connected and autonomous vehicle technologies. These emission reductions will be achieved through a combination of actions to be undertaken by both CARB and the SCAQMD.” (Page 4-41)

- “Given the significant NOx emission reductions needed to attain the federal ozone air quality standards by 2023 and 2031, a combination of public funding incentives along with regulatory actions are needed. In the near-term, there is a need to commercialize zero and near-zero on-road trucks and off-road equipment as early as possible.” (Page 4-64)
- “Actions to promote ZEVs in these heavy-duty applications are underway and are important to further reduce regional and near-source toxics exposure, especially as it relates to reducing risk from DPM. In the off-road sector, the 2016 AQMP mobile source control strategies stress the need to reflect this same type of transformation to a mix of zero and near-zero technologies operating on renewable fuels.” (Page 9-11)
- TABLE 9-3 (2016 AQMP CARB Mobile Source Control Measures and Concurrent Key Toxic Air Contaminants Reduced) includes “Cleaner engine technology transfer from on-road to off-road applications” and “Incentive funding to achieve further deployment of cleanest engine technologies” (Page 9-12)

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South Coast AQMD is the Leading U.S. Supporter of / Champion for NZE HDVs

For more than three decades, the South Coast AQMD’s Technology Advancement / Clean Fuels Program has led the nation (and the world) in providing essential cost-sharing and/or general support to advance progressively lower-emitting HDV technology. In fact, it is largely due to the District’s support over the last decade that natural gas and propane engines (manufactured by our coalition members) are certified by CARB today at NZE levels. Similarly, the District’s financial and technical support has been instrumental in bringing diesel engine technology to the brink of achieving NZE certification. We thank the South Coast AQMD Board and Staff; without such support, it may not have been possible for our coalition members to achieve these very important milestones.

As documented above, wide-scale deployment of NZE HDV technologies and fuels is critical to the District’s overall AQMP control strategy and ability to achieve its air quality goals. If the District now finalizes PR 2305 to exclude NZE terminal tractors, it will be contrary to – and a major blow against – all these successful efforts to develop and deploy NZE HDVs in the SCAB, as strongly needed for ozone attainment. The attached appendix contains specific recent quotes and statements from the District’s Clean Fuels program and related technical documents⁴ that corroborate strong synergy between developing NZE HDV platforms so they can be subsequently deployed in the SCAB, via regulatory mechanisms and/or incentive programs.

24-5

Conclusions and Requested Actions by the Board

Our coalition of companies and organizations respectfully asks the Board to urgently intervene on PR 2305, by directing staff to allow NZE terminal tractors as compliance pathways. This simple modification – which Staff is ready to implement at your direction – will significantly improve PR 2305’s ability to expeditiously achieve its intended NOx reductions. It will provide the regulated community with additional compliance options that are very cost effective for reducing NOx, while also delivering low total cost of ownership. Our recommended action is in full accord with your Board’s longstanding fuel-neutral policies to rapidly deploy emerging clean HDV platforms. It will perpetuate and strengthen the decades-long synergy between the District’s world-class HDV technology advancement program and your efforts to rapidly deploy the cleanest-available HDV fuel-technology platforms, as they emerge into the marketplace.

24-6

⁴ South Coast Air Quality Management District, Board Agenda No. 28, “Approve and Adopt Technology Advancement Office Clean Fuels Program 2019 Annual Report & 2020 Plan Update,” March 2020.

If you have any questions about the content of our letter, or if you would like to discuss this important issue with our coalition, please contact Ben Granholm at ben@westernnga.org or Jon Leonard at jon.leonard@gladstein.org.

Sincerely,

Joy Alafia, President and CEO, Western Propane Gas Association

Tom Swenson, P.E., Business Development Manager, Cummins Inc. – Natural Gas Group

Ashley Remillard, Vice President, Legal, Agility Fuel Solutions

Thomas Lawson, President, California Natural Gas Vehicle Coalition

Todd Campbell, Vice President of Public Policy, Clean Energy

Julie Johnson, President, Ted Johnson Propane

Scott Graham, General Manager, Expo Propane

Mike Calderera, P.E., Sr. Vice President, Regulatory and Technical Affairs, National Propane Gas Association

APPENDIX

- “The South Coast AQMD Clean Fuels Program cost-shares projects to develop and demonstrate zero, near-zero and low emissions clean fuels and advanced technologies to push the state-of-the-technology and promote commercialization and deployment of promising or proven technologies not only for the Basin but Southern California and the nation as well. As noted, these projects are conducted through public-private partnerships with industry, technology developers, academic and research institutes and local, state and federal agencies.”
- “The South Coast AQMD continually seeks to support the deployment of lower-emitting technologies. The Clean Fuels Program is shaped by two basic factors: 1) Zero, near-zero and low emission technologies needed to achieve clean air standards in the Basin; and 2) Available funding to support technology development within the constraints imposed by that funding.”
- “One function of the Clean Fuels Program is to help expedite the deployment and commercialization of zero, near-zero and low emission technologies and fuels needed to meet the requirements of the AQMP control measures. In many cases, new technologies, although considered “commercially available,” require assistance to fully demonstrate the technical viability to end-users and decision-makers.”
- “More than ever before, the Clean Fuels Program must both foster and accelerate advancement of transformative transportation, and off-road technologies where possible, with an emphasis on zero and near-zero emissions vehicle and fuel technologies. This is especially true given the region’s economic dependence on thriving goods movement, along with the corresponding impact of that industry on environmental justice communities.”
- “It is important to note here that South Coast AQMD’s Technology Advancement Office (TAO) administers not only the Clean Fuels Program but also the Carl Moyer Program (and other significant incentive programs, such as Proposition 1B-Goods Movement and the Community Air Protection Program). These two programs produce a unique synergy, with the Carl Moyer Program providing the necessary incentives to push market penetration and commercialization of zero and near-zero emission technologies developed and demonstrated by the Clean Fuels Program. This synergy enables the South Coast AQMD to act as a leader in both technology development and commercialization efforts targeting reduction of criteria pollutants and GHG reduction co-benefits.”
- District policies “will help both regulatory agencies and OEMs to expedite introduction of zero and near-zero emission vehicles in the Basin, which is a high priority of the AQMP.”
- “Although no near-zero emission diesel technology is commercially available today, South Coast AQMD has been working closely with CARB and others on defining technology pathways via several projects . . . (that) show near-zero emission diesel technologies are feasible via advanced engine and aftertreatment or optimized engine design and calibration. The (Clean Fuels) Plan Update continues to incorporate pursuit of cleaner engines for the heavy-duty sector. Future projects will support the development, demonstration and certification of engines that can achieve these massive emission reductions using an optimized systems approach.”
- “Currently, on-road heavy-duty natural gas engines are increasingly being certified to CARB’s optional low-NOx standards which are significantly lower in NOx than the current on-road heavy-duty standard. This technology category seeks to support the expansion of OEMs producing engines or systems certified to the lowest optional NOx standard or near-zero emissions and useable in a wide variety of medium- and heavy-duty applications, such as Class 6 vehicles used in school buses and in passenger and goods delivery vans, Class 7 vehicles such as transit buses, waste haulers, street sweepers, sewer-vector trucks, dump trucks, concrete mixers, commercial box trucks, and Class 8 tractors used in goods movement and drayage operations and off-road equipment such as construction vehicles and yard hostlers.”
- “The deployment of near-zero emission vehicles would significantly further emission reductions relative to the state’s current regulatory requirements.”

- “The South Coast AQMD relies on a significant increase in the penetration of zero and near-zero emission vehicles in the South Coast Basin to attain federal clean air standards by 2023 and 2032. This project would help develop a number of renewable transportation fuel production and distribution facilities to improve local production and use of renewable fuels to help reduce transportation costs and losses that can reduce total operating costs of zero and near-zero emission vehicles to be competitive with comparable diesel fueled vehicles. Such advances in production and use are expected to lead to greater infrastructure development. Additionally, this project could support the state’s goal of redirecting biomass waste for local fuel production and reduce greenhouse gases associated with these waste biomass feedstocks.”
- “Nonetheless, while the state and federal governments have continued to turn a great deal of their attention to climate change, South Coast AQMD has remained committed to developing, demonstrating and commercializing zero and near-zero emission technologies. Fortunately, many, if not the majority, of technology sectors that address our need for NOx reductions also garner greenhouse gas (GHG) reductions. Due to these “co-benefits,” the South Coast AQMD has been successful in partnering with the state and federal government. Even with the leveraged funds, the challenge for the South Coast AQMD remains the need to identify project or technology opportunities in which its available funding can make a difference in achieving progressively cleaner air in the Basin.”
- “Although both announcements (separate initiatives on clean HDVs by EPA and CARB) are welcome news, the timing is too late to help the South Coast AQMD meet its 2023 federal attainment deadline. So, despite progress, commercialization and deployment of near-zero engines are still needed.
- “Because of Assembly Bill (AB) 6171, which requires reduced exposure to communities most impacted by air pollution, TAO conducted additional outreach to AB 617 communities regarding available zero and near-zero emission technologies, as well as the incentives to accelerate those cleaner technologies into their communities.
- SCAQMD’s Clean Fuels Plan 2020 Update includes projects to develop, demonstrate and commercialize a variety of technologies to meet emission control needs identified in the 2016 AQMP. Emphasis is on getting significant near-term reductions “using near-zero and zero emission technologies,” including “for high horsepower applications.”
- “More than ever before, the Clean Fuels Program must both foster and accelerate advancement of transformative transportation, and off-road technologies where possible, with an emphasis on zero and near-zero emissions vehicle and fuel technologies. This is especially true given the region’s economic dependence on thriving goods movement, along with the corresponding impact of that industry on environmental justice communities.”
- “The Clean Fuels Program and the Carl Moyer Program provide a unique synergy, with the Carl Moyer Program providing the necessary incentives to push market penetration of the technologies developed and demonstrated by the Clean Fuels Program. This synergy enables the South Coast AQMD to act as a leader in both technology development and commercialization efforts targeting reduction of criteria pollutants.”

Response to Comment Letter – 24_Coalition NZE – 2/16/2021Response to Comment 24-1

Thank you for your participation in the rule development process and your comments in support of a warehouse ISR.

Response to Comment 24-2

The purpose of PR 2305 is to reduce regional NO_x and PM, facilitate other related rules and regulations, and reduce emissions and exposures for local communities around warehouses. The WAIRE Menu only includes ZE terminal tractors (aka yard hostlers, yard tractors, etc.) as a compliance pathway under PR 2305 as ZE yard trucks are commercially available and they are an established technology that have operated in some warehouses for several years. It was necessary to include on-road NZE trucks as part of the WAIRE menu options because there is currently a lack of commercially available on-road ZE trucks and uncertainty on when on-road ZE trucks or ZE fueling infrastructure will be widely commercially available. Using NZE trucks at warehouse facilities would provide at least a 90% reduction in NO_x emissions as compared to conventional diesel fueled trucks and the use of NZE trucks would provide immediate emission reductions for the communities surrounding warehouses. While use of NZE and ZE yard trucks both lead to emission reductions, yard trucks primarily stay on the warehouse premises and they are a constant source of mobile emissions that could impact the community surrounding the warehouses. The switch to ZE yard trucks at these warehouse facilities would lead to greater and more near-term emission reductions and will provide a greater benefit to the public health of the communities. Nonetheless, the second draft staff report and the accompanying WAIRE Implementation Guidelines now explicitly allow NZE yard trucks to earn WAIRE Points through a Custom WAIRE Plan, and example calculations that warehouse operators could use are included.

Response to Comment 24-3

Many yard trucks stay on site and idle as part of their operations at warehouse facilities. ZE yard trucks will benefit the communities surrounding the warehouse as they do not idle, and therefore will not result in emissions that will negatively impact the neighboring communities. Conventional on road NZE trucks are included in the WAIRE Menu because on-road ZE are not well established and in comparison, have much shorter dwell time at warehouse facilities. NZE technology is being analyzed as an alternative in the CEQA analysis. Further, the second draft staff report and the accompanying WAIRE Implementation Guidelines now explicitly allow NZE yard trucks to earn WAIRE Points through a Custom WAIRE Plan, and example calculations that warehouse operators could use are included.

Response to Comment 24-4 and Appendix

South Coast AQMD acknowledges the support in reducing emissions from both mobile and stationary sources with the use of clean fuel and low emission technologies. The citations made by the commentor on the importance of near-zero emission options in this comment and the appendix to the letter are recognized and a key part of South Coast AQMD's strategies to achieve clean air. The WAIRE Menu includes both NZE and ZE on-road truck acquisition and use, but in one instance the WAIRE Menu only includes a ZE option for yard trucks. There are key policy distinctions for why ZE yard trucks are the only option considered. First, in the on-road sector ZE trucks are not at the same stage of commercial development as NZE trucks, which have been operating in commercial service for several years, especially for Class 8 trucks. However, ZE yard trucks are commercially available today and have been operating at warehouses since 2015. Additionally, because ZE yard trucks are located at an individual facility, they are well-suited to

serve as an early beachhead for the longer term development of ZE vehicle solutions.³⁰⁰ By focusing PR 2305 on ZE yard trucks, warehouse operators are introduced to ZE technology to see how it works in their operations.

Further, because yard trucks primarily stay at the warehouse facility, their emissions can have a disproportionate impact on communities surrounding warehouses compared to on-road trucks with emission miles away from a facility. Many yard trucks idle as part of their operation at warehouse facilities, and the switch to ZE yard trucks would benefit public health of the communities surrounding the warehouse by not being burdened idling emissions. Although NZE engines have lower emissions than their conventional diesel counterparts, they do still have tailpipe emissions. Finally, although the commentor states that NZE yard trucks exist, there is no acknowledgement that yard trucks come in both on-road and off-road varieties. While propane or natural gas on-road yard trucks can meet CARB's standards for NZE, CARB currently does not have a certification standard for NZE off-road purposes. It is not clear how a default NZE definition would apply in the off-road setting. Nonetheless, a CEQA alternative has been included that evaluates additional NZE compliance options (including for yard trucks) within PR 2305. Further, the second draft staff report and the accompanying WAIRE Implementation Guidelines now explicitly allow NZE yard trucks to earn WAIRE Points through a Custom WAIRE Plan, and example calculations that warehouse operators could use are included.

Response to Comment 24-5

Staff thanks you for your comment and continued support of the South Coast AQMD's Technology Advancement / Clean Fuels Program goals to provide incentives to promote the commercialization of clean technologies. As stated in previous response to comments, only ZE yard truck purchase and usage is included in the draft WAIRE Menu due to the commercial availability of NZE yard trucks and emission impacts to communities located near warehouses. However, NZE technology is being analyzed as an alternative in the CEQA analysis and the second draft staff report and the accompanying WAIRE Implementation Guidelines now explicitly allow NZE yard trucks to earn WAIRE Points through a Custom WAIRE Plan, and example calculations that warehouse operators could use are included.

Response to Comment 24-6

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention.

Response to Comment 24-Appendix

Refer to Response to Comment 24-4.

³⁰⁰ https://globaldrivetozero.org/public/The_Beachhead_Model.pdf



February 8, 2021

South Coast AQMD Board Members, Mobile Source Committee

The Honorable William A. Burke, Ed.D., Chair

The Honorable Lisa Bartlett, Orange County Representative

The Honorable Larry McCallon, Cities of San Bernardino County Representative

The Honorable Manuel Perez, Riverside County Representative

The Honorable Carlos Rodriguez, Cities of Orange County Representative

(Submitted electronically)

RE: Inclusion of Near-Zero Emission Terminal Tractors Under Proposed Rule 2305 (WAIRE)

Dear Chairman Burke and Members of the South Coast AQMD Board's Mobile Source Committee:

The signatories to this letter represent a broad coalition employing many hundreds of people who live and work throughout Southern California. Our companies and organizations manufacture, sell, service, support, operate and/or provide renewable and traditional fuels for heavy-duty vehicles (HDVs) powered by state-of-the-art, ultra-low-emission engines. These commercially available on- and off-road HDVs – which are certified to CARB's lowest-tier "Optional Low-NOx-Standards" (OLNS) – are fueled by propane or natural gas. As you know, such engines are commonly referred to at the South Coast AQMD as being "Near-Zero Emission" (NZE). It appears that NZE diesel engines may also be on the cusp of commercialization. All three NZE engine types can routinely use renewable low-carbon fuels as "drop-in" replacements for their fossil-fuel versions. The result is that NZE HDVs deliver 90+ percent NOx reductions relative to current heavy-duty engine standards, along with deep greenhouse gas (GHG) reductions when renewably fueled.

We appreciate the opportunity to comment on South Coast AQMD's Proposed Rule (PR) 2305. It appears likely that staff will propose this Indirect Source Rule (ISR) for Board adoption at your April 2021 meeting. Subsequent to that, staff will initially introduce PR 2305 to the Board at its Mobile Source Committee meeting (expected to be no later than March 2021).

Our coalition of companies and organizations does not oppose the spirit and intent of PR 2305. In fact, we strongly support your efforts to dramatically reduce NOx emissions from HDVs (both on- and off-road) serving large warehouse and distribution centers in the South Coast Air Basin. Our coalition members have made – and will continue to make – major contributions to reducing HDV NOx emissions in the SCAB.

We are writing to urge you to make a simple, logical and important modification to the currently defined rule. Specifically, for all the compelling reasons described below, we ask that you direct staff to add NZE terminal tractors (aka yard hostlers, yard tractors, etc.) as a compliance pathway under PR 2305.

NZE Terminal Tractors Will Provide Highly Cost-Effective NOx Reductions at Warehouse Facilities

25-1

25-2

We note and appreciate that your staff has embraced NZE on-road trucks as a compliance pathway in drafting PR 2305. Staff has acknowledged that NZE HDVs (regardless of fuel or technology) provide the most cost-effective and expedient means to dramatically reduce (90+ percent) HDV NOx emissions in the SCAB. Most importantly, staff has recognized that the same cost-effective NOx-reduction benefits are achievable from NZE off-road terminal tractors. Unfortunately, PR 2305's draft language does not currently allow NZE terminal tractors as a compliance pathway within the "WAIRE" point system.

In effect, staff appears set on pursuing a specified technology mandate for off-road HDVs under PR 2305. *This diverges from the South Coast AQMD's longstanding practice of, and support for, promulgating emissions-performance requirements to reduce HDV emissions, without unfairly favoring any particular type of HDV fuel/technology.* As has been recognized by Board members and executive management at the District, natural gas and propane fueled HDVs (on- and off-road) are now achieving NOx emission levels as low as the grid-generated emissions that result from charging comparable battery-electric HDVs. Yet, the draft rule's current composition disallows compliance with terminal tractors powered by these two types of commercially available NZE engines. Additionally, PR 2305 as currently drafted will disallow potential use of NZE diesel terminal tractors, when and if they are commercialized.

Simply stated, this policy is contrary to the District's urgent mission to restore healthful air quality in the SCAB, and expeditiously achieve ozone attainment. Additionally, it will unnecessarily impose hardship on the entities regulated under the rule. Specifically, if PR 2305 allows only ZE off-road HDVs, it will impose higher infrastructure costs on terminal tractor fleets. This is because the draft rule provides only two compliance options for terminal tractors, as follows:

- 1) Battery-electric terminal tractors are important early-commercial platforms that will work well in many warehouse and distribution center applications. Heavy-duty battery-electric vehicles are very promising for off-road use (including terminal tractors), but adopting facilities will need to overcome significant challenges involving charging infrastructure, site upgrades and permitting.
- 2) Hydrogen fuel cell tractors are also very promising, although they are several years behind battery electric tractors for commercial maturity. Essentially, they are pre-commercial products in the late stages of R&D. Similar to the case of battery-electric HDVs, facilities seeking to deploy fuel cell HDVs will need to overcome significant challenges associated with fuel and fueling infrastructure. In particular, hydrogen fuel is not yet readily available for use in the transportation sector, especially in HDV applications.

Expanding PR 2305 to allow NZE terminal tractors (regardless of fuel type) will provide additional lower-cost compliance options, for both capital costs and fueling infrastructure. NZE propane and natural gas terminal tractors entail relatively modest incremental capital costs over their baseline terminal tractor counterparts. They are likely to provide lower total cost of ownership (TCO) than either type of ZE platform noted above (Staff's analysis of on-road NZE trucks for PR 2305 acknowledges this). Many warehouses and distribution facilities already have access to propane or natural gas fuel. Propane-fueled NZE terminal tractors can use innovative "pony tank" systems that enable quick tank swaps, with no new infrastructure required.

Board Action is Needed to Support Staff in Modifying PR 2305 for this Simple Change

Unless your Board intervenes to redirect staff, PR 2305 will prevent fleets and facility operators from choosing the most expeditious, lowest total-cost-of-ownership pathway to dramatically reduce NOx (and carcinogenic diesel particulate emissions) from terminal tractors serving large warehouse and distribution centers. PR 2305 will unnecessarily restrict compliance pathways and prescribe a rigid,

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uneconomic approach that fails to capitalize on cost-effective NOx benefits that are readily obtainable from NZE tractors. And as noted, when fueled with drop-in renewable fuels (natural gas, propane or diesel), NZE terminal tractors will provide exceptionally low GHG emissions.

Staff clearly needs help from your Board to rectify this situation, and improve PR 2305 as a means to rapidly obtain HDV NOx reductions. For many months, our coalition members have engaged with Staff to describe the cost-effective clean-air benefits that can be realized with use of NZE terminal tractors. We have suggested specific (yet modest) changes to PR 2305. To their credit, Staff members have listened to our concerns. We believe Staff genuinely seeks a more diverse, performance-oriented final Rule 2305 that will achieve fast, cost-effective NOx reductions, as strongly needed for timely ozone attainment. Unfortunately, they indicate that any decision to modify PR 2305 language to include NZE terminal tractors must come at the direction of Board members. This is apparently due to intense, sustained pressure on Staff exerted by certain factions demanding the rule contain an exclusionary, “ZE-only” compliance pathway for terminal tractors regardless of the emission and cost-effectiveness advantages provided by NZE terminal tractor platforms.

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Respectfully, we request that you direct Staff to modestly revise PR 2305 to include NZE terminal tractors as compliance pathways. To reiterate, our coalition members support the *non-exclusive* use of ZE terminal tractor platforms as ISR compliance pathways. In fact, some of our coalition members are also developing and/or supporting battery-electric and/or hydrogen fuel cell terminal tractor products and technology. Nonetheless, we believe that – for all the important and compelling reasons further discussed herein – the Board should immediately intervene to allow both ZE and NZE terminal tractors. As noted, Staff has already adopted this exact rationale in allowing NZE on-road trucks as compliance pathways under PR 2305.

NZE Off-Road HDVs Are Fully Consistent with Past and Emerging AQMP Control Measures

Below are additional compelling reasons to permit use of NZE terminal tractors for compliance under PR 2305; all are based on the South Coast AQMD’s long-standing policies and world-leading technology advancement efforts.

1. For the emerging 2022 Air Quality Management Plan, the District has initiated development of new mobile source strategies that will help achieve SCAB attainment of the 2015 8-hour ozone standard (70 ppb). To support development of these critical 2022 AQMP strategies, the District established “Mobile Source Working Groups” in conjunction with CARB. Notably, draft MOU Elements for the 2022 AQMP emphasize the need to “accelerate Zero Emission (ZE) and Near Zero Emission (NZE) cargo handling equipment (CHE).”¹
2. South Coast AQMD’s Resolution No. 17-2,² used for adopting the 2016 AQMP and submitted into the California SIP, includes the following critical statements (emphasis added):

“WHEREAS, an accelerated deployment of current and emerging near-zero emission natural gas engine technologies will provide significant, cost-effective and near-term benefits to regional and local air quality, energy supply security, and public health;” (Page 4, amended 3/3/17)

“BE IT FURTHER RESOLVED, that the mobile source incentive program for heavy-duty vehicles outlined in the 2016 AQMP place priority on the most cost-effective technologies to reach short-term air quality goals such as current and emerging near-zero emission natural gas engine technologies.” (Page 10, amended 3/3/17)

25-4

¹ South Coast Air Quality Management District and California Air Resources Board, “An Overview of CARB’s Mobile Source Strategies: 2022 AQMP Mobile Source Working Group, staff presentation, December 16, 2020, <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/presentation-2022-aqmp-mobile-sources-wg-final.pdf?sfvrsn=12>.

² South Coast AQMD, “Attachment A, Resolution No. 17-2,” adopted by the Board, March 3, 2017, [aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/resolution.pdf?sfvrsn=6](http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/resolution.pdf?sfvrsn=6).

3. The 2016 (most-current) AQMP³ includes nearly 70 individual references to NZE vehicles and equipment. It repeatedly emphasizes the high importance assigned by Staff for rapid, near-term deployment of NZE HDVs to meet ozone attainment goals. Specific examples of such passages in the AQMP include the following (emphasis added):

- “More stringent mobile source emission standards are desperately needed to spur further development and production of zero- and near-zero emission technologies.” (Preface)
- “Given the fast-approaching deadlines – as early as 2022 and 2023, and given that the majority of the zero and near zero technologies needed for attainment have already or will soon be commercially available, it is now possible to specify the technologies and the implementation pathways to attainment” (Page ES-4)
- “The 2016 AQMP control strategy strongly relies on a transition to zero and near-zero emission technologies in the mobile source sector, including automobiles, transit buses, medium- and heavy-duty trucks, and off-road applications. The plan focuses on existing commercialized technologies and energy sources including their supporting infrastructure, along with newer technologies that are nearing commercialization based on recent demonstration programs and limited test markets. Prioritizing and expanding funding in Environmental Justice (EJ) areas will be sought.” (Page ES-5).
- “Additional demonstration and commercialization projects will be crucial to help deploy and reduce costs for zero and near-zero emission technologies. A key element of Plan implementation will be private and public funding to help further the development and deployment of these advanced technologies. Many of the same technologies will address both air quality and climate goals, such as increased energy efficiency and reduced fuel usage.” (Page 4-1)
- “The SCAQMD will continue to support technology demonstration projects for both mobile and stationary sources and will work to create new or expanded funding opportunities for earlier deployment of cleaner technologies, thus contributing to a smooth transition to zero and near-zero emission technologies in the mobile and stationary source sectors. The SCAQMD will prioritize distribution of incentive funding in environmental justice (EJ) areas and seek opportunities to expand funding to benefit the most disadvantaged communities.” (Page 4-3)
- “Mobile sources such as trucks, locomotives, and cargo handling equipment have technological potential to achieve zero- and near-zero emission levels.” (Page 4-8)
- “All technologies and fuels should be able to compete on an equal footing to meet environmental needs. This policy is consistent with the current priority on maximizing emission reductions utilizing zero emission technologies in all applications that are shown to be cost-effective and feasible. In other applications, near-zero technologies remain essential to meet all attainment goals.” (Page 4-9)
- “In the longer-term, there is a need to significantly increase the penetration and deployment of near-zero and zero-emission vehicles, greater use of cleaner, renewable fuels (either alternative fuels or new formulations of gasoline and diesel fuels), and additional emission reductions from federal and international sources such as locomotives, ocean-going vessels, and aircraft.” (Page 4-23)

25-4
Cont.

³ South Coast AQMD, “Final 2016 Air Quality Management Plan,” March 2017, <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15>

- “Lastly, one measure seeks to recognize the criteria pollutant emission reduction benefits of existing incentives programs such as the Carl Moyer Memorial Air Quality Standards Attainment Program and Proposition 1B – Goods Movement Emission Reduction Program. The measures call for greater emission reductions through accelerated turnover of older vehicles to the cleanest vehicles and equipment currently available and increased penetration of commercially-available near-zero and zero-emission technologies through incentives programs in the near-term.” (Page 4-24)
- “However, additional research and demonstration are needed to commercialize zero- and near-zero emission technologies for the heavier heavy-duty vehicles (with gross vehicle weight ratings greater than 26,000 pounds).” (Page 4-24)
- “MOB-13 – OFF-ROAD MOBILE SOURCE EMISSION REDUCTION CREDIT GENERATION PROGRAM: This measure seeks to accelerate the early deployment of near-zero and zero-emission off-road equipment through the generation of MSERCs that can be used for purposes of recognizing mobile source emission reductions at facilities affected by proposed AQMP measures MOB-01 through MOB-04 and EGM-01.” (Page 4-33)
- “FURTHER DEPLOYMENT OF CLEANER TECHNOLOGIES: OFF-ROAD EQUIPMENT: This measure is designed to achieve further emission reductions for the Basin’s attainment needs through a suite of additional actions, including greater penetration of near-zero and zero-emission technologies through incentive programs, and emission benefits associated with the potential for worksite integration and efficiency, as well as connected and autonomous vehicle technologies. These emission reductions will be achieved through a combination of actions to be undertaken by both CARB and the SCAQMD.” (Page 4-41)
- “Given the significant NOx emission reductions needed to attain the federal ozone air quality standards by 2023 and 2031, a combination of public funding incentives along with regulatory actions are needed. In the near-term, there is a need to commercialize zero and near-zero on-road trucks and off-road equipment as early as possible.” (Page 4-64)
- “Actions to promote ZEVs in these heavy-duty applications are underway and are important to further reduce regional and near-source toxics exposure, especially as it relates to reducing risk from DPM. In the off-road sector, the 2016 AQMP mobile source control strategies stress the need to reflect this same type of transformation to a mix of zero and near-zero technologies operating on renewable fuels.” (Page 9-11)
- TABLE 9-3 (2016 AQMP CARB Mobile Source Control Measures and Concurrent Key Toxic Air Contaminants Reduced) includes “Cleaner engine technology transfer from on-road to off-road applications” and “Incentive funding to achieve further deployment of cleanest engine technologies” (Page 9-12)

25-4
Cont.

South Coast AQMD is the Leading U.S. Supporter of / Champion for NZE HDVs

For more than three decades, the South Coast AQMD’s Technology Advancement / Clean Fuels Program has led the nation (and the world) in providing essential cost-sharing and/or general support to advance progressively lower-emitting HDV technology. In fact, it is largely due to the District’s support over the last decade that natural gas and propane engines (manufactured by our coalition members) are certified by CARB today at NZE levels. Similarly, the District’s financial and technical support has been instrumental in bringing diesel engine technology to the brink of achieving NZE certification. We thank

25-5

the South Coast AQMD Board and Staff; without such support, it may not have been possible for our coalition members to achieve these very important milestones.

As documented above, wide-scale deployment of NZE HDV technologies and fuels is critical to the District's overall AQMP control strategy and ability to achieve its air quality goals. If the District now finalizes PR 2305 to exclude NZE terminal tractors, it will be contrary to – and a major blow against – all these successful efforts to develop and deploy NZE HDVs in the SCAB, as strongly needed for ozone attainment. The following are specific recent quotes and statements from the District's Clean Fuels program and related technical documents⁴ that corroborate strong synergy between developing NZE HDV platforms so they can be subsequently deployed in the SCAB, via regulatory mechanisms and/or incentive programs.

- “The South Coast AQMD Clean Fuels Program cost-shares projects to develop and demonstrate zero, near-zero and low emissions clean fuels and advanced technologies to push the state-of-the-technology and promote commercialization and deployment of promising or proven technologies not only for the Basin but Southern California and the nation as well. As noted, these projects are conducted through public-private partnerships with industry, technology developers, academic and research institutes and local, state and federal agencies.”
- “The South Coast AQMD continually seeks to support the deployment of lower-emitting technologies. The Clean Fuels Program is shaped by two basic factors: 1) Zero, near-zero and low emission technologies needed to achieve clean air standards in the Basin; and 2) Available funding to support technology development within the constraints imposed by that funding.”
- “One function of the Clean Fuels Program is to help expedite the deployment and commercialization of zero, near-zero and low emission technologies and fuels needed to meet the requirements of the AQMP control measures. In many cases, new technologies, although considered “commercially available,” require assistance to fully demonstrate the technical viability to end-users and decision-makers.”
- “More than ever before, the Clean Fuels Program must both foster and accelerate advancement of transformative transportation, and off-road technologies where possible, with an emphasis on zero and near-zero emissions vehicle and fuel technologies. This is especially true given the region’s economic dependence on thriving goods movement, along with the corresponding impact of that industry on environmental justice communities.”
- “It is important to note here that South Coast AQMD’s Technology Advancement Office (TAO) administers not only the Clean Fuels Program but also the Carl Moyer Program (and other significant incentive programs, such as Proposition 1B-Goods Movement and the Community Air Protection Program). These two programs produce a unique synergy, with the Carl Moyer Program providing the necessary incentives to push market penetration and commercialization of zero and near-zero emission technologies developed and demonstrated by the Clean Fuels Program. This synergy enables the South Coast AQMD to act as a leader in both technology development and commercialization efforts targeting reduction of criteria pollutants and GHG reduction co-benefits.”
- District policies “will help both regulatory agencies and OEMs to expedite introduction of zero and near-zero emission vehicles in the Basin, which is a high priority of the AQMP.”

25-5
Cont.

⁴ South Coast Air Quality Management District, Board Agenda No. 28, “Approve and Adopt Technology Advancement Office Clean Fuels Program 2019 Annual Report & 2020 Plan Update,” March 2020.

- “Although no near-zero emission diesel technology is commercially available today, South Coast AQMD has been working closely with CARB and others on defining technology pathways via several projects . . . (that) show near-zero emission diesel technologies are feasible via advanced engine and aftertreatment or optimized engine design and calibration. The (Clean Fuels) Plan Update continues to incorporate pursuit of cleaner engines for the heavy-duty sector. Future projects will support the development, demonstration and certification of engines that can achieve these massive emission reductions using an optimized systems approach.”
- “Currently, on-road heavy-duty natural gas engines are increasingly being certified to CARB’s optional low-NOx standards which are significantly lower in NOx than the current on-road heavy-duty standard. This technology category seeks to support the expansion of OEMs producing engines or systems certified to the lowest optional NOx standard or near-zero emissions and useable in a wide variety of medium- and heavy-duty applications, such as Class 6 vehicles used in school buses and in passenger and goods delivery vans, Class 7 vehicles such as transit buses, waste haulers, street sweepers, sewer-vector trucks, dump trucks, concrete mixers, commercial box trucks, and Class 8 tractors used in goods movement and drayage operations and off-road equipment such as construction vehicles and yard hostlers.”
- “The deployment of near-zero emission vehicles would significantly further emission reductions relative to the state’s current regulatory requirements.”
- “The South Coast AQMD relies on a significant increase in the penetration of zero and near-zero emission vehicles in the South Coast Basin to attain federal clean air standards by 2023 and 2032. This project would help develop a number of renewable transportation fuel production and distribution facilities to improve local production and use of renewable fuels to help reduce transportation costs and losses that can reduce total operating costs of zero and near-zero emission vehicles to be competitive with comparable diesel fueled vehicles. Such advances in production and use are expected to lead to greater infrastructure development. Additionally, this project could support the state’s goal of redirecting biomass waste for local fuel production and reduce greenhouse gases associated with these waste biomass feedstocks.”
- “Nonetheless, while the state and federal governments have continued to turn a great deal of their attention to climate change, South Coast AQMD has remained committed to developing, demonstrating and commercializing zero and near-zero emission technologies. Fortunately, many, if not the majority, of technology sectors that address our need for NOx reductions also garner greenhouse gas (GHG) reductions. Due to these “co-benefits,” the South Coast AQMD has been successful in partnering with the state and federal government. Even with the leveraged funds, the challenge for the South Coast AQMD remains the need to identify project or technology opportunities in which its available funding can make a difference in achieving progressively cleaner air in the Basin.”
- “Although both announcements (separate initiatives on clean HDVs by EPA and CARB) are welcome news, the timing is too late to help the South Coast AQMD meet its 2023 federal attainment deadline. So, despite progress, commercialization and deployment of near-zero engines are still needed.
- “Because of Assembly Bill (AB) 6171, which requires reduced exposure to communities most impacted by air pollution, TAO conducted additional outreach to AB 617 communities regarding available zero and near-zero emission technologies, as well as the incentives to accelerate those cleaner technologies into their communities.

- SCAQMD’s Clean Fuels Plan 2020 Update includes projects to develop, demonstrate and commercialize a variety of technologies to meet emission control needs identified in the 2016 AQMP. Emphasis is on getting significant near-term reductions “using near-zero and zero emission technologies,” including “for high horsepower applications.”
- “More than ever before, the Clean Fuels Program must both foster and accelerate advancement of transformative transportation, and off-road technologies where possible, with an emphasis on zero and near-zero emissions vehicle and fuel technologies. This is especially true given the region’s economic dependence on thriving goods movement, along with the corresponding impact of that industry on environmental justice communities.”
- “The Clean Fuels Program and the Carl Moyer Program provide a unique synergy, with the Carl Moyer Program providing the necessary incentives to push market penetration of the technologies developed and demonstrated by the Clean Fuels Program. This synergy enables the South Coast AQMD to act as a leader in both technology development and commercialization efforts targeting reduction of criteria pollutants.”

25-5
Cont.

Conclusions and Requested Actions by the Board

Our coalition of companies and organizations respectfully asks the Board to urgently intervene on PR 2305, by directing staff to allow NZE terminal tractors as compliance pathways. This simple modification – which Staff is ready to implement at your direction – will significantly improve PR 2305’s ability to expeditiously achieve its intended NOx reductions. It will provide the regulated community with additional compliance options that are very cost effective for reducing NOx, while also delivering low total cost of ownership. Our recommended action is in full accord with your Board’s longstanding fuel-neutral policies to rapidly deploy emerging clean HDV platforms. It will perpetuate and strengthen the decades-long synergy between the District’s world-class HDV technology advancement program and your efforts to rapidly deploy the cleanest-available HDV fuel-technology platforms, as they emerge into the market place.

25-6

If you have any questions about the content of our letter, or if you would like to discuss this important issue with representatives from our coalition, please contact Ben Granholm at ben@westernpga.org or Jon Leonard at jon.leonard@gladstein.org.

Sincerely,



Thomas E. Knauff
CEO

Response to Comment Letter –25_ Energy Distribution Partners – 2/8/2021Response to Comment 25-1

Thank you for your participation in the rule development process and your comments in support of a warehouse ISR.

Response to Comment 25-2

The purpose of PR 2305 is to reduce regional NOx and PM, facilitate other related rules and regulations, and reduce emissions and exposures for local communities around warehouses. The WAIRE Menu only includes ZE terminal tractors (aka yard hostlers, yard tractors, etc.) as a compliance pathway under PR 2305 as ZE yard trucks are commercially available and they are an established technology that have operated in some warehouses for several years. It was necessary to include on-road NZE trucks as part of the WAIRE menu options because there is a lack of commercial availability for on-road ZE trucks and uncertainty on when on-road ZE trucks or ZE fueling infrastructure will be widely commercially available. Using NZE trucks at warehouse facilities would provide at least a 90% reduction in NOx emissions as compared to conventional diesel fueled trucks; the use of NZE trucks would provide immediate emission reductions for the communities surrounding warehouses. While use of NZE and ZE yard trucks both lead to emission reductions, yard trucks primarily stay on the warehouse premises and they are a constant source of mobile emissions that could impact the community surrounding the warehouses. The switch to ZE yard trucks at these warehouse facilities would lead to greater and earlier emission reductions and benefit the public health of the communities. Nonetheless, the second draft staff report and the accompanying WAIRE Implementation Guidelines now explicitly allow NZE yard trucks to earn WAIRE Points through a Custom WAIRE Plan, and example calculations that warehouse operators could use are included.

Response to Comment 25-3

Many yard trucks stay on site and idle as part of their operations at warehouse facilities. ZE yard trucks will benefit the communities surrounding the warehouse as they do not idle, and therefore will not produce emissions that could negatively impact the neighboring communities. Conventional on road NZE trucks are included in the WAIRE Menu because on-road ZE trucks are not well established and in comparison, also have a much shorter dwell time at warehouse facilities. Nonetheless, a CEQA alternative has been included that evaluates additional NZE compliance options (including for yard trucks) within PR 2305. Further, the second draft staff report and the accompanying WAIRE Implementation Guidelines now explicitly allow NZE yard trucks to earn WAIRE Points through a Custom WAIRE Plan, and example calculations that warehouse operators could use are included.

Response to Comment 25-4

South Coast AQMD acknowledges the support in reducing emissions from both mobile and stationary sources with the use of clean fuel and low emission technologies. The citations made by the commentor on the importance of near-zero emission options in this comment and in Comment 25-5 are recognized and a key part of South Coast AQMD's strategies to achieve clean air. The WAIRE Menu includes both NZE and ZE on-road truck acquisition and use, but in one instance the WAIRE Menu only includes a ZE option for yard trucks. There are key policy reasons supporting why ZE yard trucks are the only option considered. First, in the on-road sector ZE trucks are not at the same stage of commercial development as NZE trucks, which have been operating in commercial service for several years, especially for Class 8 trucks. However, ZE yard trucks are commercially available today and have been operating at warehouses since 2015.

Additionally, because ZE yard trucks are located at an individual facility, they are well-suited to serve as an early beachhead for the longer term development of ZE vehicle solutions.³⁰¹ By focusing PR 2305 on ZE yard trucks, warehouse operators are introduced to ZE technology to see how it works in their operations.

Further, because yard trucks primarily stay at the warehouse facility, their emissions can have a disproportionate impact on communities surrounding warehouses compared to an individual on-road trucks since most of the miles traveled may not be near the surrounding community. Many yard trucks idle as part of their operation at warehouse facilities, and the switch to ZE yard trucks would benefit public health of the communities surrounding the warehouse by not being burdened idling emissions. Although NZE engines have lower emissions than their conventional diesel counterparts, they do still have tailpipe emissions. Finally, although the commentor states that NZE yard trucks exist, there is no acknowledgement that yard trucks come in both on-road and off-road varieties. While propane or natural gas on-road yard trucks can meet CARB's standards for NZE, CARB currently does not have a certification standard for NZE off-road purposes. It is not clear how a default NZE definition would apply in the off-road setting. Nonetheless, a CEQA alternative has been included that evaluates additional NZE compliance options (including for yard trucks) within PR 2305. Further, the second draft staff report and the accompanying WAIRE Implementation Guidelines now explicitly allow NZE yard trucks to earn WAIRE Points through a Custom WAIRE Plan, and example calculations that warehouse operators could use are included.

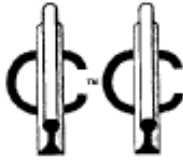
Response to Comment 25-5

Staff thanks you for your comment and continued support of the South Coast AQMD's Technology Advancement / Clean Fuels Program goal to provide incentives and promote the commercialization of clean technologies. As stated in previous response to comments, only ZE yard truck purchase and usage is included in the draft WAIRE Menu due to the commercial availability of NZE yard trucks and emission impacts to communities located near warehouses from their use. However, NZE technology are analyzed as an alternative in the CEQA analysis and the second draft staff report and the accompanying WAIRE Implementation Guidelines now explicitly allow NZE yard trucks to earn WAIRE Points through a Custom WAIRE Plan, and example calculations that warehouse operators could use are included.

Response to Comment 25-6

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention.

³⁰¹ https://globaldrivetozero.org/public/The_Beachhead_Model.pdf



Rail Cents Enterprises, Inc.

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Wallingford, PA
19086

phone: 610/565-8458
fax: 610/565-3617
E-mail: tom.erickson@railcents.com

January 20, 2021

Philip M. Fine, Ph.D.
Deputy Executive Officer
South Coast Air Quality Management District
Office of Planning, Rule Development & Area Sources
21865 Copley Drive
Diamond Bar, CA 91765

Dear Dr. Fine:

California leads the nation in environmental statutes, and the South Coast AQMD leads California. Your Proposed Rule 2305, the Warehouse Indirect Source Rule, is a good example. However, it has a glaring omission. It fails to foresee the greatest potential weapon in combating damage from urban trucks—railroads. The pick-up and drop-off of large-lot shipments in urban areas by rail sidings could greatly reduce air pollution, road congestion, and road accidents, as well as cut transportation costs. The fact that the large railroads do not yet themselves realize the vast sea of revenue potential from urban sidings only adds to the imperative for regulations that monetize the environmental, economic, and aesthetic advantages of railroad rights-of-way.

27-1

In other ways the South Coast AQMD has already been a leader in reducing pollution from locomotives with its support of the Pacific Harbor Line. You are administering a grant from the Carl Moyer Program to convert the last sixteen PHL locomotives from Tier 2 to Tier 3 emissions standards. PHL has also been working with Progress Rail to lease its Tier 4 switching locomotive and its zero-emission battery locomotive. Your neighbor, the San Joaquin Valley Air Pollution Control District, is administering a \$22.6 million grant from the Near Zero-Emission Board so that BNSF can test Wabtec’s zero-emission battery-powered linehaul locomotives.

27-2

The Warehouse Indirect Source Rule should encourage the use of rail sidings to service the warehouse of the future. The reliability of railroad linehaul service has been recently revolutionized by Precision Scheduled Railroading, and it would be a short step to extend a high degree of reliability to switching service at the customer’s private siding. Specifically, we would propose that Table 3 to Proposed Rule 2305 be amended so that WAIRE Points are awarded for each carload shipped or received (a boxcar generally carries 120,000-to-180,000 lbs. of lading) in accordance with the locomotive emissions standard met by the serving engine—a rising scale from Tier 1 to Tier 4 to a zero-emission battery-powered switching locomotive.

27-3

Railroads can help cities not just with moving people, but also with urban freight and the integration of environmentally-friendly urban industrial and warehouse jobs and corporate taxes.

Sincerely,

Thomas F. Erickson, Jr.
Proprietor

cc: William A. Burke, Ed.D., Chair, South Coast AQMD Governing Board, c/o Marie Patrick
 Mr. Ben Benoit, Vice Chair, South Coast AQMD Governing Board, Wildomar, CA
 Mr. Wayne Nastri, Executive Officer, South Coast AQMD, Diamond Bar, CA
 Mr. Craig Pedersen, Chair Supervisor, San Joaquin Valley APCD, Hanford, CA
 Mr. Samir Sheikh, Executive Director, San Joaquin Valley APCD, Fresno, CA
 Mr. Otis Cliatt II, President, Pacific Harbor Line, Wilmington, CA

Sent: Friday, February 19, 2021 12:03 PM
To: 'VJuan@aqmd.gov'; 'CDawson@aqmd.gov'; 'FShirmohammadi@aqmd.gov'; 'PYuen@aqmd.gov'
Cc: Michael Sussman
Subject: Warehouse Indirect Source Rule actions

Victor, Caitlin, Farimah, and Priscilla –

Thank you for your time yesterday during our Zoom call about WAIRE points that the South Coast Air Quality Management District proposes to award to warehouses that take specific actions to comply with new requirements for pollution abatement in your 4-county area. I hope to have tickled your interest in the huge potential for railroads to help reduce pollution while simultaneously relieving urban road congestion, accidents, and wear. 27-4

It is not often that our work can lead to groundbreaking improvements. The rest of the country, if not world, will be watching and learning from your efforts to monetize pollution abatement at the level of the individual warehouse. You can plant a seed with enormous positive repercussions by including the use of rail delivery and rail electrification initiatives into your incentive program.

Why do this?

- Because steel-wheel-on-steel-rail requires ¼ of the energy to do the same work as rubber-tire-on-pavement.
 - Because it is only fair to reward rail electrification on the same basis as truck electrification.
 - Because railroads need incentives to pursue emission reduction in locomotives.
 - Because railroads need talking points to solicit warehouse business.
- 27-5

More specifically, we propose that lines be added to Table 3 in Proposed Rule 2305 as follows:

- Column 1—WAIRE Menu Item: “Use rail sidetrack”
 - Column 2—WAIRE Menu Sub-item: “Switched by Tier 1 or 2 Locomotive” or “Switched by Tier 3 or 4 Locomotive” or “Switched by All-electric Locomotive”
 - Column 3—Reporting Metric: Number of Cars (with higher points awarded for successive levels in Column 2)
- 27-6

I have copied Michael Sussman, Chairman & CEO of Strategic Rail Finance, since he brought your warehouse initiative to my attention and since he masterminded the 2020 update to Nevada’s State Rail Plan referenced under separate cover. 27-7

Regards, Tom Erickson, Proprietor, Rail Cents Enterprises, PA office: 610-565-8458

P.S. Would appreciate being advised of your individual titles and whether progress has been made in proposing point amounts for Columns 4, 5, and 6 of Table 3—WAIRE menu.

Response to Comment Letter #27 – Rail Cents -01/20/2021 and 02/19/2021Response to Comment 27-1

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention. The concept of introducing direct pick-up and drop-off of large lot shipments in urban areas would require participation by the large railroads and use of Tier 4 locomotives or cleaner to achieve emissions benefits.³⁰² PR 2305 is applicable to warehouse operators, many of which do not have access to rail lines in order to invest in rail sidings. Based on the lack of availability for warehouse operators to access rail lines and the commercial availability of NZE or ZE locomotives, this concept will not be added to the WAIRE Menu. Warehouse operators that have projects that are site- or business model-specific which were not analyzed for the WAIRE Menu, can propose the concept in a Custom WAIRE Plan application, and if approved the warehouse operator may earn WAIRE Points.

Response to Comment 27-2

Thank you for acknowledging South Coast AQMD's leading efforts in incentivizing cleaner locomotives and funding the demonstration of the ZE battery locomotive.

Response to Comment 27-3

As stated in Response to Comments 27-1, railroading concepts will not be included in the WAIRE Menu as most warehouse operators do not have access to rail lines and the NZE and ZE locomotive technology is not commercially available. As with other site or business model specific concepts, warehouse operators can propose the concept as a Custom WAIRE Plan application.

Response to Comment 27-4

Staff appreciates the time and information provided regarding locomotive technology and railroad insight.

Response to Comment 27-5

Thank you for providing the reasons and benefits of using cleaner locomotives over trucks.

Response to Comment 27-6

Staff appreciates the effort made to explain where the rail side track concept may fit in the WAIRE Menu, but as stated in previous response to comments the concept will not be included in the WAIRE Menu. This concept could be proposed by warehouse operators as a Custom WAIRE Plan application.

Response to Comment 27-7

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention.

³⁰² <https://ww2.arb.ca.gov/resources/fact-sheets/draft-truck-vs-train-emissions-analysis>



February 19, 2021

Chair Burke and Members of the Mobile Source Committee
 South Coast Air Quality Management District
 21865 Copley Drive
 Diamond Bar, CA 91765

Re: Item No. 1 – Update on Proposed Rule 2305 Warehouse Indirect Source Rule

Dear Chair Burke and Members of the Mobile Source Committee:

On behalf of Earthjustice, we submit these comments on the warehouse indirect source rule. Earthjustice is working with a broad coalition that includes the communities living and working adjacent to warehouses, who continue to be disproportionately harmed by the freight industry every single day. We appreciate the Air District staff's continued work on the warehouse indirect source rule and request that the agency move expeditiously in the development and adoption of a strengthened regulation that focuses on zero-emissions.

28-1

The covid-19 pandemic has exacerbated health impacts to communities in the region just as we had one of the worst smog season in decades. Warehouses and ports have been profiting – and polluting – more due to consumers' increased reliance on e-commerce,¹ further compounding existing health risks in nearby communities. While those with ownership stakes in the freight system have profited handsomely, communities, particularly low-income communities and communities of color, have suffered the brunt of the air pollution harms.

28-2

Proposed Rule 2305 will mean significant benefits to our region in reduced smog-forming emissions and the need to put people to work to clean up warehouse pollution through retrofitting warehouses with clean transportation and clean energy resources. But, the rule remains too weak, and it should be at least tripled in strength to provide more emissions reductions. Moreover, we recommend the Air District make sure maximum credit is provided for zero-emission technologies and reject efforts by the natural gas and propane industries to use this rule to further expand their infrastructure.

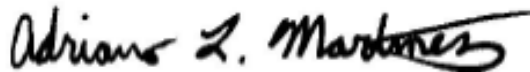
28-3

¹ See Justin Ho, *As imports boom, warehouses fill up, and businesses face a storage shortage*, Marketplace (Oct. 1, 2020), <https://www.marketplace.org/2020/10/01/imports-boom-warehouses-fill-up-businesses-face-storage-shortage-online-shopping-covid19/>.

We appreciate your consideration of these comments, and the staff's hard work on this important rule. We look forward to working with the Governing Board to finally adopt this rule that has been such a vitally important one.

28-4

Sincerely,



Adrian Martinez
Regina Hsu
Michelle Ghafar
Earthjustice

cc:

Wayne Nastri
Executive Officer

Sarah Rees
Deputy Executive Officer

Ian MacMillan
Planning and Rules Manager
Mobile Sources/ISR

Response to Comment Letter #28 – Earthjustice - 02/19/2021Response to Comment 28-1

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention.

Response to Comment 28-2

It is recognized that the COVID-19 pandemic has added to the health impacts faced by communities already burdened by poor air quality. The logistics and warehouse industry have increased their activity while hitting record cargo volumes in the ports. This has in turn increased the public health burden on those same communities.

Response to Comment 28-3

PR 2305 is anticipated to get significant reductions at the recommended stringency of 0.0025 WAIRE Points per WATT phased-in over three-years. Based on the analysis of 18 WAIRE Menu scenarios, PR 2305 could achieve NO_x reductions in the range of 2.5 – 4 tons per day beyond CARB Rules, which is 10-15% reductions from baseline of both NO_x and PM. While CARB's strategies are targeting dates in 2035 and 2045, PR 2305 would get immediate reductions as soon as 2023. Further analysis on other stringencies within the range of the CEQA analysis and relocation was conducted, however a screening analysis of the commentor's proposed tripling of the recommended stringency indicates that it could require NZE/ZE truck sales to significantly surpass the limited number of new NZE and ZE truck sales projected by CARB modeling, and could lead to some warehouses relocating to other areas outside South Coast AQMD. As currently proposed, the WAIRE Menu contains ZE yard trucks, ZE charging/fueling infrastructure, and ZE on-road trucks as potential compliance options. The methodology to determine WAIRE Points for each WAIRE Menu item (ZE or NZE) is included in the WAIRE Menu Technical Report included as Appendix B to the Preliminary Draft Staff Report.

Response to Comment 28-4

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention.



Susan A. Phillips
 Interim Director
 Robert Redford Conservancy for Southern California Sustainability
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 1050 North Mills Avenue | Claremont, CA 91711-6101

February 17, 2021

ATTN:
 Clerk of the Board, clerkofboard@aqmd.gov
 Wayne Nastri, wnastri@aqmd.gov
 Sarah Reese, SRees@aqmd.gov
 Ian Macmillan, imacmillan@aqmd.gov
 CC: Yassi Kevezade, yassi.kevezade@sierraclub.org

To the Governing Board of the South Coast Air Quality Management District and Senior Staff:

The Robert Redford Conservancy for Southern California Sustainability aims to increase socio-ecological justice and sustainability in our surrounding communities and beyond. We support projects that bolster multiple and interconnected systems (ecological, human, political, economic and cultural), and we foster collaboration and leadership for socio-ecological justice and sustainability.

29-1

We applaud the SCAQMD for its role in inviting community input regarding the impact of warehouses on life and health in Southern California. We believe that action must be taken now to combat climate change and solve the air quality issues of southern California. These environmental crises harm residents in our region every day. As we continue to contend with the ongoing COVID-19 pandemic, essential workers and their families - particularly in the logistics industry - are put at even greater risk due to unsafe work conditions and worsening air quality. Our workers deserve higher workplace standards so that they are able to breathe safely and power their business without creating harmful air pollution.

29-2

To date, the warehouse industry continues to operate without being subject to proper regulations, putting workers and communities at risk every day. We at the Robert Redford Conservancy believe that the **Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program Fees for Rule 2305** is an important rule that will stop this abuse in the goods movement sector.

29-3

The logistics industry is here to stay because of our coastal and inland port communities, and we must work together to clean up warehouses. The Warehouse Indirect Source Rule will be critical to holding these facilities accountable. We implore the South Coast AQMD to pass a rule that is strong enough to protect our communities' health and achieve broader climate benefits at the same time.

29-4

Warehouses have spewed toxic air pollution in nearby communities for years. A strong mandatory program, like the warehouse indirect source rule, is necessary to transform this industry. But to effectively clean up the warehouse industry, the rule must be stringent enough so that warehouses actually take the actions listed in the WAIRE menu to clean up their operations. This would require a stringency value of at least 0.0075. In addition, this rule should not simply be a "pay-to-pollute" scheme. The purpose of this rule is to reduce air pollution from

29-5

this industry and a low mitigation fee of \$1000 per point may lead to warehouses simply paying to comply.

Cont'd
29-5

We also believe that warehouses must move towards zero emission technology and the warehouse indirect source rule should incentivize this shift. This will provide air quality benefits and a just transition that will create access to quality jobs by increasing demand for labor as the industry begins to implement zero emission technologies. These job opportunities have been proven to provide quality wages and benefits for workers, unlike many temporary low-wage warehouse jobs.

29-6

Part of our mission at the Conservancy is to promote environmental justice in the Inland Empire. Our support of a stringent Warehouse Indirect Source Rule is an integral step toward that goal. We hope the Board will pass a strong warehouse indirect source rule that serves public health, supports a new green economy, and provides regional air quality benefits.

29-7

Sincerely,



Susan A. Phillips
Professor of Environmental Analysis

31-1

Response to Comment Letter #29 – RRC - 02/17/2021Response to Comment 29-1

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention.

Response to Comment 29-2

PR 2305 is intended to reduce emissions to meet federal and state air quality standards for ozone and fine PM, facilitate emission reductions from other regulations and policies, and reduce emissions and exposures for local communities surrounding warehouses. The WAIRE Menu provides nearly three dozen NZE and ZE technologies that will reduce emissions or reduce exposure to benefit both the community and the logistics industry workers.

Response to Comment 29-3

The commentor's support for PR 2305 is appreciated.

Response to Comment 29-4

PR 2305 as proposed is expected to result in about 2.5 – 4 tons per day of needed NO_x emission reductions, that would result in a 10-15% reduction of the baseline emissions which will assist in meeting the federal and state air quality standards. PR 2305 is designed to address local and regional air pollution, but climate benefits are expected as well with a transition to lower carbon intensity fuels like electricity.

Response to Comment 29-5

Staff is recommending a stringency a 0.0025 WAIRE Points per WATT, which was a result of a thorough analysis of 18 WAIRE Menu scenarios. These scenarios looked at the emissions and the available technology production, a relocation study, and a socioeconomic analysis. The recommend stringency of 0.0025 WAIRE Points per WATT results in significant emission reductions and facilitates emission reductions from other related rules and regulations. A screening analysis of the commentor's proposed tripling of the recommended stringency indicates that it could require NZE/ZE truck sales to significantly surpass the limited number of new NZE and ZE truck sales projected by CARB modeling, and could lead to some warehouses relocating to other areas outside South Coast AQMD. The mitigation fee of \$1,000 per WAIRE Point is not intended to be a "pay-to-pollute" scheme as the funds from the optional mitigation fee would be pooled to subsidize incentives for NZE and ZE trucks and ZE charging infrastructure back in the communities surrounding the warehouse that paid the mitigation fee. Based on the analysis conducted during rulemaking, the \$1,000 per WAIRE Point value is similar to other WAIRE Menu actions and investments in any one year, but would be a higher cost option over time as it would not allow warehouse operators to make early investments that could lead to cheaper compliance options later.

Response to Comment 29-6

As currently proposed, the WAIRE Menu contains ZE yard trucks, ZE charging/fueling infrastructure, and ZE on-road trucks as potential compliance options. NZE on-road trucks options are also present in the WAIRE Menu as many warehouse operators may find this technology choice better fits their operations. These NZE on-road trucks provide a 90% or better NO_x emission reduction compared to diesel engines, and will assist with meeting the federal ozone attainment goals and provide public health benefit to the local communities surrounding the warehouses. Job impacts from PR 2305 will be included in the socioeconomic analysis.

Response to Comment 29-7

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention.



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Info@OriginEngines.com

February 18, 2021

South Coast AQMD Board Members, Mobile Source Committee

RE: Inclusion of Near-Zero Emission Terminal Tractors Under Proposed Rule 2305 (WAIRE)

Dear Chairman Burke and Members of the South Coast AQMD Board's Mobile Source Committee:

Origin Engines, by means of this letter, wish to endorse and support including that both on-road and off-road vehicles be included in the warehouse indirect source rule.

30-1

It is Origin Engines understanding that "The SCAQMD warehouse indirect source rule includes on road Near Zero Emissions vehicles - Nat Gas / Propane but excludes Near Zero for off-road. The only option for off-road is electric. The SCAQMD staff understand that Near Zero Emissions (Nat Gas / Propane) are the most cost-effective alternative for getting the NOx emissions reductions they need today. Yet the staff has not included NZE in the source rule for off-road applications.

30-2

Origin Engines has a history of developing natural gas and propane engines for use in off-road applications and look forward to the future where "Near Zero Emission Vehicles- Natural Gas / Propane" can be included for use.

30-3

Best Regards,

Shawn Sterling
Chief Customer Officer
Origin Engines

Response to Comment Letter #30 – Origin Engines - 02/18/2021Response to Comment 30-1

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention.

Response to Comment 30-2

The WAIRE Menu includes both NZE and ZE on-road truck acquisition and use, but the WAIRE Menu only includes ZE yard trucks. There are key policy reasons supporting why ZE yard trucks are the only option considered. First, in the on-road sector ZE trucks are not at the same stage of commercial development as NZE trucks, which have been operating in commercial service for several years, especially for Class 8 trucks. However, ZE yard trucks are commercially available today and have been operating at warehouses since 2015. Additionally, because ZE yard trucks are located at an individual facility, they are well-suited to serve as an early beachhead for the longer term development of ZE vehicle solutions.³⁰³ By focusing PR 2305 on ZE yard trucks, warehouse operators are introduced to ZE technology to see how it works in their operations.

Further, because yard trucks primarily stay at the warehouse facility, their emissions can have a disproportionate impact on communities surrounding warehouses compared to on-road trucks with emissions miles away from a facility while traveling between destinations. Many yard trucks idle as part of their operation at warehouse facilities, and the switch to ZE yard trucks would benefit public health of the communities surrounding the warehouse by not being burdened by idling emissions. Although NZE engines have lower emissions than their conventional diesel counterparts, they do still have tailpipe emissions. Finally, although the commentor states that NZE yard trucks exist, there is no acknowledgement that yard trucks come in both on-road and off-road varieties. While propane or natural gas on-road yard trucks can meet CARB's standards for NZE, CARB currently does not have a certification standard for NZE off-road purposes. It is not clear how a default NZE definition would apply in the off-road setting. Nonetheless, a CEQA alternative has been included that evaluates additional NZE compliance options (including for yard trucks) within PR 2305. Further, the second draft staff report and the accompanying WAIRE Implementation Guidelines now explicitly allow NZE yard trucks to earn WAIRE Points through a Custom WAIRE Plan, and example calculations that warehouse operators could use are included.

Response to Comment 30-2

Thank you for your interest in the warehouse ISR development process, and for bringing your comments to our attention. Staff has noted that Origin Engines is a developer of NZE engines for use in off-road applications.

³⁰³ https://globaldrivetozero.org/public/The_Beachhead_Model.pdf