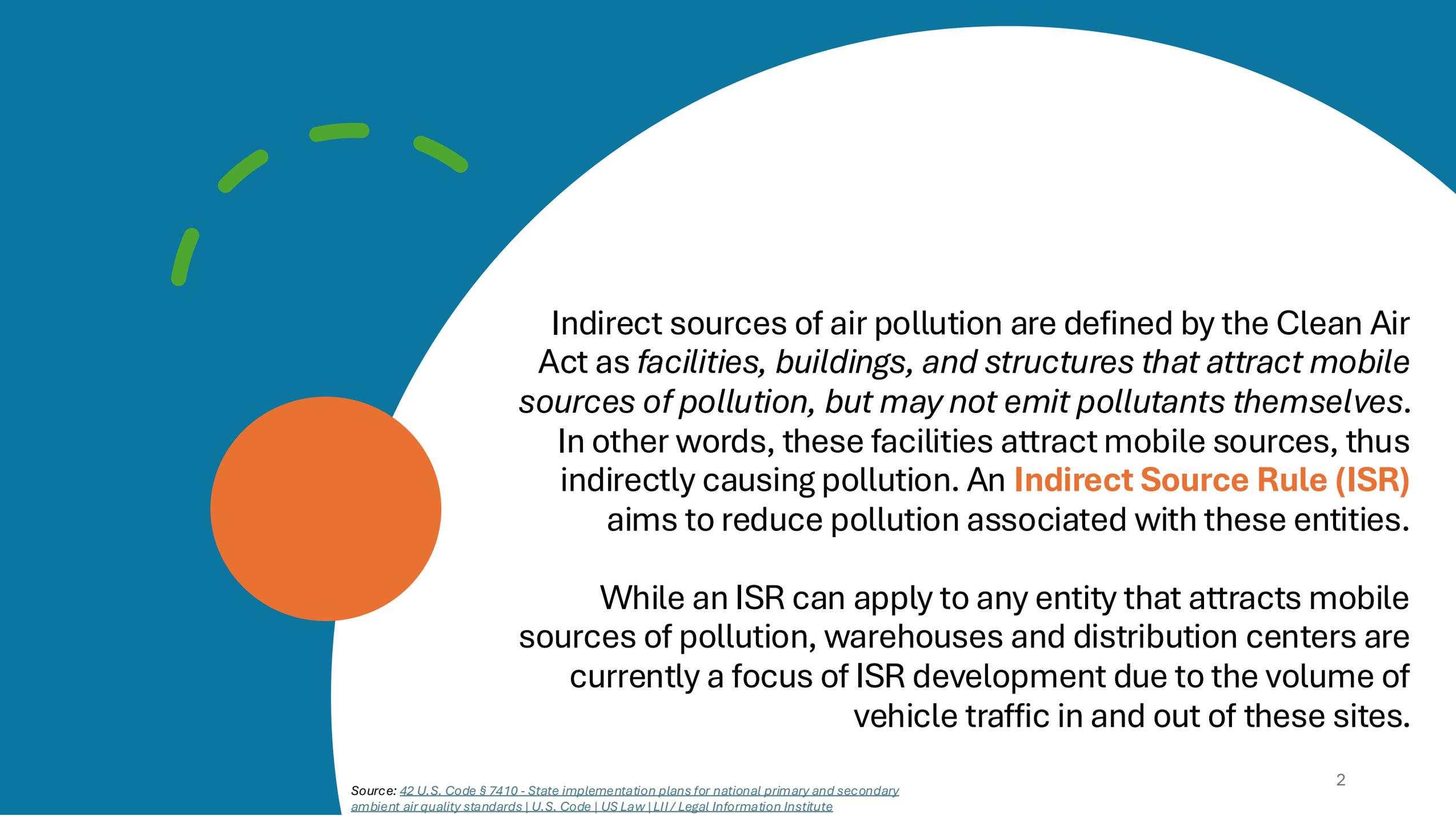


Indirect Source Rules: Case Studies from California

March 2025



Photo: Andy Davenport on Upsplash



Indirect sources of air pollution are defined by the Clean Air Act as *facilities, buildings, and structures that attract mobile sources of pollution, but may not emit pollutants themselves*. In other words, these facilities attract mobile sources, thus indirectly causing pollution. An **Indirect Source Rule (ISR)** aims to reduce pollution associated with these entities.

While an ISR can apply to any entity that attracts mobile sources of pollution, warehouses and distribution centers are currently a focus of ISR development due to the volume of vehicle traffic in and out of these sites.

This presentation shares key findings from case study research of three Indirect Source Rule (ISR) policies implemented in California.

By examining these examples, other cities can identify effective policy design components, compliance mechanisms, and enforcement strategies that can serve as a foundation for shaping tailored ISR approaches for their cities.

1. South Coast Air Quality Management District (SCAQMD)

2. San Joaquin Valley Air Pollution Control District (SJVAPCD)

3. San Diego County Air Pollution Control District (SDCAPD)

1. South Coast Air Quality Management District (SCAQMD)

Covers large areas of Los Angeles, Orange, Riverside and San Bernardino counties, including the Coachella Valley. The region is home to more than 17 million people—44% of the population of the entire state of California.

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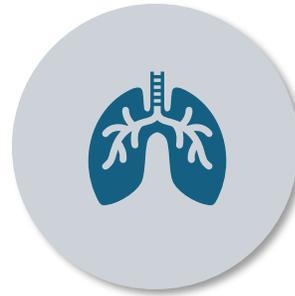
1.3 Reporting, Outreach, and Enforcement

1.4 Program Effectiveness & Key Considerations for Implementation

In **2021**, SCAQMD adopted the Warehouse Actions and Investments to Reduce Emissions (**WAIRE**) program under **Rule 2305**.



This regulation targets emissions associated with warehouse facilities, aiming to reduce nitrogen oxide (NOx) and diesel particulate matter (DPM) produced by truck traffic associated with these sites.



The WAIRE program is designed to address health concerns in communities located near large warehouses. Warehouses over 100,000 square feet must earn WAIRE points by implementing actions to reduce emissions.



Eligible actions include investing in zero-emission vehicles, installing renewable energy sources, and adopting other pollution reduction practices.



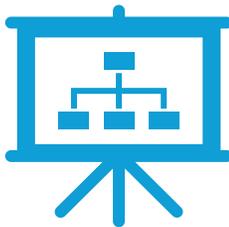
The rule reflects the region's Air Quality Management Plan and builds on prior regulations to tackle the substantial pollution from warehousing activities.

The **WAIRE** program has set a **significant regulatory precedent**, becoming a **model for similar initiatives**.



The program has already successfully reduced NOx and DPM emissions, a strong example of targeted regulatory measures.

Rule 2305 has highlighted the value of flexibility, allowing businesses to meet compliance without imposing a one-size-fits-all approach.



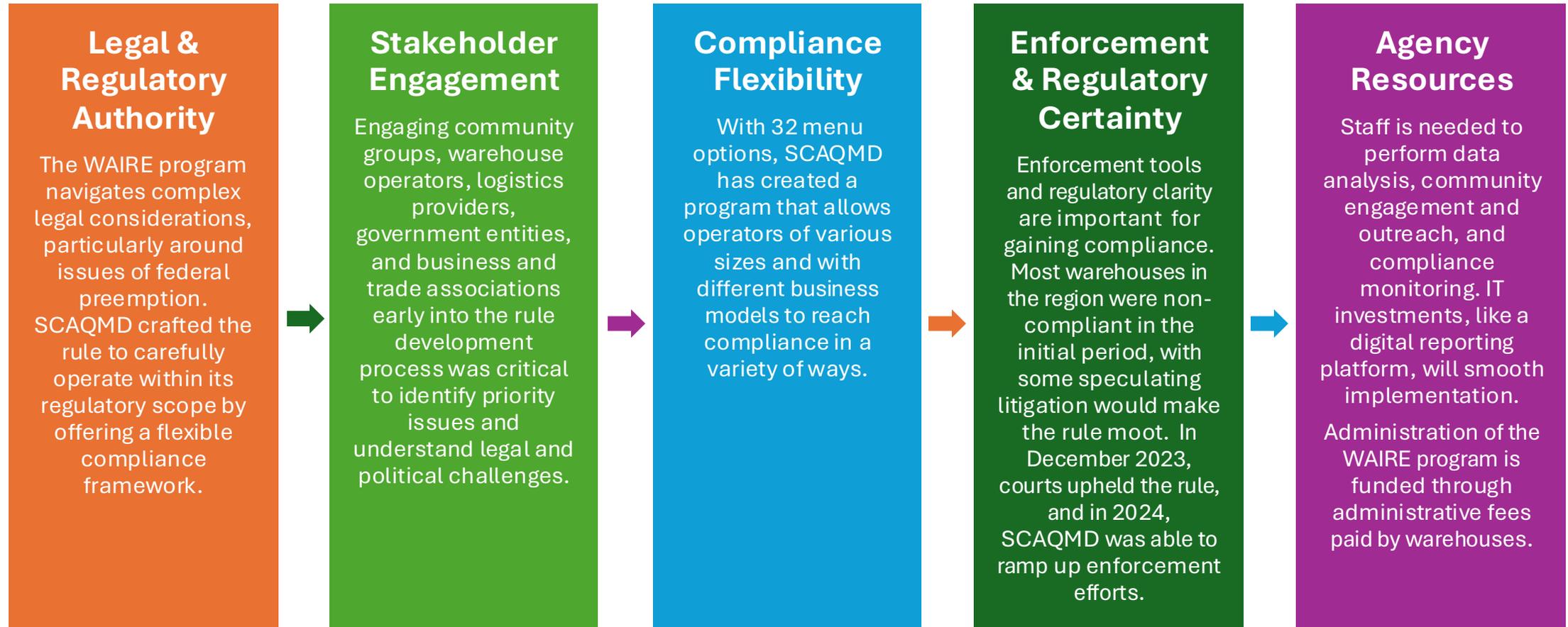
New business models have been created in response to the WAIRE program, which has been effective in encouraging cleaner technology adoption.

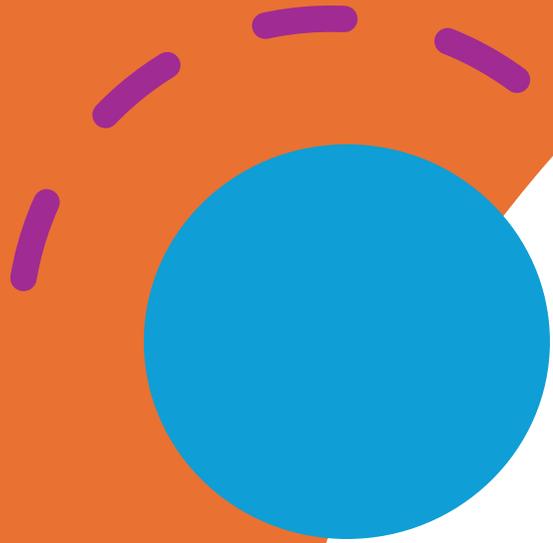


The WAIRE Program has Generated **Meaningful Pollution Reductions.**

- In first three years of rollout (2021-2023), this program resulted in:
 - Acquisition of hundreds of zero-emission trucks (yard trucks, heavy-duty trucks, medium-duty trucks)
 - Construction of 340 charging stations
 - Reduction of 0.86 tons of NOx per day – well on the way to program projections of 1.5-3 tons per day
 - Projected reductions lead to 150-300 fewer deaths; 2,500 to 5,800 fewer asthma attacks; 9,000 to 20,000 fewer work loss days; \$1.2-2.7 billion in health savings 2022-2031

For agencies looking to create an ISR, SCAQMD offers **key insights for policy design.**





1.1 SCAQMD Regulatory Framework and Policy Design Process

The WAIRE program and Rule 2305 was **significantly influenced** by prior plans, guidelines, and regulations.

- SCAQMD was created by the California state legislature to facilitate compliance with the *Federal Clean Air Act (CAA)*
- The WAIRE program supports and complements the following:
 - *The California Clean Air Act*, which aims to reduce emissions to meet the air quality standards of the area.
 - *California Air Resources Board*, which focuses on improving the state's air quality by setting emission goals and implementing various programs supporting zero-emission transportation.

Rule 2305 has faced **legal opposition** from industry, where the menu's **flexibility** has proven **essential**.*



In December 2023, California courts upheld the Rule, rejecting claims that it was pre-empted by FAA or CAA



The court recognized that Rule 2305's scope extends beyond mobile sources, and encompasses facility-wide measures (e.g., charging equipment, air filters, etc.)

The WAIRE program aims to **reduce emissions**, improve **public health**, and support attainment of **air quality** standards.

1. Reduce Emissions: Reduce local and regional emissions and mobile sources associated with warehouses to help the region reach attainment.



2. Compliance with Air Quality Standards: Assist in meeting state and federal air quality standards for ozone and fine particulate matter.



3. Improve Public Health: Reduce public health impacts for communities located near warehouses.

Rule 2305's **development** took about **3 years**.

In this time, SCAQMD held working group meetings, committee briefings, public workshops, and public hearings to:



Understand warehouse operating models in the region



Determine trip patterns and volumes to and from the region's warehouses



Identify whether the policy would be likely to induce warehouses to relocate outside of the region



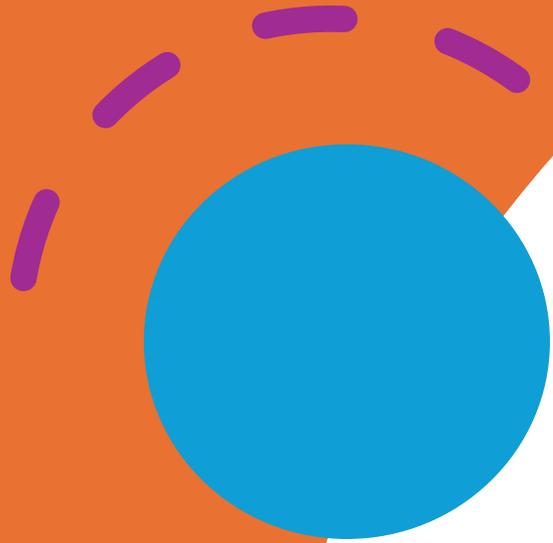
Study the warehouse rental market



Perform scenario analysis to determine emissions reduction menu options

SCAQMD’s development of Rule 2305 exemplifies the importance of involving **key stakeholders**.

Stakeholder	Role
SCAQMD Staff	<ul style="list-style-type: none"> Led rulemaking process Organized meetings Conducted site visits Developed educational/outreach materials
SCAQMD Board	<ul style="list-style-type: none"> Directed the initiation of rulemaking Provided oversight
Community Groups	<ul style="list-style-type: none"> Advocated for community interests in rulemaking Identified air quality concerns
Warehouse Operators and Logistics Providers	<ul style="list-style-type: none"> Participated in meetings and site visits Provided feedback on emission reduction measures
State and Federal Agencies & Municipalities	<ul style="list-style-type: none"> Consulted on rulemaking approach and regulatory authority
Trade Associations	<ul style="list-style-type: none"> Consulted to understand industry perspective, identify potential challenges, and develop solutions
Business Associations	<ul style="list-style-type: none"> Advocated for their interests Some business associations litigated against the rule
Natural Gas Industry	<ul style="list-style-type: none"> Advocated for points menu to grant more points for natural gas trucks
Utility & Electricity Associations	<ul style="list-style-type: none"> Provided input on how to design points menu to align with implementation timelines for EV charger installation
Hydrogen Providers	<ul style="list-style-type: none"> Provided input on timelines for installing hydrogen fueling stations
Labor Groups	<ul style="list-style-type: none"> Provided input on impact of ISR on labor development



1.2 SCAQMD Policy Design

SCAQMD's WAIRE program requires **warehouses over 100,000 square feet** to earn a certain number of compliance points each year, which can be selected from a **menu of emissions-reduction actions**.

Approximately **4,000 warehouses** are subject to the rule, which in part influenced SCAQMD's design for a menu-based approach.

The Rule applies to **owners** and **operators** of warehouses with $\geq 100,000$ SF of indoor floor space in a single building.

“**Warehouse Size**” is defined in Rule 2305 as “the indoor floor space, measured in square feet, of an individual warehouse building that may be used for warehousing activities.” Considers areas where warehousing activities may occur and is not necessarily the same as the total square footage of the building.*

“**Warehousing activities**” is defined in Rule 2305 as “operations at a warehouse 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.”**

The WAIRE program was implemented in **phases**, based on the **size of warehouses**.



*For example, a warehouse building may have 300,000 square feet of indoor floor space, of which 100,000 square feet is used for office and retail sales areas. In this example, the “warehouse size” would be 200,000 square feet. Note that warehouses, regardless of size, do not have to participate if they have under 50K sq ft of warehousing activities.

**Supporting office administration, maintenance, manufacturing areas, or retail sales areas open to the public, within the samewarehouse building, that are physically separate from the warehouse area, are not considered warehousing activities for the purpose of this rule.

Source: [Rule 2305 - Frequently Asked Questions](#) (Released April 2024), [SCAQMD WAIRE Compliance Training Video #1](#)

SCAQMD enables warehouse **operators** to **earn points** from equipment **use**, equipment **acquisition**, or **paying fees**.

Equipment "Use" Points

- Operators can earn points each year for using certain WAIRE Menu items, which include, but are not limited to, vehicle-related options.
- For example, a warehouse operator earns points each time an EV charger at its site is used and each time a ZE truck visits its warehouse.

Equipment "Acquisition" Points

- Operators can earn points for acquiring (i.e., buying, leasing, or renting) certain items on the WAIRE menu.
- For example, a warehouse operator earns points for purchasing solar panels, EV chargers, or NZE vehicles.

Custom Plans: Innovative Approaches

- Custom plans allow warehouse operators to request points for emissions-reduction actions not offered on the WAIRE Menu.
- For example, several warehouse operators could jointly fund an EV charging hub at a third site and apply for points for this action.
- Operators must make the case that custom actions should earn WAIRE points based on investment cost and emissions reduction.

Mitigation Fees

- A warehouse operator may choose to satisfy all or part of its WAIRE Points Compliance Obligation (WPCO) through payment of a mitigation fee in the amount of \$1,000 for each WAIRE point. The mitigation fee is considered a form of compliance, rather than a fine or penalty.
- The WAIRE Mitigation Program then spends those fees on mitigation projects in the geographic area of warehouses that pay the fee. About 3-5% of points are earned with the fee, which have generated about \$42 million total so far.

When deciding how many points an action earns, SCAQMD considered three factors: **Cost**, **NOx**, and **Diesel PM**.

Cost

The cost factor is based on the incrementally higher cost a warehouse operator faces when choosing to purchase NZE/ZE equipment (compared to conventional diesel technology).

NOx (Regional Emissions Reductions)

Regional emissions reductions are calculated based on a combination of pollution reduced and capital investment costs.

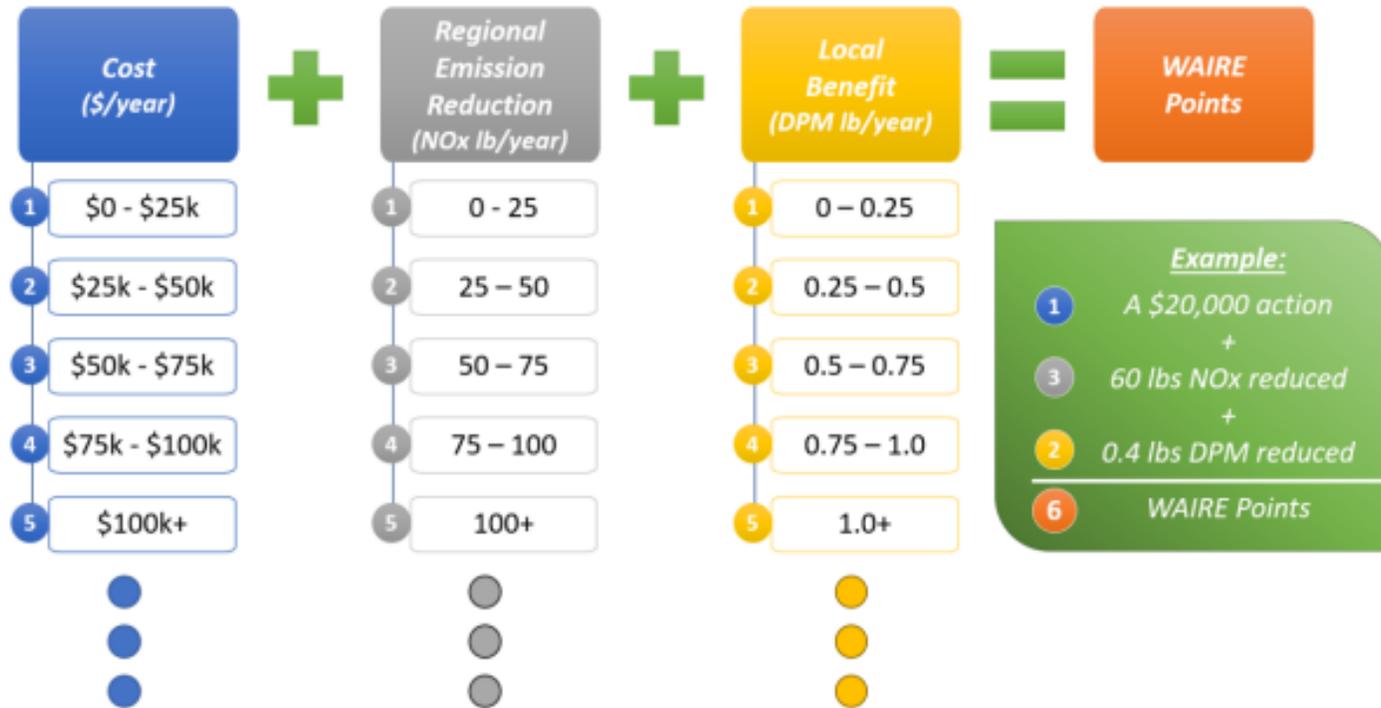
- Pollution reduced: Points from NOx reductions are granted based on pollution reductions realized from using ZE/NZE equipment instead of conventional.
- Capital investment costs: Additional points for NOx reductions are granted using costs as a proxy for pollution reduction, with \$100,000 investment being equated to 1 ton of NOx.

Diesel PM (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.

Costs, NOx, and Diesel Particulate Matter are each attributed points that **scale** with the investment size or pollution reduction impact.

In this example, an **action costs \$20,000** and results 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.



The WAIRE program **menu provides a standard number of points** that can be earned from each action.

SCAQMD Menu of Options

- Acquire ZE/NZE Trucks in Warehouse Operator Fleet
- ZE/NZE Truck Visits
- Acquire ZE Yard Truck
- Use ZE Yard Truck
- Install Onsite ZE Charging or Fueling Infrastructure
- Use Onsite ZE Charging or Fueling Infrastructure
- Install and Energize Onsite Solar Panels
- Use Onsite Solar Panels
- Install MERV 16 or greater Filters or Filter Systems in Residences, Schools, Daycares, Hospitals, or Community Centers

Example: Acquire ZE/NZE Trucks in Warehouse Operator Fleet

For this action, an operator can earn points based on the vehicle type and class

SCAQMD determines the default WAIRE Point value for each menu action based on the cost of the investment and the local and regional emissions reductions it generates

Action/Investment	Action/Investment details	Reporting Metric	Annualized Metric	WAIRE Points per annualized Metric
Acquire ZE/NZE Trucks in Warehouse Operator Fleet	ZE Class 8	Number of trucks	One truck acquired	126
	ZE Class 4-7			68
	ZE Class 2b-3			14
	NZE Class 8			55
	NZE Class 4-7			26

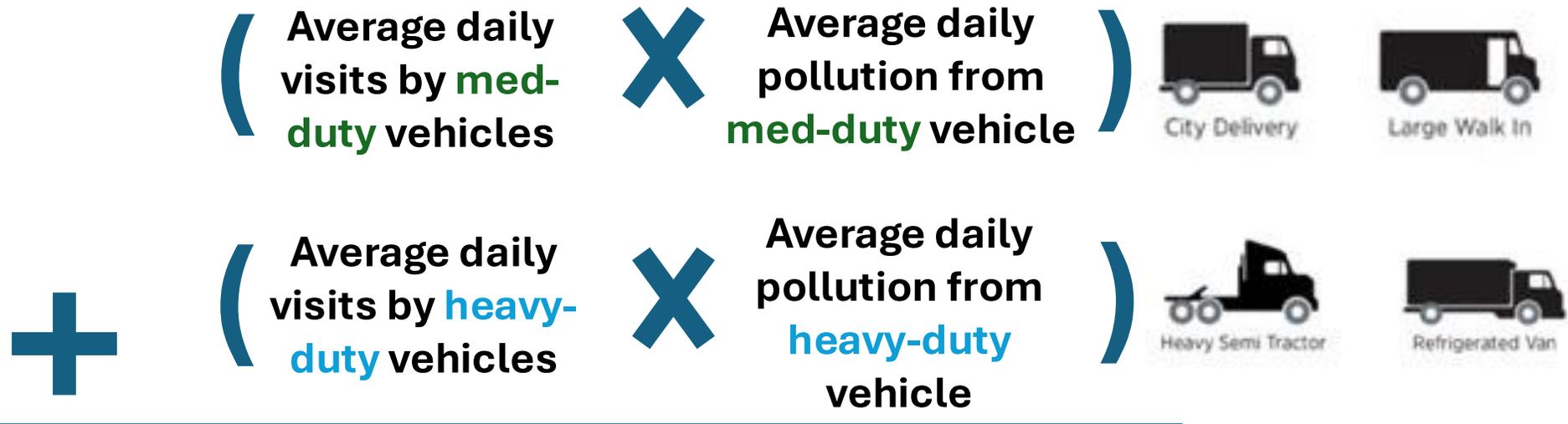
Operators will report the number of trucks acquired during the compliance period

The annualized metric* for truck acquisition WAIRE Menu Action is one truck acquired during the compliance year

*Points values are determined for each action based on a single Annualized Unitary Metric (AUM). The AUM is the default level of implementation used for 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

See appendix for full list of menu actions, details, metrics, and Points. Source: [WAIRE MENU Technical Report 3-3-20.pdf](#)

The number of points a warehouse operator must earn each year is calculated based on the **number** and **type of truck trips**.



Weighted Annual Truck Trips (WATTs)

WAIRE Points Compliance Obligation (**WPCO**) is the **number of points** an operator must earn **each year**.

$$\text{WPCO} = \text{WATTs} \times \text{Stringency (Points/WATT)} \times \text{Annual Variable (Phase-in schedule)}$$

- The WPCO is not a direct translation of **WATTs** into a number of WAIRE points that must be earned. To determine a **WPCO**, a warehouse operator's **WATTs** is first adjusted by two numbers:
 - **Annual Variable:** The WAIRE program gets more stringent over the first three years of implementation. The annual variable increases over time, resulting in higher WPCOs over time.
 - **Stringency:** The stringency is a simple adjustment factor used to adjust the WATTs down to a reasonable number of WAIRE points an operator can be required to earn. The stringency factor is defined as 0.0025 WAIRE points per WATTs.*

*This value was determined by SCAQMD, after considering emission reduction need, industry impacts, emissions associated with warehouses, and scenario analysis.

Operators can **transfer** and owners can transfer or **bank points** if they have earned more than required in a given year.

If a warehouse *operator* earns extra points...

- Extra WAIRE points may be transferred to any other warehouse under that operator's control during the current compliance period.
- Because some activities associated with WAIRE points provide local air quality benefit, the WAIRE Points associated with some actions may be discounted if they are transferred to another warehouse.
- Warehouse operators may bank points for use in any of the next three compliance periods. Points banked for future use in this way cannot be transferred to other warehouses.

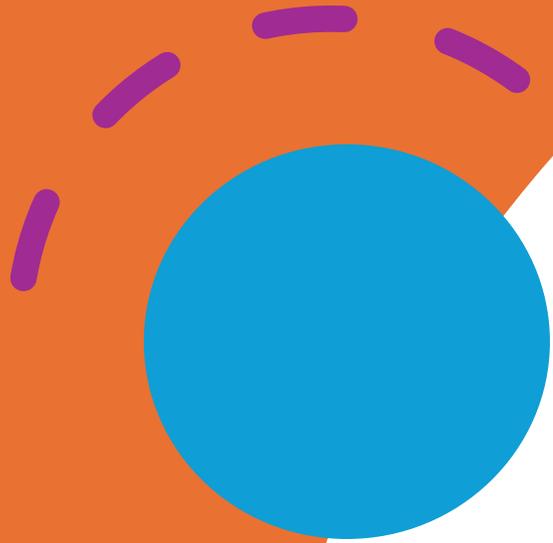
If a warehouse *owner* earns points...

- Owners are not required to earn points.
- Owners may optionally earn points in any year and subsequently transfer those points to any warehouse operator that occupies the building over the next three years.
- These WAIRE Points that do not leave a warehouse site may be banked for up to three years.
- If a warehouse operator vacates a warehouse before the end of the compliance period, the owner may transfer those points to the next operator.

SCAQMD set the **mitigation fee at \$1,000 for each WAIRE point** in a given operator's WPCO.

SCAQMD's analysis of 18 scenarios found that implementing menu items may incur higher upfront costs but will likely allow the warehouse to operate more cost-efficiently over time.

SCAQMD modeling projects that continually paying mitigation fees in lieu of implementing menu items will be more expensive in the long run.



1.3 Reporting, Outreach, and Enforcement

Comprehensive documentation and communication are designed to ensure adherence to the program's regulations.

Reporting by warehouse **owners** and **operators** is a central component of the WAIRE program.



Warehouse Operations Notification (WON)

Report submitted by warehouse owners. It includes the warehouse size and the size of area for warehousing activities. For each current and previous operator, it includes contact information and size of area for warehousing.



Initial Site Information Report (ISIR)

One-time preview report from operators. It provides basic information about the warehouse, including truck trip counts for the previous year, fleet information, and anticipated actions for the what the operator's compliance obligations will be and how they plan to meet them.



Annual WAIRE Report (AWR)

Annual report where the operator provides data on truck trips performed and actions taken, which SCAQMD uses to determine whether the operator has complied with their WPCO.

SCAQMD **monitors** and **enforces compliance** with audits, advisory materials, and violations.

Desktop and field audits by SCAQMD confirm information in reports is accurate.

- SCAQMD inspectors conduct field audits to verify recordkeeping and other requirements.
- Inspectors work with operators to address discrepancies or take enforcement action in cases of non-compliance.

SCAQMD takes escalating enforcement action until compliance is achieved.

- SCAQMD can issue a Notice of Violation to non-compliant operators (Approx. 450 issued as of December 2024).
- In September 2023, SCAQMD found that 70% of obligated warehouses were non-compliant. SCAQMD issued a compliance advisory to owners and operators.*

SCAQMD is empowered to issue violations.

- Violations are typically less than \$10,000 per day of non-compliance, but violators of air quality rules can face civil penalties up to \$11,710 per day.
- Violations are set and resolved on a case-by-case basis.

*Some operators were likely not taking action to comply during the initial years of regulation, as they were hoping the regulation may become void due to litigation.
Source: SCAQMD Press Release. [South Coast AQMD Launches Enforcement Initiative to Address Non-Compliant Warehouses](#). Dec 4, 2024. [Compliance & Enforcement](#)

SCAQMD and incentive programs **provided compliance support** to operators.



The rule required significant outreach to ensure all operators were aware of rules and SCAQMD authority.



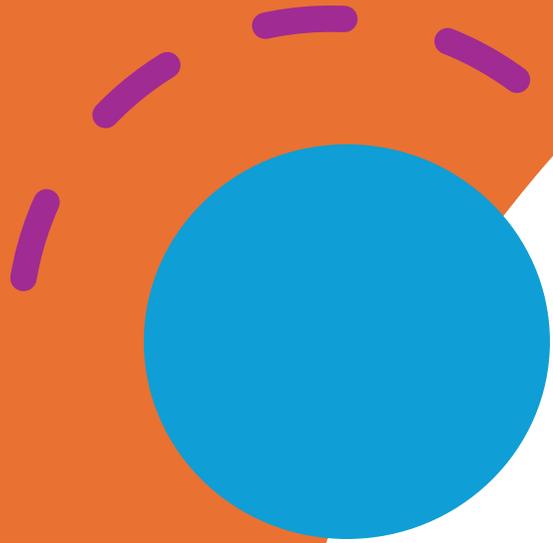
Some warehouse operators may require technical assistance to accurately submit reporting documents.



SCAQMD provided significant assistance through training videos and other resources.



Existing incentive programs in California to reduce air pollution related to heavy-duty vehicles and equipment can work in tandem with the WAIRE program's goals.*



1.4 Key Learnings from the SCAQMD WAIRE Program

Agencies must review **state** and **local** laws that determine **who has the authority** to implement an ISR.

Federal statute should also guide how an agency crafts its policy based on what they **are and are not allowed to regulate.**

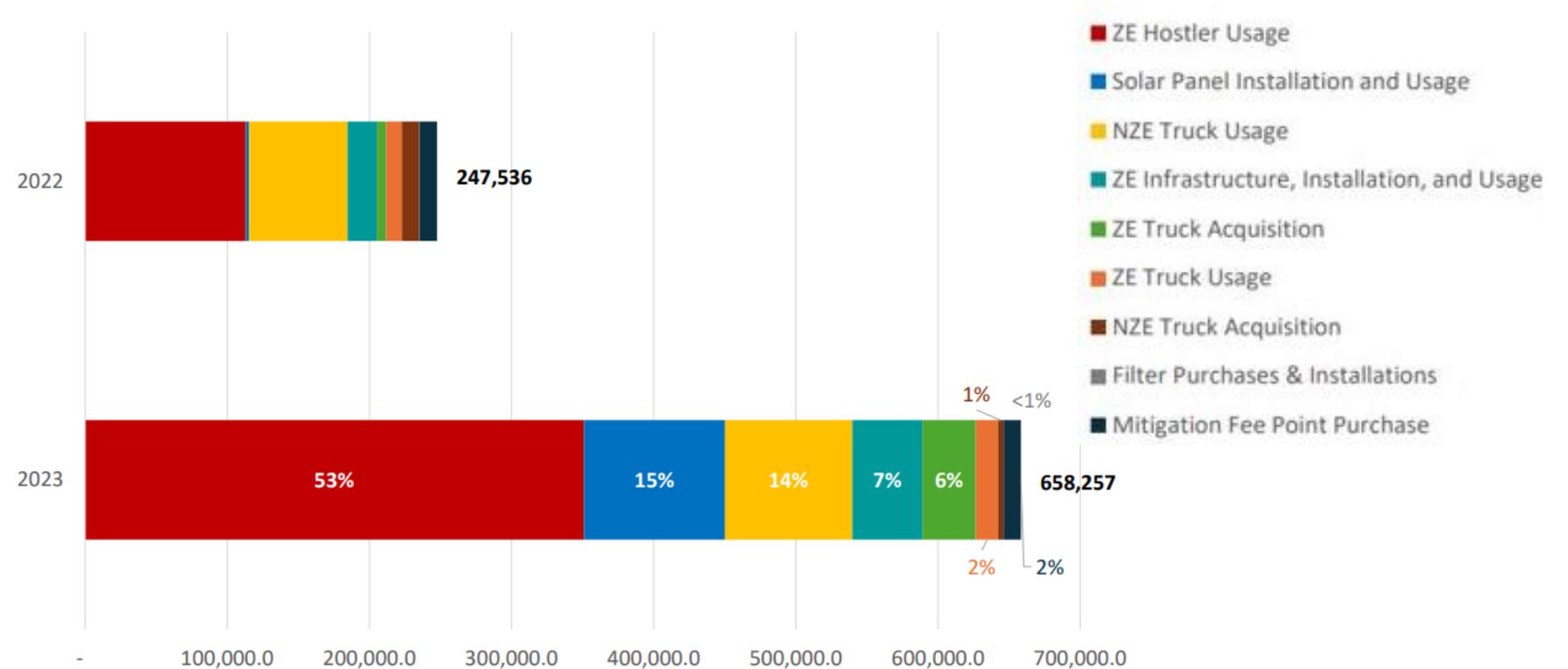
Agencies should also establish a clear understanding of their regulatory authority (e.g., whether the agency is permitted to regulate indirect sources or mobile sources).

ZE hostlers, NZE trucks, and solar panels were popular compliance actions in initial years.

Summary of Top Menu Items, 2022 and 2023

- **Hostlers** (also known as yard trucks) move trailers and containers around warehouse facilities. Adopting ZE hostlers was a popular early-year investment, potentially because it requires relatively simple operational changes.
- Between 2022 and 2023, there was an increase in **ZE Infrastructure, Installation, and Usage** and **ZE Truck Acquisition**, suggesting that operators are making investments to shift toward electrification.

Reported Total WAIRE Points By Year



The WAIRE program provides **key learnings** to support program development in other jurisdictions.



Program design to prevent preemption: SCAQMD had to design a program that provided a variety of viable options for achieving compliance, helping it withstand litigation claiming its actions were preempted by federal law.



Program flexibility: Building flexibility both into how an operator achieves compliance and to account for long timelines for infrastructure installation (which are often out of the operator's control) is important. In the case of an unanticipated and unavoidable delay, SCAQMD works with operators on a case-by-case basis.



Clear rule language: It was important for the District to develop very clear language in the Rule, for example, defining the differences between manufacturing and warehousing.



Digital infrastructure for reporting: SCAQMD developed custom reporting software, which has required refinement for additional circumstances over time. There is interest in allowing operators to make amendments to their reports after submission, and there is a need for better functionality for to capture reporting by operators not meeting points obligations.



Outstanding updates: Operators in SCAQMD have requested a campus-style reporting option, where operators have adjacent facilities operating as one warehouse despite occupying multiple buildings. See Appendix for more information .

The case study identified **lessons** from **key challenges** and **barriers**.

Adequate staffing is needed to support marketing, implementation, education, and enforcement.

The program requires support from SCAQMD staff, both for oversight and assisting operators in navigating the rule. The team has sent over 21,000 compliance advisory mailers to warehouse facility owners and operators and has led over 140 presentations about the program.

Engaging operators through outreach is crucial for understanding and compliance.

Limited awareness of the WAIRE program and the complexity of documentation requirements presented barriers for some warehouse operators. With a complex rule, education and assistance are needed to enable all operators to submit accurate reporting.

A flexible points menu allows warehouses to comply while planning for future investments.

Vehicle and infrastructure costs are significant, and acquiring and installing equipment and infrastructure can take time. Many warehousing operators do not own or manage their own fleets. A phased implementation approach helps operators plan how they can earn points over time, identify partners to help them earn points, and access available financial incentives. These factors also underscore the importance of a diverse points menu, with options for different operator types and achievable on different timelines.

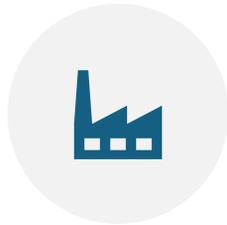


2. San Joaquin Valley Air Pollution Control District (SJVAPCD)

The San Joaquin Valley Air Pollution Control District (SJVAPCD) comprises eight counties stretching from Kern County in the south to San Joaquin County in the north.



In 2005, the San Joaquin Valley Air Pollution Control District **adopted an ISR** for large development projects.



The rule aims to reduce emissions of nitrogen oxides (NOx) and particulate matter (PM10) from development projects.



The rules were adopted to meet the air quality and health standards by state and federal laws, such as California's Clean Air Act (CCAA).



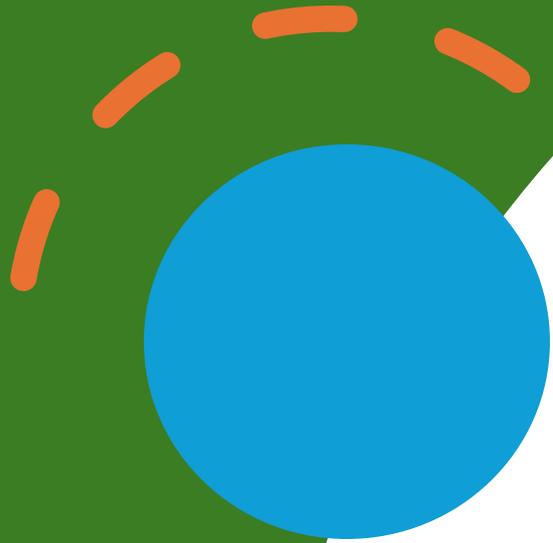
Developers of large projects must reduce construction and operational emissions or pay off-site emission fees.



Achieving these reductions is facilitated through the implementation of design features and on-site measures.



The ISR program underwent extensive development and public consultation before implementation. Annual reporting began in 2007.



2.2 SJVAPCD Policy Design

The rule applies to **any development project requiring discretionary approval*** from a public agency.

The inclusion criteria **for warehouses** are as follows:

Industrial in Rule 9510 is defined as any facility, building, structure, installation, activity or combination thereof that creates, collects, extracts, packages, modifies, and/or distributes goods.	
Light Industrial	Heavy Industrial
Usually employs fewer than 500 persons, with an emphasis on activities other than manufacturing and typically have minimal office space. Typical activities include print plants, material testing labs, and assemblers of data processing equipment.	Also categorized as manufacturing facilities. Heavy Industrial usually has a high number of employees per industrial plant.
All buildings of 125,000 square feet (SF) or larger	All buildings 500,000 SF or larger
Buildings over 25,000 SF requiring discretionary approval	Buildings over 100,000 SF requiring discretionary approval

The ISR program **is not a points-based system**. It requires and provides options for developers to meet **mandatory emissions reductions**.

Emission reduction measures are activities taken to minimize or eliminate emissions estimated to occur from new development projects. Actions can either be directly incorporated into the design of the project (On-Site) or funds can be used to offset or compensate for a project's emissions (Off-Site).

On-Site Emission Reduction Checklist

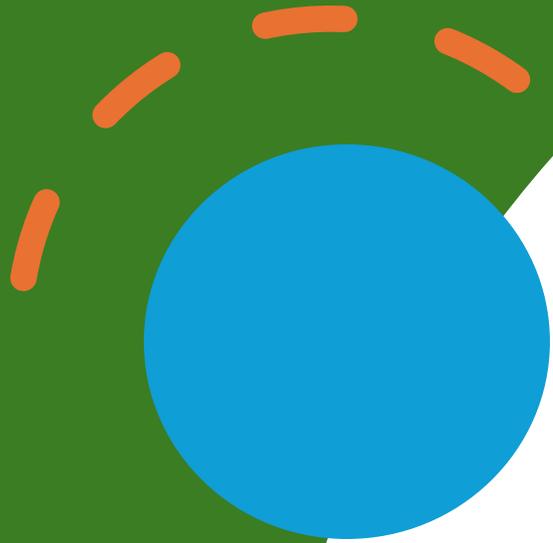
Provided by the District, and includes measures like zero-emission vehicle fleets, electric vehicle infrastructure, solar installation, and high-efficiency building designs.

Off-Site Emission Reduction Fee

Calculated based on emissions from construction and operational activities, and area sources. These fees are used by the District to finance off-site projects that are designed to reduce surplus emissions of NOx and PM10 in the Valley.

Air Impact Assessment (AIA)

Developers must then submit an AIA application, which includes site and project details (size, plans, schedule type), as well as a proposal for on-site emission reduction strategies and any off-site mitigation fees that will be needed. The applicant should also complete the monitoring and reporting schedule (MRS), which is standardized and provided by the District.



2.3 SJVAPCD Enforcement

Applicants are required to submit **annual reports** showing that their emissions are hitting targets.



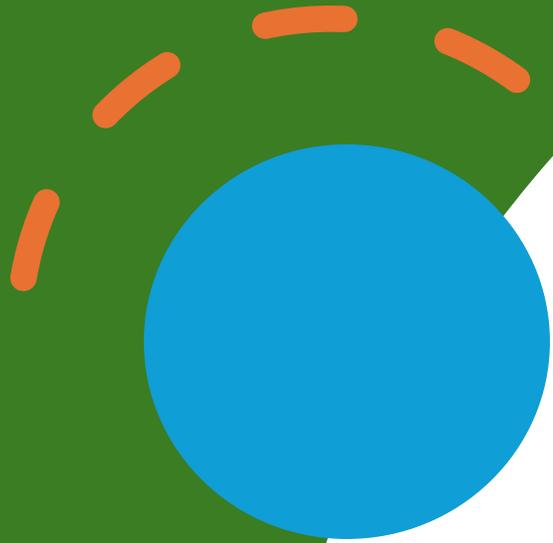
The Monitoring and Reporting Schedule (MRS) is part of the AIA and contains a developer-designed implementation, reporting, and monitoring schedule, compliance standards, provisions for failure to comply, and emission reduction measures.



An Air Pollution Control Officer (APCO) determines whether AIA applications are complete. The APCO forwards a copy of the AIA application, including the MRS, to the relevant public agency for review.



Failure to comply can result in a misdemeanor and is liable for a penalty. Every day during any portion of which such a violation occurs constitutes a separate offense according to Rule 1090 under SJVAPCD.



2.4 SJVAPCD Program Effectiveness & Key Considerations for Implementation

Since its adoption, SJVAPCD's ISR program has made **quantifiable progress** in reaching emission reduction goals.



The Rule requires a development to **reduce construction NOx and PM10** emissions by **20%** and **45%**, respectively, and **operational** emissions by **33.3%** and **50%**, respectively.



In **2023**, approved ISR projects cumulatively reduced **NOx emissions by 2,278 tons** and **PM10 by 2,963 tons**. 360 projects submitted ISR applications.



The Rule's efforts have contributed to a **75% reduction in the region's NOx levels** since 1980, including a **93% reduction** from stationary sources.



Between 2008 and 2010, the ISR program **reduced 1,245 tons of NOx and PM2.5** at a cost effectiveness of **\$1,700/ton of reduced emissions**, an extremely strong cost effectiveness per Federal Highway Administration Standards.

3. San Diego County Air Pollution Control District (SDCAPCD) Proposed Indirect Source Rule

San Diego County is approximately 4,300 square miles and encompasses the San Diego Air Basin and a portion of Salton Sea Air Basin. It is the second most populated county in California (3.3 million people). As of April 2024, the county was designated as in nonattainment with the federal and State Ambient Air Quality Standards (AAQS) for ozone and State AAQS for PM10 and PM2.5.

California State Assembly Bill 423 (2019) requires SDCAPCD to consider adopting an ISR, and steps have been taken to evaluate an ISR for the region.



SDCAPCD evaluated current indirect sources from San Diego County warehouses.



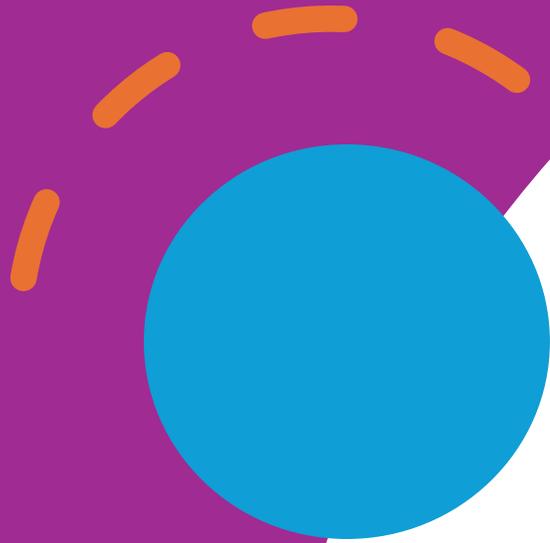
SDCAPCD conducted a warehouse inventory analysis and assessed potential indirect source emission control and reduction strategies



SDCAPCD developed a Warehouse Working Group to offer input on regulatory and non-regulatory strategies and identify challenges



SDCAPCD reviewed the rules of other air districts, like SCAQMD, to identify concepts for regulating indirect source emissions from new and existing freight hubs in the San Diego region



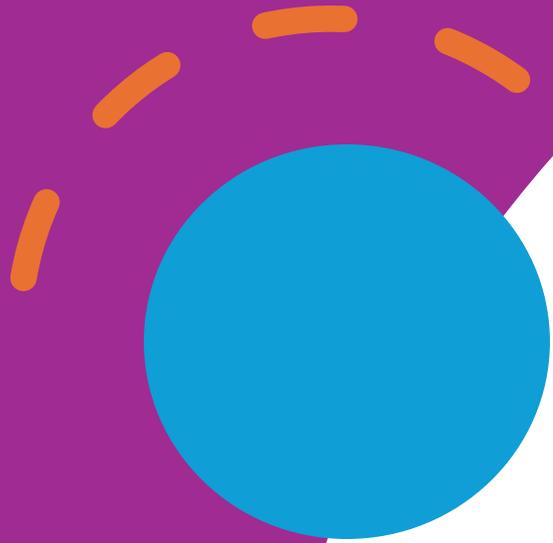
3.1 SDCAPCD Program Structure

Like other California ISRs, SDCAPCD's ISR would support many actions occurring at the federal, state, and local levels. See Appendix for more info on what programs and regulations this ISR would align with.

A warehouse ISR presents a **significant opportunity** to **reduce emissions**.

Within SDCAPCD, there are approximately 6,700 warehouses with sizes ranging from less than 1,000 SF to 3.3 million SF of indoor floor space.

Warehouses with 100,000+ SF of indoor floor space represent less than 4% of all warehouses yet account for more than 28% of total warehousing space in the region.



3.2 Policy Design

The proposed ISR for San Diego County aims to reduce emissions from heavy-duty vehicles and warehouses through a phased approach, accommodating the gradual increase in the availability of heavy-duty zero-emission (ZE) vehicles.

While the rule has **not yet been finalized**, it is expected that the compliance requirements will **align closely** with those of the **SCAQMD WAIRE program**.



A phased approach, starting with the largest warehouses



A menu that offers a combination of interventions, including the acquisition of near-zero-emission (NZE) or ZE trucks, increased visits by NZE/ZE trucks, the use of ZE yard trucks, etc.



The option to prepare and implement site-specific custom plans that involve onsite and offsite actions not listed in the menu



A mitigation fee compliance option

Aligning with the SCAQMD model provides regulatory consistency for warehouses in adjacent air districts and trade corridors using an established regulatory model that is like SCAQMD's WAIRE Program.

Appendix

These case studies, especially the Rules that have already been adopted, provide robust documentation and guidance that other regions could reference when crafting their own ISR.

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Appendix 1: SCAQMD

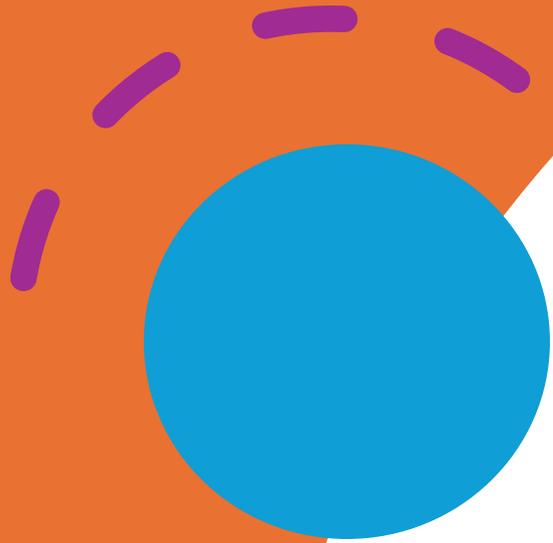
1. SCAQMD Resources
2. WAIRE Menu
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6. Campus-style reporting

Appendix 2: SJVAPCD

1. SJVAPCD Resources

Appendix 3: SDCAQCD

1. SDCAPCD Resources



Appendix 1: SCAQMD

SCAQMD Resources

- [Rule 2305](#): Rule 2305, with its purpose, applicability, definitions, requirements, reporting notification, and recordkeeping requirements, guidelines, exemptions, sunset date, severability, and tables with the requirements and the WAIRE Menu itself.
- [Rule 316 \(Fees for RULE 2305\)](#): Rule 316 establishes the authority for SCAQMD to adopt a fee schedule for the ISR to cover the cost of implementing Rule 2305. It outlines the fee amounts for Annual WAIRE Report, Initial Site Information Report (ISIR), and Warehouse Operations Notification (WON).
- [Rule 2305 Fact Sheet](#): Short fact sheet with high-level information on compliance, points-earning, WAIRE schedule, exemptions, and fees.
- [WAIRE Implementation Guidelines](#): The WAIRE Implementation Guidelines is a user guide to assist warehouse owners and operators to comply with the requirements of Rules 2305 and 316. It includes an implementation schedule, high-level calculations information, technical reporting information, and implementation/calculation information on each of the WAIRE Menu items.
- [Draft WAIRE Menu Technical Report](#): 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.
- [Proposed Rule 2305 and Proposed Rule 316 Board Package](#): 2000+ page document to certify Final Environmental Assessment and Adopt Proposed Rule 2305 and Proposed Rule, submit 2305 for inclusion into the State Implementation Plan, and approve supporting budget actions

SCAQMD Resources (Cont.)

- [Rule 2305 Scenario Calculations](#): This spreadsheet analyzes 20 scenarios over time that show the impacts from all 32 WAIRE Menu actions, as well as using mitigation fees. Modeled for every year from 2022-2031.
- [Annual Report for WAIRE Program – January 2023](#): First annual report for the WAIRE program, with an executive summary, implementation update, program enforcement, online portal development/implementation, outreach, and next steps.
- [2nd Annual WAIRE Program Annual Report](#): Second WAIRE Program Annual Report provides an overview of the WAIRE Program's implementation from rule adoption in May 2021 through August 2024. It includes recent developments related to Rule 2305, including litigation, approval into state implementation plan, and state legislation.
- [Training Videos](#): A series of 11 training videos developed to provide guidance for Warehouse ISR compliance.
- [Frequently Asked Questions](#): FAQ page of questions asked primarily by warehouse owners/operators. Questions are categorized into sections: applicability, requirements, earning WAIRE points, fees, custom WAIRE plans.
- [WAIRE Enforcement Press Release – Sept 2023](#): In September 2023, SCAQMD announced an enforcement initiative to address noncompliant warehouses, with the first phase focusing on violators in environmental justice communities.

WAIRE Menu

Action/Investment	Action/Investment Details	Reporting Metric	Annualized Metric	WAIRE Points per Annualized Metric	Discounted WAIRE Points Subparagraph (d)(6)(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	33
	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	150-350 kW EVSE Acquisition	Number of EVSE purchased	One EVSE purchased	118	118
	51-149 kW EVSE Acquisition			51	51
	19.2-50 kW EVSE Acquisition			26	26
	Up to 19.2 kW EVSE Acquisition			5	5
	TRU Plug EVSE Acquisition			3	3
	Begin construction on 19.2-350 kW charger project	First day of construction	One construction project	9	9
	Begin construction on up to 19.2 kW charger project			5	5
	Begin construction on TRU Plug project			5	5
	Finalize 19.2-350 kW Level charger project	The latter of final permit sign off or charger energization	One construction project	59	59
	Finalize up to 19.2 kW charger project			5	5
	Finalize TRU Plug project			7	7
	Hydrogen (H ₂) Station	Daily capacity of station in kilograms (kg)	One 700 kg/day station construction project	1,680	1,680
Use Onsite ZE Charging or Fueling Infrastructure	Vehicle Charging	Kilowatt-hours (kWh) of dispensed electricity	165,000 kWh	42	24
	TRU Charging		10,658 kWh	10	3
	H ₂ Station Usage	Kg of dispensed H ₂	6,152 kg	43	25
Install and Energize Onsite Solar Panels	Rooftop	Size of system in kW	100 kW system	15	15
	Carpport			19	19
Use Onsite Solar Panels		Energy production in kWh	165,000 kWh	1	1
Install MERV 16 or greater Filters or Filter Systems in Residences, Schools, Daycares, Hospitals, or Community Centers	Install Stand-Alone System	Number of systems installed	25 systems	55	55
	Replace Filters	Number of filters replaced	200 filters	51	51

SCAQMD Reporting

WAIRE Program Report	Reporting Entity	Information Required
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
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)
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

* 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 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.

State-Wide Incentive Programs

- [Proposition 1B – Goods Movement Emission Reduction Program](#) is intended to reduce diesel air pollution from goods movement operations and reduce the associated health risks in the affected communities. The program offers financial incentives to owners/operators of eligible equipment involved in goods movement operations to upgrade their equipment, install electrical infrastructure at a truck stop or distribution facility, or implement other projects that will reduce diesel air pollutant emissions.
- [Carl Moyer Memorial Air Quality Standards Attainment Program](#) is a competitive grant program to encourage owners of diesel engines to go beyond regulatory requirements by retrofitting, repowering, or replacing their engines with newer and cleaner ones. The program focuses on cleaning the air by replacing older heavy-duty diesel with electric, alternative-fuel, or cleaner diesel technologies.
- [Community Air Protection Program \(CAPP\)](#) is a new community-focused strategy to reduce emissions of criteria pollutants and toxic air contaminants in communities impacted by disproportionate levels of air pollution. Through this program, SCAQMD received more than \$450 million from CARB to administer incentives for CAPP, targeting emissions and exposure reductions from mobile, stationary, and area sources within AB 617 communities.

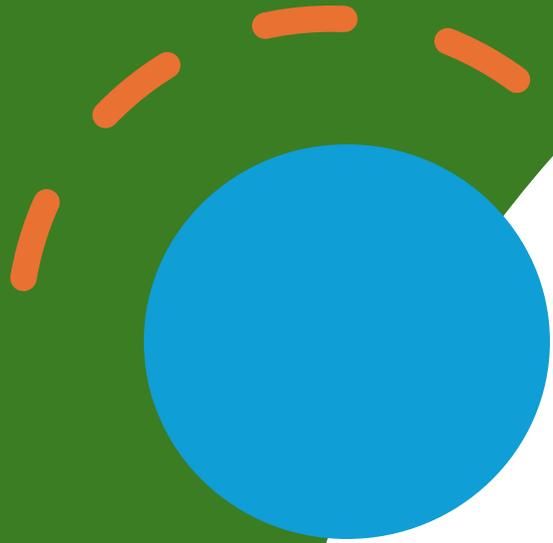
These state-wide incentive programs work in tandem with the WAIRE program to create a comprehensive approach toward air quality improvement and emission reduction. While some incentives may be used to comply with the Rule, others include prohibitions on the use of the incentive funds to comply with another rule or regulation. Incentives are typically used to reduce the purchase price of a clean vehicle/equipment, which may impact the ability of an operator to earn WAIRE Points for the acquisition. However, incentive programs typically do not have requirements on where the vehicle/equipment is operated, therefore the vehicle/equipment purchased with incentives may be used to earn WAIRE Points for visits or usage of the vehicle at the warehouse facility. SCAQMD also administers between \$100-200 million annually in incentive funds, mostly for mobile sources and charging equipment.

Industry Unsuccessfully Challenged SCAQMD in the Courts

- In August 2021, industry (California Trucking Association (CTA)) challenged the WAIRE program in the US District Court for the Central District of California, claiming it was pre-empted by the federal Clean Air Act (CAA) or Federal Aviation Administration Authorization Act (FAAA).
- The CAA challenge asserted that the ISR was an emissions standard, which would be the purview of the federal government. Industry representatives argued that the non-truck options were not feasible for businesses, leaving truck purchases as the only viable compliance method.
- The court rejected these claims. It recognized that the Rule's scope extends beyond trucks, encompassing facility-focused measures (e.g., charging stations for equipment and air filters) and therefore was not an emissions standard.
- The menu's flexibility, which included various pollution reduction measures beyond mobile sources, was crucial in countering the argument that the rule is an emissions standard.
- California courts upheld the Rule in December 2023, rejecting claims that it was pre-empted by FAAA or CAA.

Campus-style reporting

- SCAQMD identified future WAIRE Program activities in the [2023 WAIRE Program Annual Report](#), focusing on implementation, online portal development, compliance, and enforcement. One outstanding update to program implementation was to accommodate a campus-style report filing. Operators requested a campus-style reporting option after Rule adoption because they had adjacent facilities operating as one warehouse despite occupying multiple buildings. They want these warehouses operating as a unit to be considered as one. As a result, South Coast is considering a campus-style reporting option for adjacent buildings that are not separated by a public roadway and are under the same operational control.
- If South Coast were to implement a campus-style reporting option, all rule requirements would still apply. The phase of a campus would be based on the size of the largest warehouse building included in the campus. Regarding reporting, the warehouse operator would be required to submit an ISIR for each individual building. The AWR would be submitted for the campus, provided all truck trips visiting the campus, including individual buildings, are counted. It would be prohibited to allow WAIRE points earned to be counted multiple times for separate buildings within the campus. South Coast assumes that only a small portion of warehouses would qualify for campus-style reporting



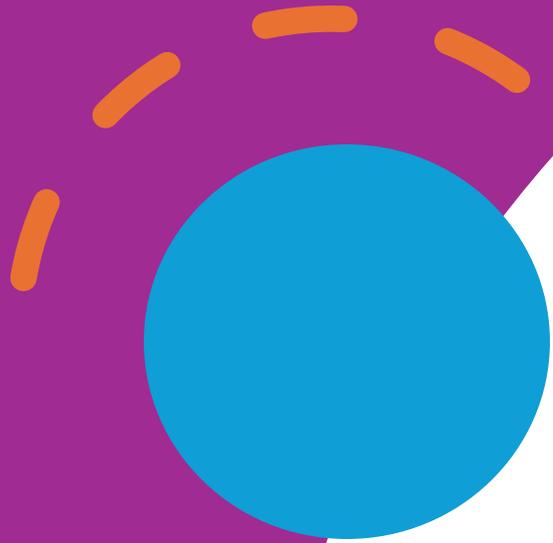
Appendix 2: SJVAPCD

SJVAPCD Resources

- [Rule 9510](#): Indirect Source Review (ISR) (Adopted December 15, 2005; Amended December 21, 2017 to ensure that all Large Development Projects are subject to the rule, not in effect until March 21, 2018)
- [Rule 3180](#): Administrative Fees For Indirect Source Review (ISR) (Adopted December 15, 2005; Amended January 17, 2008; Amended April 16, 2015; Amended April 19, 2018, effective July 1, 2019)
- [Frequently Asked Questions Rule 9510 Indirect Source Review \(ISR\)](#): FAQ Sheet with a program overview and questions on eligibility, reporting, application, and other information
- [SJVAPCD ISR Brochure](#): Program overview, covers background, applicability and requirements, and contact info for the program.
- [Compliance Assistance Bulletin](#): One page bulletin with applicability requirements. Updated March 2018 to accommodate for the Rule's 2017 amendment ensuring that all Large Development Projects are subject to the rule.
- [Forms and Applications](#): This page provides form and application templates for the SJVAPCD ISR

SJVAPCD Resources (Cont.)

- [Clean Air Measures](#): SJVAPCD prepared this list of on-site mitigation measures to help developers identify ways to reduce air impacts associated with development projects occurring within the San Joaquin Valley Air Basin. This is not an exhaustive list, and developers are encouraged to suggest any new mitigation measures.
- [CARB Freight Handbook](#): SJVAPCD links this resource on their site to provide guidance for developers.
- [Emissions Assessment Models and Calculators](#): The ISR Program requires that emissions from development projects be quantified and analyzed using the most current version of SJVAPCD approved models and calculators.
- [ISR Annual Report | Valley Air District](#): Annual reports from 2007-2023, including the 5 year evaluation of the ISR program (2006-2010)
- [Staff Reports to the Governing Board](#): As part of the rule development process, District staff prepared documents detailing the components of Rule 9510. The support documents presented to the District Governing Board at the time of the rule's adoption are available here.
 - [December 15, 2005 - Adoption of Rule 9510 ISR](#)
 - [December 21, 2017 - Amendment of Rule 9510 ISR](#)



Appendix 3: SDCAPCD

SDCAPCD Resources

- [SDCAPCD *Options and Considerations for Reducing Indirect Source Emissions at Warehouses, Distribution Centers, and Ports*, May 2023](#)