

## Warehouses

### Background

The freight transportation system in the South Coast Air Basin facilitates the movement of goods that are traded both domestically and internationally. An integral part of the freight transportation system is warehouse facilities that are used to store, process and distribute goods. The San Bernardino, Muscoy community contains many warehouses and consequently plays an important role in the overall success of the logistics industry and the global economy.

The San Bernardino, Muscoy community is located in the eastern part of San Bernardino County. As of early 2019, the portion of the county within the South Coast AQMD is home to approximately 780 warehouses larger than 100,000 square feet, totaling about 260 million square feet of building space. The AB 617 San Bernardino, Muscoy emissions study area includes about 43 warehouses larger than 100,000 square feet, totaling about 16 million square feet.<sup>1,i</sup> San Bernardino County is also projected to have developable, industrially-zoned land that can accommodate an estimated 119 million square feet of additional warehousing.<sup>2</sup> While the warehouse industry is a source of jobs in communities, it is also a source of impacts to the environment, especially as it relates to air quality. For example, trucks (heavy-duty diesel trucks) that transport goods to and from warehouses often travel near and through local neighborhoods to reach their destinations<sup>3</sup> thus exposing residents to harmful air pollutants (e.g., diesel particulate matter).

Figure 5c-1. Warehouses surrounded by trucks within the San Bernardino, Muscoy community



<sup>i</sup> CoStar data analyzed by South Coast AQMD staff

### Community Air Quality Priority – Warehouse Development Standards and Indirect Source Rules

Air pollution from warehouse operations is an air quality priority for the San Bernardino, Muscoy community as identified by the CSC. To address this source, the CSC identified potential ways to reduce emissions and the residents' exposure to emissions from warehouse operations. For example, the CSC prioritized land use development standards for warehouses that could establish buffers and orient warehouse loading docks away from residences. Development standards for warehouses could reduce the community's exposure to harmful air pollutants from heavy-duty diesel trucks that operate at warehouse facilities. Additionally, the CSC prioritized the pursuit of indirect source rules that would require emission reductions from warehouse operations.

### Ongoing Efforts

A number of ongoing efforts led by the Ports, South Coast AQMD, CARB and the U.S. EPA are designed to reduce emissions from heavy-duty diesel trucks. These trucks serve warehouses throughout the South Coast Air Basin, therefore, emissions reduced from these efforts will also benefit air quality in the San Bernardino, Muscoy community.

Several requirements from CARB are modernizing the trucking industry and are reducing truck-related air pollution by phasing out the oldest, dirtiest diesel trucks. The primary regulation from CARB is the Truck and Bus Rule which requires that nearly all trucks in California must be no older than a 2010 engine model year by 2023.<sup>4</sup> New trucks built in 2010 and later are required to control particulate matter and also nitrogen oxides. Also, many new requirements are being considered that would further reduce emissions from trucks (see Table 5c-1: Upcoming U.S. EPA, CARB, and Ports Actions).

South Coast AQMD administers funding for truck owners and operators to replace older polluting trucks with ones that are cleaner than required, including smaller zero emission trucks that are commercially available.<sup>5</sup> In addition to providing incentive funds for heavy duty trucks that reduce NOx emissions by at least 90% (near-zero emission trucks (NZE)), South Coast AQMD also funds development and demonstration projects to help develop and commercialize zero-emission technologies for heavy-duty Class 7-8 trucks (e.g., battery electric, fuel cell). These projects are in the design and demonstration phase. South Coast AQMD staff is currently developing strategies to reduce emissions from warehouse operations though requirements for indirect sources (e.g., emissions from trucks that serve warehouse facilities). Additionally, South Coast AQMD will develop a series of surveys to identify which warehouse(s) may have the highest air quality impact on nearby residents. This includes mobile measurements near the identified warehouses and in nearby residential areas. These type of measurements could also be used to inform approaches to reduce air quality impacts from warehouses.

In May 2019 San Bernardino County released the Draft Muscoy Community Action Guide for public review. The Community Action Guide is a framework to create the future character and

independent identity of the community through the completion of community actions. The guide is strategic in nature and provides focus and action statements from the community that led to creation of an action plan that can be implemented at the grass-roots level within the community.

CARB is also developing a Freight Facilities Handbook that identifies practices for siting, design, construction and operation of freight facilities.<sup>6, ii</sup> CARB staff anticipate holding public workshops on the Freight Facilities Handbook in 2019.

In May 2018 the Public Utilities Commission approved \$343 million for Southern California Edison (SCE) to install infrastructure to support medium- and heavy-duty electric vehicles.<sup>7, iii</sup> This decision requires SCE to install infrastructure for 870 electrical charging sites in the next five years, supporting about 8,500 vehicles and equipment. A minimum of 40% of SCE’s budget for this program must be spent in disadvantaged communities, and also a minimum of 25% of the budget must serve vehicles operating at ports and warehouses. SCE is implementing this decision through its recently launched Charge Ready Transport program.<sup>8</sup> South Coast AQMD is closely coordinating with SCE to deploy infrastructure for commercially available electric school buses and electric truck demonstration projects.

### Opportunities for Action

In addition to the ongoing efforts described in this chapter, the CSC identified specific actions to address community priorities related to warehouses. The actions are described below.

## Action 1: Conduct Outreach to Local Governments to Encourage Avoidance of Air Quality Impacts from New Warehouse Development

### Course of Action:

- Work with the City of San Bernardino and San Bernardino County staff to discuss and enhance land use policies (e.g., development standards) that reduce residents’ exposure to emissions from old diesel trucks visiting warehouse facilities. The outreach would focus on ways to reduce local air quality impacts from the development of warehouse facilities, such as:
  - Buffer zones between warehouses and sensitive land uses (e.g., residences);
  - Warehouse design (e.g., orientation of loading docks)
  - Truck routes and truck parking (e.g., keep trucks away from sensitive land uses)
  - Green infrastructure (e.g., electric charging and solar power)
  - Community outreach (e.g., signage that discourages unnecessary idling)
  - Development of Air Quality Mitigation/Community Benefit Funds

### Strategies:

<sup>ii</sup> A summary of this action is available on page 11:

[https://www.arb.ca.gov/gmp/sfti/revised\\_freight\\_facility\\_concepts\\_advance\\_materials\\_03142018.pdf](https://www.arb.ca.gov/gmp/sfti/revised_freight_facility_concepts_advance_materials_03142018.pdf)

<sup>iii</sup> A summary of the decision from California Public Utilities Commission may be found here:

<http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442457607>

<ul style="list-style-type: none"> <li>• Collaboration</li> <li>• Public Information and Outreach</li> <li>• Exposure Reduction</li> </ul>	
<b>Goals:</b>	
<ul style="list-style-type: none"> <li>• Provide technical input to local land use agencies on reducing air quality impacts from warehouse land uses, (e.g., during general plan and community plan updates)</li> </ul>	
<b>Estimated Timeline:</b>	
<ul style="list-style-type: none"> <li>• Second quarter 2020, begin consulting with the City of San Bernardino and San Bernardino County planning staff, industry, and community members on developing and implementing standard approaches for new warehouse development</li> <li>• First quarter 2021, provide biannual status updates to the CSC on work with the City of San Bernardino and San Bernardino County planning staff on implementing standard approaches for warehouse development</li> </ul>	
<b>Implementing Agency, Organization, Business or Other Entity:</b>	
<b>Name:</b>	<b>Responsibilities:</b>
South Coast AQMD	South Coast AQMD staff will work with local governments and stakeholders to identify and promote standard approaches for warehouse development
City of San Bernardino	Work with South Coast AQMD on developing standard approaches for warehouse development that reduce local air quality impacts
County of San Bernardino	Work with South Coast AQMD on developing standard approaches for warehouse development that reduce local air quality impacts
<b>Additional Information:</b>	
<ul style="list-style-type: none"> <li>• San Bernardino County's Draft Muscoy Community Action Guide (available for public review): <a href="http://countywideplan.com/muscoy/draft/">http://countywideplan.com/muscoy/draft/</a></li> <li>• San Bernardino County's General Plan update (available for public review): <a href="http://countywideplan.com/">http://countywideplan.com/</a></li> <li>• City of San Bernardino General Plan: <a href="http://www.sbcity.org/cityhall/community_development/planning/planning_documents.asp">http://www.sbcity.org/cityhall/community_development/planning/planning_documents.asp</a></li> </ul>	

## Action 2: Develop Proposed Indirect Source Rule for Warehouses

### Course of Action:

- Continue developing proposed Indirect Source Rule (ISR) for warehouses

### Strategies:

<ul style="list-style-type: none"> <li>• Regulation</li> <li>• Public Information and Outreach</li> <li>• Collaboration</li> <li>• Exposure reduction</li> </ul>	
<b>Goals:</b>	
<ul style="list-style-type: none"> <li>• Provide quarterly updates to CSC on rule development for warehouses</li> </ul>	
<b>Estimated Timeline:</b>	
<ul style="list-style-type: none"> <li>• Fall 2019, hold a meeting in the Inland Empire to discuss proposed ISR for warehouses</li> <li>• Late 2019/early 2020, bring proposed ISR for warehouses to South Coast AQMD Governing Board for consideration</li> </ul>	
<b>Implementing Agency, Organization, Business or Other Entity:</b>	
<b>Name:</b>	<b>Responsibilities:</b>
South Coast AQMD	<ul style="list-style-type: none"> <li>• Continue development of ISR for warehouses</li> <li>• Conduct outreach to CSC for ISR working groups, workshops, meetings, and other opportunities to provide rule feedback</li> </ul>
CSC Members	<ul style="list-style-type: none"> <li>• Participate in South Coast AQMD rule development process (e.g., attending working group meetings, providing comments on draft rule materials, etc.) for ISR for warehouses</li> </ul>
<b>Additional Information:</b>	
Warehouse ISR rule development: <a href="http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/facility-based-mobile-source-measures/warehs-distr-wkng-grp">http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/facility-based-mobile-source-measures/warehs-distr-wkng-grp</a>	

### Action 3: Promote Installation of Infrastructure Needed to Support Zero-Emission Vehicles and Equipment

#### Course of Action:

- Collaborate with local governments and utilities to promote the installation of fueling infrastructure needed to support zero-emission trucks/vehicles, transport refrigeration units and cargo handling equipment. Specific efforts will include:
  - Sharing information with Southern California Edison (SCE) and other applicable entities when applicants are awarded funds from South Coast AQMD for zero-emission vehicles to identify likely partners for infrastructure projects
  - Working with SCE and other entities to identify potential partners and prioritize funding for zero-emissions infrastructure within the San Bernardino, Muscoy community

<ul style="list-style-type: none"> <li>- Prioritizing zero-emission technology, when commercially available or technologically feasible</li> <li>- Working with local governments and utilities to develop design standards for medium- and heavy-duty vehicle/equipment electrical infrastructure for new warehouse projects</li> </ul>	
<b>Strategies:</b>	
<ul style="list-style-type: none"> <li>• Public Information and Outreach</li> <li>• Collaboration</li> </ul>	
<b>Goals:</b>	
<ul style="list-style-type: none"> <li>• South Coast AQMD and SCE will provide outreach to all 43 existing warehouses within the San Bernardino, Muscoy community to encourage installation of infrastructure needed to support zero-emission vehicles and equipment</li> <li>• Provide outreach to any new/planned future sites (and project partners) and determine feasibility to install zero-emission electric infrastructure, serving potential zero-emission vehicles and/or equipment in the San Bernardino, Muscoy community. South Coast AQMD and SCE will track adoption of zero-emission infrastructure and provide updates to the CSC</li> </ul>	
<b>Estimated Timeline:</b>	
<ul style="list-style-type: none"> <li>• December 2020, development of preliminary design standards for electrical infrastructure for new warehouse projects that local governments can use</li> <li>• July 2021, begin identifying potential sites for installation of electrical infrastructure</li> </ul>	
<b>Implementing Agency, Organization, Business or Other Entity:</b>	
<b>Name:</b>	<b>Responsibilities:</b>
South Coast AQMD	Work with SCE and project partners to plan for increased zero-emission vehicle infrastructure
Southern California Edison and other fueling providers	Work with South Coast AQMD, local agencies, and site owners/operators to identify potential sites for installation of zero-emission vehicle electric infrastructure
<b>Additional Information:</b>	
SCE Charge Ready Transport: <a href="https://www.sce.com/business/electric-cars/charge-ready-transport">https://www.sce.com/business/electric-cars/charge-ready-transport</a>	

## References

1. South Coast AQMD, Warehouse Indirect Source Rule Working Group Meeting, [http://www.aqmd.gov/docs/default-source/planning/fbmsm-docs/warehouse-wg\\_03-22-19\\_v0320.pdf](http://www.aqmd.gov/docs/default-source/planning/fbmsm-docs/warehouse-wg_03-22-19_v0320.pdf), Accessed June 2019.
2. Southern California Association of Governments, Industrial Warehousing in the SCAG Region, April 2018,

- <http://www.freightworks.org/DocumentLibrary/Industrial%20Warehousing%20Report%20-%20Revised%202018.pdf>, Accessed June 2019.
3. University of California, Davis, Institute of Transportation Studies, Warehousing and Distribution Center Facilities in Southern California: The Use of the Commodity Flow Survey Data to Identify Logistics Sprawl and Freight Generation Patterns, July 2017, <https://ncst.ucdavis.edu/wp-content/uploads/2015/08/NCST-Caltrans-Jaller-Warehouse-and-Distribution-Logistics-Sprawl-FINAL-July-19-2017.pdf>, Accessed June 2019.
  4. California Air Resources Board, Truck and Bus Regulation, <https://arb.ca.gov/msprog/onrdiesel/onrdiesel.htm>, Accessed June 7, 2019.
  5. South Coast AQMD, On-Road Vehicles, [http://www.aqmd.gov/home/programs/business/carl-moyer-memorial-air-quality-standards-attainment-\(carl-moyer\)-program/on-road-vehicles](http://www.aqmd.gov/home/programs/business/carl-moyer-memorial-air-quality-standards-attainment-(carl-moyer)-program/on-road-vehicles), Accessed June 3, 2019.
  6. California Air Resources Board, [https://www.arb.ca.gov/gmp/sfti/revised\\_freight\\_facility\\_concepts\\_advance\\_materials\\_03142018.pdf](https://www.arb.ca.gov/gmp/sfti/revised_freight_facility_concepts_advance_materials_03142018.pdf), Accessed June 2019.
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  8. Southern California Edison, Charge Ready Transport Program, <https://www.sce.com/business/electric-cars/charge-ready-transport>, Accessed June 2019.