

Issue At A Glance:

Warehouses and Air Quality in the Inland Empire

The rapid growth of warehouse distribution centers in the Inland Empire is a result of geography, globalization, and an expanding e-commerce market. This issue brief will discuss the impact warehouses have on air quality and highlight efforts to address this concern.

Introduction

The Inland Empire (IE), a geographic area most commonly defined as Riverside County, San Bernardino County, and some of the neighboring communities,⁸ has earned a reputation for poor air quality. The disproportionate presence of air pollutants is attributed to the geographical collection and trapping of smog, unequal distribution of emission sources, and population growth.¹ This multifactorial issue is compounded by the rapid proliferation of warehouses and increased diesel truck traffic in the region. Adjacent to the Los Angeles-Long Beach port complex, the IE became an ideal location for the warehouse and logistics industry to expand given the proximity to coastal ports and availability of flat, cheap land. Air contaminants related to the surge in warehouses and diesel exhaust have significant health impacts and are a major concern for environmental and justice advocates as they affect a predominantly black and Hispanic demographic.

This brief will explore how the IE became a mega warehouse territory home to conglomerates like Amazon and Walmart and discuss efforts to address the impact warehouses have on air quality and environmental health.

Landmark Rules

- Sept 2019** Governor Newsom signed SB 210, or “Clean Trucks, Clean Air,” into law
- June 2020** California Air Resources Board approved the Advanced Clean Truck Rule
- May 2021** South Coast Air Quality Management passed the Warehouse Indirect Source Rule

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Big-Box Growth and Contributions to Air Pollution

The opportunity for massive industry growth in the IE dates back to 1994 when the closure of the Norton Air Force Base created an economic vacuum with the loss of 12,000 jobs.⁴ Warehouse developers contributed to election campaigns, gaining support from elected officials to approve the use of the land for warehouse growth.⁴ The Great Recession during the late 2000s also resulted in a large unemployed labor force hungry for employment opportunities. The warehouse industry brought the promise of jobs to the area, with a ready supply of workers to fill that need.

According to Statista, a market and consumer data firm, the number of big-box distribution centers in the IE increased 54% from 463 in 2009 to 711 in 2020.⁵ As of 2021, there were 745 warehouse buildings, accounting for nearly 12% of the total big-box buildings in all of the United States.⁵ The pandemic related boom of e-commerce further catapulted this growth as the demand for online retail spiked when COVID-19 isolation precautions were in place. More warehouses meant increased truck and freight traffic through the area, with diesel fuel being the standard.

It is estimated 40% of U.S. consumer goods are trafficked through the IE,³ and 80% of ozone-forming air pollution comes from mobile sources including trucks.¹⁰ Trucks only account for roughly 7% of the 30 million vehicles in California⁴ but account for 82% of California's diesel particulate matter and 52% of nitrogen oxides.¹¹ This is even more concerning given the American Lung Association has consistently graded the air quality in Riverside and San Bernardino counties as a "fail" due to the high levels of ozone and particulate matter.⁹ These microscopic particles have been linked to multiple health conditions such as asthma, cancer, heart attacks, and strokes.⁷

What is Diesel Exhaust?

Burning diesel fuel produces diesel exhaust, a mixture of gases and fine particles (also known as particulate matter or soot). These include a number of known or suspected carcinogens, such as benzene, arsenic and formaldehyde. Diesel engines also produce nitrogen oxides, which react with other pollutants to form ozone, a major component of smog. Diesel exhaust particles pose the highest cancer risk of any air contaminants and have been linked to increases in hospital admissions, emergency room visits, asthma attacks, and premature deaths.⁷



Efforts to Mitigate Air Pollution

California Air Resources Board

The California Air Resources Board (CARB) is a state agency created in 1967 to address the harmful effects of air pollution primarily from mobile sources. Previous regulatory efforts to transition to electric vehicles and decrease diesel fuel paved the way for a new clean-truck standard. In June 2020, CARB successfully adopted the Advanced Clean Trucks Rule, requiring truck manufacturers to shift from diesel to electric starting in 2024.⁴

Building upon this new rule, CARB is also working on finalizing the Advanced Clean Fleets Rule, which will require fleet owners to progressively adopt electric vehicles with the goal of full transition to zero-emission vehicles by 2045.⁶ This shift to zero-emission will help California improve air quality levels, especially in areas such as the IE where the population is disproportionately impacted by diesel fuel trucks.

South Coast Air Quality Management District

The South Coast Air Quality Management District (South Coast AQMD), a regional pollution regulation agency, works to control emissions from stationary sources of air pollution. Their efforts have fought against the uncontrolled growth of warehouses and aim to hold these facilities responsible for their environmental impact.

In a landmark rule, the South Coast AQMD Board approved the Warehouse Indirect Source Rule, or Rule 2305, in May 2021. This ruling requires warehouses greater than 100,000 square feet to directly decrease nitrogen oxide and diesel particulate matter emissions and to reduce emissions of these pollutants into neighboring communities. Strategies to reduce emissions include solar panels and near-zero or zero-emission fuels and cargo equipment. This is expected to cut emissions by 10-15% from warehouse related-sources.²

Coalition for Clean Air

The Coalition for Clean Air (CCA) is a statewide organization focused on improving air quality, climate equity, ports and freight transport, and clean transport options. Most notably, their advocacy work alongside other environmental and health groups pushed SB 210, or 'Clean Trucks, Clean Air,' from bill into law in September 2019. This legislation mandates heavy-duty trucks to undergo an inspection and maintenance requirement similar to the Smog Check program for cars. Between 2023 to 2031, this legislation is anticipated to remove 93,000 tons of nitrogen oxides and 1,600 tons of particulate matter from the air.¹² Fully implementing this program is critical given research showing how many trucks have malfunctioning controls, resulting in emissions ten times the engine certification standards.¹¹

Conclusion

Significant milestones have been put forth to help combat the air pollution in the IE, but there is still much more work to be done. The economic interests of corporations and consumer retail habits are driving forces that will require a nuanced and balanced approach. The warehouse and logistics industry has become deeply ingrained in the IE, and e-commerce has become the new norm. Increasingly innovative strategies must be devised to address this important environmental justice issue and mitigate their negative impact on air quality and health for those living and working in the IE.

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Did you know?

The American Lung Association compiles an annual “State of the Air” report. These reports assess high ozone days, particle pollution, and groups at risk. Grades and rankings on these measures of air pollution can be found for states, counties, and cities.⁹



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