

Cleaner Trucks = Cleaner Air



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By Kristopher Hanson, Staff Writer

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The majority of these trucks are old, high-mileage and emission-heavy - spewing several thousand tons of poisonous gases and tiny diesel particles into the region's air annually.

Cheap to operate and maintain, these haulers cut costs for drivers, retailers and ultimately, consumers, but present a health risk for port workers and people living in surrounding communities.

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The truck on display at the Port of Long Beach's recent "Green Port Open House," is outfitted with a Cleaire diesel exhaust filter. (Jeff Gritchen / Press-Telegram)

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Since that time, dozens of entrepreneurs and small businesses have approached the ports with technologies offering to help in the effort.

One of those companies, San Leandro-based Cleaire, has emerged as a seeming front-runner in the effort to retrofit the older trucks. Cleaire, which offers two diesel exhaust filters and a filter cleaning machine, has outfitted nearly 3,000 trash and long-haul trucks, school buses and other heavy-duty diesel trucks in California, Texas and New York.

The company was founded in 2000 by Brad Edgar, a UC Berkeley-trained mechanical engineer, and Kevin Shanahan, President of Cummins West, Inc. and a member of California Air Resources Board's retrofit committee.

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Initially, their business plan involved producing filters to help public bus and refuse trucks meet emission controls mandated by state and federal agencies. Since then, it's grown to assist both public and private haulers in complying with ever-stricter emission regulations for diesel trucks and off-road equipment.

"The rate of installation of our systems is driven by regulatory action," said Tim Taylor, a former Sacramento Air Quality Management District employee who joined the company in 2003. "As more and more people become aware of the serious air pollution problems associated with these trucks, and more regulations are adopted, we expect our rate of installation to pick up significantly. That's been the pattern during the past three years."

Fueling that growth were seals of approval by the Environmental Protection Agency and CARB, which frees transit agencies and municipalities to apply for federal, state and local grants to purchase Cleaire filters for public fleets.

The approval also allows private haulers to apply for grants to convert their fleets. In California, more than 400 truckers in the Central Valley have used Carl Moyer state clean air grants to purchase Cleaire filters.

The filters cost about \$14,000 each, not including installation, which can run \$2,000 or so, and is done by an owner-operator or by a regional Cummins engine mechanic. By comparison, a new truck meeting stricter federal emission standards can cost \$150,000 or more.

### Cleaning the Air

A CARB study estimates that port trucks in Long Beach and Los Angeles emit more than 7,000 tons of nitrogen oxides (NOx) and about 500 tons of particulate matter (PM) annually. Both have been linked to increased incidents of asthma, cancer, heart disease and other ailments.

Collectively, the AQMD estimates that the ports are responsible for at least 100 tons per day of smog-forming NOx - more than the daily emissions of all 11 million passenger cars in the region.

Over a year, Cleaire's Longview filter has been shown to remove 40 pounds of dangerous diesel PM and 1,150 pounds of NOx from the average truck's exhaust.

Overall, CARB tests show the filter reduces PM by at least 85 percent, NOx by 25 percent and carbon monoxide and hydrocarbons by 90 percent.

The devices work by replacing the exhaust pipe with a stainless steel cylinder, which traps PM and turns harmful pollutants into benign gases, much like a car's catalytic converter.

One potential drawback is that the Longview requires a minimum exhaust temperature to perform. To be effective, the filter requires the truck to maintain a minimum exhaust

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temperature of 500 degrees at least 25 percent of the time.

This is easily achieved by most short-haul trucks, which operate under high-load, stop-and-go conditions. But on long-haul routes, where the engine tends to burn cooler, the filter could clog, causing engine problems.

Also, the filter needs to be scraped free of particulate matter - or de-ashed - at least once a year. To remain valid, the company's five-year, 150,000-mile warranty requires the 45-minute annual cleaning, which is done with a special machine available at regional shops.

For cooler-burning long-haul trucks, the company offers another filter, the Horizon, which uses an on-board heating element to clean - much like a self-cleaning oven, Taylor said.

### Drawing Interest

Cleaire is not the only diesel exhaust filter company around. But the six-year-old company seems to have made inroads among clean-air advocates.

The company was mentioned specifically in the first version of the ports' Clean Air Action Plan, then invited to perform a demonstration earlier this month at the Port of Long Beach's "Green Port Open House." The ports won't say specifically if they plan to purchase Cleaire filters or similar devices following the expected adoption of their action plan in November. "The ports are considering a number of emission control technologies for its emission reduction programs, including the Cleaire product, as we move forward to evaluate technologies and products that can help clean the air we all breathe," said Port of L.A. Spokeswoman Theresa Adams-Lopez.

They are, however, monitoring a pilot exhaust filter program at the Gateway Cities Council of Governments after which they could model their own program. Under that experiment, Gateway is expected to provide 50 or so filters to area truckers and monitor the emission reduction. Gateway Cities is a coalition of 27 city governments in Southeast Los Angeles County representing the region at the local, state and federal level.

The group is currently testing truck exhaust temperatures to ensure the Cleaire filters are viable. The Gateway effort will likely require port truckers to agree to haul port loads for three years and allow occasional monitoring of emission reductions.

Gateway also has a truck-replacement program that offers heavily-subsidized newer, cleaner trucks for drivers who agree to scrap their pre-1986 models. That program, funded by grants, has provided port truck drivers with 400 new rigs since 2003.

### Port Plan

The ports' clean air action plan rules would affect all trucks calling at the ports on a regular or semi-regular basis - meaning at least a few times a week.

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The plan urges owners to retrofit trucks manufactured from 1994 to 2002 and replace most or all pre-1994 trucks.

Incentives, subsidies and, in some cases, free equipment would be used to spur this change, as most port trucks are owned by their operators, who are among the poorest of port workers.

Studies show most of these drivers earn about \$25,000 annually - after maintenance, fuel and tires - and are comprised mostly of immigrants from Latin America. Cost an issue CSULB Economics Professor Kristen Monaco, who has studied the drivers, said most won't be able to afford filters, let alone new trucks.

"If they want clean air, there needs to be a program in place to significantly subsidize those efforts," Monaco said. "It's not that drivers want to drive those dirty trucks, it's just the economics of the industry. These guys are eager to get into something better."

Cleaire's impact on port clean-air efforts could be significant.

An estimated 40 percent of the existing port truck fleet are 1994 and newer models, meaning that roughly 4,200 trucks may be eligible for exhaust filters, according to CARB estimates.

If the ports hope to reach their goal of reducing dangerous emissions from all port-related commerce by 50 percent in the next few years, they'll need a mix of technologies, including exhaust filters, shore-side electricity for cargo vessels, use of ultra-low sulfur fuel and cleaner trains, cranes, forklifts and other off-road equipment.

"We're all aware there's some serious air pollution problems in and around the ports, and we have the proven technology to solve some of these problems," said Cleaire's Taylor. In Cleaire's view, filters like theirs are the best and most cost-effective way to cut toxic pollutants on older trucks until newer vehicles replace the aging fleets. #