



## Zero- and Near Zero-Emission Freight Facilities (ZANZEFF) Shore to Store Project

In 2006, the Port of Los Angeles in partnership with the Port of Long Beach adopted the Clean Air Action Plan (CAAP), which was updated in 2010 and 2017 (<https://cleanairactionplan.org>). The CAAP identifies strategies to reduce air pollution from every source including ships, trucks, trains, harbor craft, and cargo handling equipment. Successful technology demonstrations of zero- and near zero-emission technologies may accelerate the availability of clean technologies that are necessary to implement existing strategies outlined in the CAAP or to develop future control measures, alternatives, or mitigation measures.

### Project Summary

The Port of Los Angeles in conjunction with the project partners is demonstrating a collaborative zero-emission goods movement project. The project exhibits supply chain transport from “Shore to Store” utilizing zero-emission advanced technology. The Shore to Store project is funded with a \$41,122,260 grant from the California Air Resources Board and an additional \$41,426,612 in matching contributions from project partners, including a Targeted Airshed Grant for \$1,000,000 from the South Coast Air Quality Management District (AQMD). This project was supported by the “California Climate Investments” (CCI) program. The project will be completed in 2023.



### Project Partners

- California Air Resource Board (CARB)
- South Coast AQMD
- Equilon Enterprises, LLC (d/b/a Shell Oil Products USA)
- Kenworth International
- Toyota Motor North America
- Port of Hueneme
- National Renewable Energy Laboratory
- Southern Counties Express (SCE)
- Total Transportation Services, Inc. (TTSI)
- Toyota Logistic Services (TLS)
- United Parcel Services (UPS)

### Vehicles & Equipment Funded

- 10 Class 8 hydrogen fuel cell electric trucks
- 2 hydrogen fueling stations
- 2 zero-emission yard tractors
- 2 zero-emission forklifts
- Infrastructure development



## Project Components

For this demonstration, Kenworth developed ten zero-emission Class 8 hydrogen fuel cell electric trucks, which were integrated with Toyota's fuel cell drive technology. Freight operators SCE, TLS, TTSI, and UPS operated the trucks throughout the Los Angeles basin, including the San Pedro Bay ports, inland locations such as Riverside County, and in and around the Port of Hueneme in Ventura County. In order to create accessible fueling, Shell built two renewable hydrogen fueling stations located in Ontario and Wilmington.

Additionally, TLS demonstrated two zero-emission forklifts to showcase a complete supply chain operating on zero emissions. Currently, the Port of Hueneme is demonstrating two zero-emission yard tractors at their facility, with the infrastructure needed to support operation.

## Contact

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Shell Hydrogen Fueling Station in Ontario, CA