

Toyota: Hydrogen fuel cell system for truck use to be studied

April 20 2017, by Nancy Owano



Toyota 'Project Portal' heavy duty truck concept. Credit: Toyota

(Tech Xplore)—Clean automobiles designed to cut down on emissions are one part of the environment story, as the focus presently is also on the future of their highway mates, clean trucks. Toyota has stepped up to

the plate.

On Wednesday Toyota [announced](#) its "Project Portal" [hydrogen fuel cell](#) system, designed for heavy-duty trucks at the Port of Los Angeles.

For environment watchers looking at zero-emissions trucking, this is a rather big deal, in the form of a feasibility study, where project leaders will examine the potential [fuel cell technology](#) as used for heavy-duty applications

This is about Toyota rolling out its proof-of-concept prototype truck, which is a zero-emission, exhaust-free, hydrogen fuel cell semi truck.

Project Portal is in partnership with the Port of Los Angeles, said John Voelcker in *Green Car Reports*.

The information was relayed at a press conference with Port officials and representatives from California Air Resources Board (CARB) and the California Energy Commission (CEC).

The zero-emission truck proof of concept will take part in a feasibility study. The study will examine the potential of fuel cell technology in heavy duty applications. The study will begin this summer.

The company's announcement asked readers to "Picture the 710 Freeway heading south - bumper to bumper semis hauling cargo to and from the bustling Ports of Los Angeles and Long Beach. Now imagine those trucks are moving that cargo, quietly, quickly and without producing any emissions. Toyota is working to make this vision a reality."



Toyota 'Project Portal' heavy duty truck concept. Credit: Toyota

Takehito Yokoo, senior executive engineer with Toyota Motor Research and Development, told *Forbes* they are using a hydrogen fuel cell and motor, where the exhaust emission is zero, with only water vapor coming out. *Forbes'* Alan Ohnsman reported Wednesday on the 18-wheeler designed to haul cargo at the Port of Los Angeles—that is, hauling cargo offloaded from ships to rail distribution centers.

Voelcker described the Port of Los Angeles as "long a hotspot of diesel emissions and particulates from the thousands of tractor-trailer units loading and unloading at the huge shipping [facility](#)."

For now, this is a test of the technology and Toyota has not committed to turning the truck power system into a commercial program, Yokoo said in *Forbes*.

Bengt Halvorson in *Car and Driver* said similarly that it is a work in progress but, he added, "one that will be working very hard daily. The [fuel-cell stacks](#) in this proof-of-concept vehicle are fitted with just the necessary cooling systems, according to Yokoo, and the study aims to find out what additional measures might be required to maintain durability in this very different use cycle."

Ohnsman in *Forbes* said the truck "should average 200 miles per fueling of compressed hydrogen [gas](#)."

Halvorson said, "That's long enough to cover a day of existing port [operations](#)."

The press announcement carried some technical details. The truck generates more than 670 horsepower and 1325 pound feet of torque from two Mirai [fuel cell](#) stacks and a 12kWh battery. The release said this was "a relatively small battery" to support class 8 load operations. The gross combined weight capacity was listed as 80,000 pounds, with its estimated driving range as "more than" 200 miles per fill, under normal drayage operation.

Mary Nichols, chair, CARB, stated that CARB will follow the progress of this feasibility study with interest. They want to develop "the best mix of regulations and incentives to rapidly expand the market for the cleanest, most efficient big trucks to meet the need for dramatic change in the freight sector."

In the bigger picture, *Car and Driver* said that Toyota has its eyes on hydrogen-related technology.

"Company president Akio Toyoda has declared that hydrogen represents the next 100 years for the company."

Halvorsen wrote, "For Toyota, it could be that local fleets and heavy haulers are a great way to hedge its bets on hydrogen."

More information: pressroom.toyota.com/releases/...trucking+concept.htm

© 2017 Tech Xplore

Citation: Toyota: Hydrogen fuel cell system for truck use to be studied (2017, April 20) retrieved 9 April 2024 from <https://techxplore.com/news/2017-04-toyota-hydrogen-fuel-cell-truck.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.