LONG BEACH, Calif. – Kenworth continues its advancements on low/zero emission projects focused on Kenworth T680 day cabs for drayage tractor operation in Southern California ports, which are backed by $9 million in government grants awarded last August.

Kenworth T680 Tractor with Hydrogen Fuel Cell

Kenworth is developing a prototype Class 8 hydrogen fuel cell tractor designed to provide true zero-emissions operation. By using the fuel cell – provided by Ballard Power Systems in Burnaby, British Columbia – to recharge the batteries, the only emission coming out of the tailpipe will be water. The T680 day cab tractor uses lithium-ion batteries to power a dual-rotor electric motor, driving the rear tandem axle through a 4-speed automated transmission. Kenworth’s hydrogen truck is expected to be ready for initial track and on-road testing in the fourth quarter of this year.

Kenworth T680 Hybrid-Electric Tractor with CNG

This week, Kenworth began building a second prototype series hybrid-electric T680 day cab designed to produce near-zero-emissions. The truck will use the currently available Cummins Westport ISL G Near Zero NOx engine fueled by compressed natural gas (CNG) to generate electrical power. Initial track and road testing is expected to start in the fourth quarter.

These two T680 tractors will be identical, with the exception of their power generation systems. Each truck will have an electric-only range of approximately 30 miles, and the on-board fuel – hydrogen or natural gas – will provide sufficient range for a full day in regional haul applications. Kenworth’s work on these programs is supported by grants of $2.1 million for each project from the U.S. Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy (EERE), with Southern California’s South Coast Air Quality Management District (SCAQMD) as the prime applicant.

A third project received $4.8 million in funding from the California Air Resources Board (CARB), again with the SCAQMD as the prime applicant. Kenworth will build four additional, hybrid-electric T680 day cabs equipped with the Cummins Westport ISL G Near Zero NOx engine operating on compressed natural gas, and will also support customer field tests of these units in Southern California drayage operations.
Kenworth will build its first unit for this project in 2018. Kenworth engineers will be able to make design and system refinements to this 2018 unit based on data collected from this year’s real-world testing of the initial, 2017 hybrid-electric T680.

All six prototype T680 day cab drayage tractors, produced as a result of these Kenworth programs, will transport freight from the Ports of Los Angeles and Long Beach to warehouses and railyards in the Los Angeles basin.

“These T680 day cab projects provide an excellent opportunity for Kenworth to develop and advance important technologies that may play a critical role in the trucks of tomorrow,” said Patrick Dean, Kenworth chief engineer. “Within the next decade, hybrid-electric powertrains are expected to be required to satisfy emissions regulations in several major U.S. metropolitan areas. For example, California is considering regulations that will require zero-emission levels for port drayage trucks operating in specifically designated areas. We look forward to playing a leadership role to meet the opportunities and challenges ahead.”

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