

# When overhead wires feed energy to trucks in California demo

10 November 2017, by Nancy Owano



Credit: Siemens

(Tech Xplore)—Siemens has announced that an electrified highway demo is running on a highway stretch in the United States. Siemens and South Coast Air Quality Management District are keeping watch on the highway near two ports of Los Angeles and Long Beach. SCAQMD noted that heavy-duty trucks were the number one source of smog-forming emissions in Southern California.

The company makes a case for why this is important to watch; similar to what many say about the effects of conventional road freight transport on the environment.

That transport largely depends on combustion engines running on fossil fuel. The carbon dioxide, nitrogen oxide and particulate matter emissions put human health at risk and the environment in general.

The one-mile demo, where three big-rig trucks hauling freight are running along the stretch of highway, is to demonstrate an eHighway system when applied to truck operations on [public roads](#) in an urban U.S. setting.

The eHighway is in Carson, California.

"This project will help us evaluate the feasibility of a zero-emission cargo movement system using overhead catenary wires," said Wayne Natri, SCAQMD's executive officer.

To connect the system, a sensor checks if the traffic lane is equipped with the contact line. The truck raises its pantograph, which positions itself to the overhead contact line. The pantograph can be easily connected to and disconnected from the contact wire at speeds ranging from 0 to 90 km/h. This is done automatically or, at a push of the button, manually.

The pantograph transfers energy to the electric motor, and simultaneously it can charge the battery.

One battery-electric truck, a clean natural-gas hybrid-electric truck and a diesel-hybrid truck are driving on a catenary system. "Catenary system" refers to overhead wires used to supply electricity to a locomotive, streetcar, or light rail vehicle equipped with a pantograph.

"Pantograph" refers to an apparatus mounted on the vehicle to collect power through contact with the overhead wire.

Since the pantograph can connect and disconnect automatically, it allows the eHighway trucks to switch lanes or to pass other vehicles without being permanently fixed to the overhead systems.

This demo is not a global first; Last year, Siemens launched the world's first eHighway system on public roads in [Sweden](#). The eHighway there runs on a highway section through next year.



In 2019, three field trials of the eHighway technology on German highways are planned to start operation.

Siemens noted varied use cases for such a system: Shuttle transport, electrified freight transport in mines and electrified long-haul traffic.

Quoted in *Fast Company*, Andreas Thon, head of turnkey projects and electrification in [North](#) America for Siemens, said he was convinced there were other locations apart from this one in Los Angeles, "where it would be really worthwhile to install these kinds of projects."

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APA citation: When overhead wires feed energy to trucks in California demo (2017, November 10) retrieved 14 October 2019 from <https://techxplore.com/news/2017-11-overhead-wires-energy-trucks-california.html>

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