

TransPower and IKEA Complete Demonstration of Electric Yard Tractor

IKEA's first zero-emission, all-electric truck was able to save 4,800 gallons of diesel fuel as well as reduce 1.3 tons of nitrogen oxides (NOx), 0.04 tons of particulates (PM) and 68 tons of carbon emissions (CO₂) during a year-long demonstration project at the company's Tejon Distribution Center south of Bakersfield, according to results announced by IKEA and Transportation Power, Inc. (TransPower), the California-based company that built the electric yard tractor.

The vehicle logged more than 13,000 miles in its first year and currently is operating at a rate of 15,000 miles per year, with the cost of energy for the electric tractor less than 3 cents per mile, compared to more than 75 cents per mile for a diesel tractor. IKEA's 1.8 megawatt rooftop solar system provided about 90 percent of the power needed to charge the vehicle, which helped further reduce electric costs. In addition to cutting fueling costs dramatically and reducing harmful air pollutants, the electric version of the vehicles saves more than \$6,000 per year in maintenance costs.

"The TransPower electric tractor exceeded our expectations across the board. We routinely use this tractor for three shifts per day, and it has shown reliability at least equal to that of a typical diesel tractor," said Jim Cavezza, IKEA Deputy Distribution Operation Manager, in a joint press release from IKEA and TransPower.

The electric yard tractor can charge from empty in two hours, and IKEA's opportunity charging strategy of plugging in during lunch and other breaks extend the battery's daily range. About 70,000 containers full of goods are moved into position at the IKEA distribution facility every year.

The \$1.2 million project received a \$500,000 grant through the San Joaquin Valley Air Pollution Control District's (SJVAPCD) Technology Advancement Program (TAP), which is funded in part through the U.S. Environmental Protection Agency (EPA) Region 9. TransPower and IKEA funded the remainder of the project's cost. The demonstration was so successful that IKEA has ordered a second electric yard tractor for use at the Tejon Distribution Center.

"Based on the tremendous success of this project, we have decided to purchase this tractor and enter it into our Tejon fleet permanently, and we are looking for opportunities that could help us acquire additional TransPower vehicles for all of our North America logistic units," Adolfo Kurczyn, Sustainability Manager at IKEA Distribution Services North America, said in the press release.

"TransPower currently is developing the next generation of



The Kalmar tractor at IKEA's Tejon Distribution Center features an electric propulsion technology developed by TransPower. A one-year demonstration project, funded in part by the Valley Air District and EPA, showed significant reductions in pollution and fuel savings. (Bottom Photo: TransPower)

electric yard tractors, on-road Class 8 trucks, as well as school buses and heavy-duty lift equipment for use at ports," said Frank J. Falcone III, Director of Powertrain Engineering for TransPower and the company's lead on the project with IKEA. In addition to a second electric yard tractor at IKEA, Falcone said that TransPower will deploy four more of these next generation of yard tractors in the San Joaquin Valley at Grimmway Farms, Harris Ranch, and Divine Intermodal's Blue Diamond Almond Growers and Farmers' Rice Cooperative facilities. The vehicles are being built over the summer and will be delivered later this year, he noted, where they will undergo a two-year demonstration at their respective sites. Four additional yard tractors are scheduled for delivery, including two at the Port of San Diego and two at the Port of Los Angeles, Falcone added.

"TransPower is taking lessons learned from IKEA demonstration and incorporating them into the new design to make the tractor more ergonomic and efficient as well as easier to build and service," said Falcone. Through a collaboration with Kalmar, the company that invented the terminal tractor, Falcone said that TransPower's new design will use the Kalmar Ottawa T2 chassis.

For more information, Falcone can be contacted at frank@transpowerusa.com.