Item #4
November 4, 2010
Energy Commission Business Meeting

TRANSPOWER

Grant Agreement ARV-10-020
for

Vertically-integrated Manufacturing Facility
Feasibility Study for Class 8 Trucks

Summary

TransPower, a California company, will conduct a study and performance tests relating to the “Feasibility of a Vertically-Integrated Facility for Electric Truck Manufacturing” (VIFET). The VIFET project goal is to establish readiness to construct a new manufacturing facility for large Class 8 electric trucks in Southern California by January 2013. TransPower’s unique solution, to be studied and validated, is to co-locate the operations of at least four key companies in the electric truck supply chain, thereby enabling three stages of electric truck manufacturing to be performed and integrated cost-effectively. Those stages include: 1) Component manufacturing (advanced inverters and battery modules); 2) Integration of components into electric drive system “kits” customized for specific vehicle models and applications; and 3) Vehicle component kit installation into mass-produced Class 8 truck models. TransPower is targeting the port drayage market and working with PortTechLA to identify a location for the facility in the San Pedro port region.

This project will result in a report that summarizes feasibility for the manufacturing facility and represents a critical step in achieving in-state, commercial production of these heavy-duty electric trucks. The Energy Commission is providing $1,000,000.00 in Alternative and Renewable Fuel and Vehicle Transportation Program funds and the project team will provide match funding of $1,000,000.00.

Benefits

If this project successfully proves the feasibility of the manufacturing facility, TransPower plans to ramp up deployment of the commercial electric trucks from 25 vehicles in 2013 to 2,500 vehicles in 2020. The assumed ramp-up schedule would be: 100 trucks in 2014, 250 trucks in 2015, 500 trucks in 2016, with subsequent increases of 500 each year until reaching 2,500 in 2020.

While the project itself is not expected to result in direct petroleum reduction, successful completion of the larger VIFET project and commercialization of the technologies is expected to result in 120 million gallons of diesel saved between 2013 and 2020.

Similarly, emission reductions are estimated at 75.57 tons per year when comparing the electric truck to its diesel counterpart, with a potential aggregate carbon reduction 1,511,400 tons for the same period (2013-2020).

The entire project concept of the VIFET is to co-locate processes, which will reduce transportation and shipping costs for components and drive systems that are typically associated with the heavy-truck manufacturing.

It is estimated that up to 1,500 new jobs will be created by the establishment of the manufacturing facility and commercialization of the electric truck technology. Most of these jobs will be high-paying professional jobs related to engineering and assembly of high-tech drive systems, and associated business management functions such as marketing, program management, and financial and supply chain management. TransPower will also work with local universities and community colleges to develop training programs for mechanics, so they can be retrained to work on high-voltage electrical systems.

Participants

TransPower's team, led by Michael Simon, includes in-house experts on electric vehicle and control systems development, augmented by strategic partners that address every major need for successful commercial implementation. Partners include:

EPC, a startup firm based in San Diego, develops and markets advanced power conversion devices, with a focus on high-power converters using silicon carbide transistor and flexible control technology. These converters are expected to offer significant efficiency and cost benefits for transportation and renewable energy applications.

Evaira, a startup firm based in the Los Angeles area, is a spin-off of Phillips Aerospace. Evaira develops and markets advanced energy storage systems using lithium batteries. Evaira developed a supply chain providing access to low cost lithium battery cells manufactured to high quality standards in China. Combining these batteries with its "CellSpy" battery management system, Evaira has developed one of the most affordable and reliable high-energy battery products on the market.

ISE has provided electric and hybrid-electric drive systems for more than 200 heavy-duty vehicles. Most of these have been hybrid and fuel cell transit buses, but ISE has also integrated electric and hybrid-electric systems into beverage delivery trucks, refuse trucks, and airport tow tractors

Navistar is a $14 billion a year manufacturer of trucks and truck engines. Its products include the International® ProStar®, the industry's most fuel-efficient Class 8 truck. In January 2010, Navistar received a $37.3 million grant from the U.S. Department of Energy to pursue truck efficiency improvements. This funding will be used to support development and manufacturing of electric trucks with capacities of up to two tons.

PortTechLA is a public benefit, non-profit technology commercialization center and business incubator founded by the San Pedro and Wilmington Chambers of Commerce in collaboration with both the City and Port of Los Angeles. PortTechLA will help evaluate potential VIFET manufacturing sites in the San Pedro area, which is consistent with its mission is to attract technology companies to the Los Angeles harbor area.

Implementation Schedule

TransPower will be conducting integrated component testing during the first year of the project and manufacturing planning the second year of the project. In mid-2012, TransPower will begin seeking support from investors and local officials for the manufacturing facility. TransPower expects to complete this project in December 2012.