

Opposed-Piston Diesel Engine Delivering on Ultra Low NOx Target: Key Milestone Reached in Heavy-Duty Truck Demonstrator program

SAN DIEGO, November 8, 2018- The Heavy-Duty Opposed-Piston (OP) Engine project has achieved the Ultra-Low NOx standard of 0.02 g/bhp-hr in engine simulations and now production of the engines for the first demonstration vehicles has begun.

Validating that the high-efficiency Achates Power OP engine could also achieve emission levels 90% below federal NOx standards is an important milestone in this ground-breaking demonstration project funded by the California Air Resources Board (CARB) and several air districts and managed by CALSTART. Program progress was reported to key stakeholders and the media at an event in San Diego.

The Ultra-Low NOx Heavy-Duty Truck Demonstrator program is part of California Climate Investments, a statewide program that puts billions of Cap-and-Trade dollars to work reducing greenhouse gas emissions, strengthening the economy and improving public health and the environment — particularly in disadvantaged communities. Significant funding is also being provided by the South Coast Air Quality Management District (SCAQMD) and the San Joaquin Valley Air Pollution Control District (SJVAPCD); funding is also coming from the Sacramento Metropolitan Air Quality Management District. (SMAQMD). The demonstration program will see high-efficiency, ultra-clean trucks testing in the first quarter of 2020 in fleet service for Tyson Foods and Walmart in California communities.

The Achates Power Opposed-Piston Engine is engineered to achieve superior fuel efficiency by virtue of its lower heat losses, improved combustion and reduced pumping losses. The simulation models have shown that the HD OP Engine will achieve the 0.02 grams per brake horsepower-hour (g/bhp-hr) Ultra-Low NOx standard target. This level has been achieved in natural gas engines but not yet in a production diesel engine. The project team has now finalized the design stage for the engine and has started building the engines that will run in the Peterbilt demonstration vehicles.

“Governments around the world are implementing tougher mandates on NOx emissions and California leads the world using the regulations to deliver cleaner air to its citizens,” said Achates Power President and CEO David Johnson. “Through this demonstration we will show the industry’s first high-efficiency, ultra-low emissions engine for medium- and heavy-duty truck sectors. We are on our way to demonstrate the first diesel engine to meet California’s – and, therefore, the world’s – toughest emissions standard.”

While most conventional engines trade efficiency for emission reduction, the Opposed-Piston Engine dramatically reduces fuel consumption to achieve CARB’s lowest Ultra-Low NOx standard of 0.02 g/bhp/hr, while simultaneously reducing CO₂ emissions well below today’s best trucks, up to 15-20%percent below the greenhouse gas requirement.

Achates Power is contributing its OP Engine technology and engineering expertise to the HD OP Engine Demo project partnership, and Peterbilt will integrate and deploy the new engine in its 579 Class 8 tractor trucks. Achates Power is leading a project team consisting of Aramco Services, BASF, Corning, Dana, Delphi, Eaton, Faurecia, Federal Mogul, Honeywell, Litens and Federal Mogul, along with the Southwest Research Institute. CALSTART is managing the project and will collect and analyze emissions and performance data.

“This project challenges conventional wisdom in the industry: that ultralow NOx can be combined with ultra-high efficiency in a diesel engine,” said Bill Van Amburg, executive vice president, CALSTART. “This impressive team is showing that you can significantly improve air quality while also making progress on climate change. We can and must do both. Success in this project will support widespread commercial adoption of the ultralow NOx standard in Class 7 and 8 trucks, which will support CARB’s – and the world’s – air quality and environmental goals.”

“Achates Power is committed to bringing the Opposed-Piston Engine to market to provide a practical solution for ultra-clean, ultra-efficient and cost-effective transportation,” said Johnson. “Our project with CALSTART for CARB shows the need in the market for solutions that will meet the goals we all desire, without forcing solutions on the industry.”

The HD OP Engine can be built in existing manufacturing facilities, using established processes, and materials to enable rapid time-to-market and deployment. The HD OP Engine demonstration will help accelerate the engine’s performance validation and enable data sharing, speeding up the potential market adoption of this Class 8 truck propulsion alternative by four to five years.

About Achates Power, Inc.

The Achates Power Opposed-Piston Engine is engineered to meet future emissions and fuel economy standards more cost effectively than any other solution. Founded in 2004 with the mission to build cleaner, more efficient engines, the company has an experienced staff of engineers and scientists working with leading engine manufacturers to bring the OP Engine to market. Achates Power is backed by the Oil and Gas Climate Initiative, Climate Investments; Sequoia Capital Partners; RockPort Capital Partners; Madrone Capital Partners; InterWest Partners; and, Triangle Peak Partners. For more information, visit www.achatespower.com, www.facebook.com/AchatesPowerInc, www.twitter.com/achatespower and www.youtube.com/achatespowerinc.

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