Abstract

Cummins Westport commenced commercial production of the 8.9 liter ISL G natural gas engine in June, 2007, with ARB certification to the 2010 on-highway emission standard. The ISL G engine uses stoichiometric, cooled EGR, spark ignition (SESI) combustion technology in conjunction with a three way exhaust catalyst, a passive device which is highly effective at passive NOx conversion. The ISL G target markets at launch were transit buses and refuse collection trucks. Following ISL G launch, CWI and ARB executed ICAT Grant Agreement 06-08 to further develop & demonstrate the ISL G engine in medium duty truck applications, leading to factory availability from a major medium duty truck OEM. The scope of work included developing additional performance rating & hardware options to enable the ISL G engine to be installed in medium duty trucks, as well as enabling installation in a wide range of other commercial vehicle applications, including yard tractors, street sweepers, school buses, and shuttle buses. The project deliverable would be a version of the ISL G that is commercially available for use in medium duty trucks and the specialty vehicle applications identified above.

Cummins Westport has developed two additional ratings for the ISL G, and a new “low-mount” turbocharger option to enable ISL G integration in Freightliner’s popular M2 truck model. These new options became commercially available in early 2009, and are in widespread commercial use by fleet customers. Pacific Gas & Electric has operated an ISL G-powered truck in its fleet operations for approximately 12 months. Freightliner has commercialized multiple ISL G-powered versions of its M2 truck. The OEM availability of ISL G-powered vehicles has expanded significantly during this ICAT project, and includes major vehicle manufacturers in each of the target market segments identified above.

Introduction

Cummins Westport Inc. (CWI), a joint venture company formed between Cummins Inc. and Westport Innovations Inc., is responsible for developing and commercializing advanced, low-emission, alternate fuel engines. Cummins Inc. is a global power leader comprised of complementary business units that design, manufacture, distribute and service engines and related technologies, including fuel systems, controls, air handling, filtration, emission solutions and electrical power generation systems. Westport Innovations Inc. is the leading developer of technologies that allow engines to operate on clean-burning fuels such as natural gas, hydrogen, and hydrogen-enriched natural gas (HCNG). CWI’s sole mandate is to develop and commercialize low emission engines for medium and heavy duty applications. CWI develops and markets a range of high-performance low-emission engines for commercial vehicles, based on Cummins 5.9 liter through 8.9 liter engine platforms. CWI’s engines are factory built as alternate fueled engines.

In June, 2007, CWI commenced commercial availability of a new 8.9 liter heavy-duty natural gas engine, following an extensive product development program which combined the low emission advantages of spark ignition, stoichiometric combustion and three way catalyst technology with the high torque, durability and efficiency enabled by cooled exhaust gas recirculation (EGR) systems. The resulting engine is the Cummins Westport ISL G, a dedicated