



Indiana Harbor Belt Railroad in Chicago Reducing Harmful Emissions By Converting Their Locomotives to Natural Gas

OptiFuel Systems, LLC Has Shipped Tier IV Dual Fuel Natural Gas Powered Locomotive Engines, CNG Onboard Storage Systems, and CNG Trackside Refueling Components to Indiana Harbor Belt Railroad

BEAUFORT, SC, April 27, 2017 – OptiFuel Systems, LLC announced today that it has shipped 100% American designed and manufactured dual fuel locomotive engine systems utilizing diesel and compressed natural gas (CNG) to Indiana Harbor Belt Railroad (IHB) for integration into the first two of thirty-one CNG Tier 4 switcher locomotives for IHB’s CNG Repower Program. The dual fuel natural gas

system includes

OptiFuel Systems

designed on-board

CNG storage units and

trackside CNG

refueling station. The

IHB is the first

railroad in the U.S. to

convert its fleet to

clean burning natural

gas, the least carbon-

intensive fossil fuel, as

its primary fuel source.

IHB contracted the

system design,

assembly and

integration of the

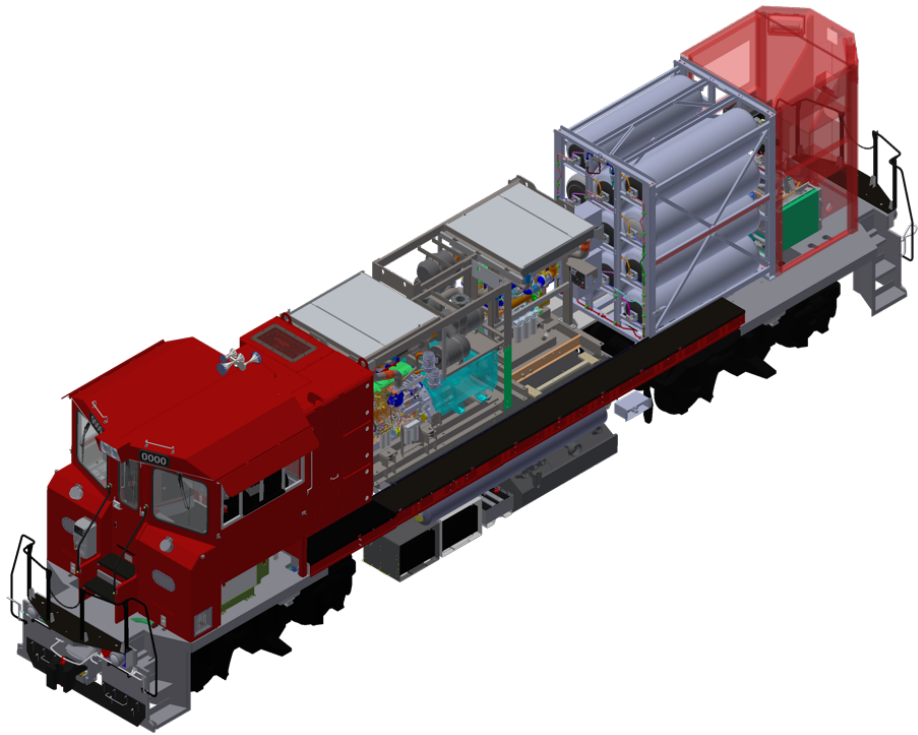
entire natural gas fuel

system to OptiFuel

Systems, and the

overall locomotive

design, assembly, and integration to R.J. Corman Railpower Locomotives, LLC.



Michael Nicoletti, Director of Mechanical Operations, Indiana Harbor Belt Railroad, said, “The CNG Repower Program represents a substantial investment to change our locomotive fleet to CNG and eliminate harmful emissions. The locomotives are a part of a greater effort by the IHB to convert up to 31 of its locomotives to be powered primarily by CNG. At the end of the program in 2020, 70% of IHB’s fleet will be converted to utilizing CNG as its primary fuel source. Introducing CNG as a viable fuel into the freight rail industry is a role that the IHB embraces in both its unique challenges and operational and environmental rewards,”



In over 1000 railyards in densely populated, urban areas around the U.S., old switcher locomotives put out emissions equal to 72 new Class 8 diesel trucks

Scott Myers, President of OptiFuel Systems, LLC commented, “OptiFuel is pleased to be a first mover and developer of technology applying environmentally compliant dual fuel systems to the railroad switching industry. OptiFuel’s technology will provide needed solutions and support to the Class I, II and III railroads as they seek ways to mediate the recognized adverse environmental impacts of their aging switcher fleets. As of September 2016, there are over 1000 railyards in the U.S. located in densely populated, urban areas classified as particulate matter and ozone EPA defined “nonattainment” areas. Over 119 million people (nearly 40% of the U.S. population) living in these nonattainment areas are experiencing acute and chronic adverse health outcomes, including exacerbation of respiratory and cardiovascular disease. In U.S. railyards, there are over 8,000 very old, diesel powered switcher locomotives, 95% of which produce Pre-Tier 0 (non-regulated, pre-1973) emissions. These Pre-Tier 0 pollutants create high levels of ozone, air toxics, greenhouse gases, fine particulate matter, and other diesel exhaust compounds classified as carcinogenic to humans.”

From a purely emission and dollar funding savings standpoint, it is 4 times more efficient to replace old switcher locomotives than old Class 8 diesel trucks

Mr. Myers added, “Each of these Pre-Tier 0 switcher locomotives put out emissions equal to 72 new Tier 4, Class 8 diesel trucks. Replacing the switchers has priority over replacing old Class 8 trucks since, from a purely emission and dollar funding savings standpoint, it is 4 times more efficient to replace Pre-Tier 0 switcher locomotives with new Tier 4 CNG switcher locomotives than to replace old Class 8 trucks with new Tier 4 Class 8 trucks. Now that the technology exists to provide affordable Tier 4, CNG powered freight switchers, all the states and associated railroads have the option to replace their Pre-Tier 0 freight switchers with new Tier 4 CNG freight switchers with commensurate fuel cost savings while expanding the country’s use of domesticated natural gas. Additional funding support could come from the Volkswagen Settlement, which provides \$2.7 billion under an Environmental Mitigation Trust for remediation of NOx emissions”

100% American made CNG components have been shipped for integrating into the first two natural gas locomotives and will be received at IHB in the second quarter of 2017

Twenty-one of the IHB locomotives feature a 1,500 Hp twin engine design



that will use two OptiFuel Systems designed 750 Hp, dual fuel engines that meet or exceed all federally mandated Tier 4 emissions reduction categories. As compared to IHB's current locomotive fleet, particulate matter (PM) and nitrogen oxides (NOx) will be reduced by 94.7% and 85.3%, respectively. In addition, the Automatic Engine Start-Stop (AESS) system will shut down idling locomotives to further reduce by 25% to 50% fuel and oil consumption, lower emissions, and mitigate noise and engine wear.

The modular CNG-onboard storage system on each locomotive was engineered and manufactured by Mainstay Fuel Technologies, Inc. of Greenville, SC, under a subcontract with OptiFuel. The design incorporates important features and elements of Mainstay's established fuel



systems that are used in Class 8 truck markets. The design, which includes eleven 5,000 psi Hexagon Lincoln, DOT-approved Type IV cylinders, was engineered to handle switcher locomotive operational loads and meet Federal Railroad Administration (FRA) recommendations and requirements. Based on the current IHB duty cycle, the onboard system storage of 700 DGE will handle 7 to 10 days of operation before refueling is required. The standard diesel tanks on the locomotives are not reduced in size, allowing 100% diesel operation if needed.

The Trackside CNG Refueling Station equipment was manufactured by ANGI Energy Systems, under a subcontract to OptiFuel. As the premier packager and manufacturer of CNG equipment for CNG trucking, transit and bulk storage market, ANGI took the OptiFuel system requirements and created and manufactured a low-risk, proven, modular CNG station that can refuel two locomotives every 15 to 30 minutes in the basic configuration and four locomotives every 15 to 30 minutes in a growth configuration. During the system design process, the team developed CNG dispensers, locomotive to refueling equipment communications, locomotive RF tagging, and system safety approaches and requirements, based on standard "best practices" used in the rail industry.

The expected incremental cost to repower older switcher locomotives and/or build new switcher locomotives with CNG will be around 15% to 20% before fuel cost savings

"All of the CNG components are designed to be modular, scalable, reliable and affordable for use in a locomotive configuration. In addition, over the next 12 to 18 months, OptiFuel will be



expanding its line of EPA certified Tier 4 dual fuel engines for the rail market from 600 Hp to 3,000 Hp and a line of Near Zero NOx/PM (proposed Tier 5), natural gas solutions from 900 to 3,300 hp for rail OEMs. These engines will support single-engine or multiple-engine locomotive configurations and different modular onboard CNG storage sizes. We expect that the incremental cost to repower older switcher locomotives and/or build new switcher locomotives with CNG and dual fuel will be around 10% to 15% based on the IHB program. However, we think that the savings in fuel economy, increased safety, lower risk, and cleaner emissions will make financial sense to the large and small railroads, particularly if a leasing program and an integrated cost effective CNG refueling program is also provided,” said Mr. Myers.

The IHB’s CNG Repower Program is supported by federal funds through the Congestion Mitigation and Air Quality (CMAQ) Program, administered by the Chicago Metropolitan Agency for Planning (CMAP). The IHB’s sponsor is the Illinois Environmental Protection Agency.

About OptiFuel Systems, LLC

Based in Beaufort, S.C., OptiFuel Systems, LLC is leading the transportation market with innovative dual fuel natural gas high horsepower solutions, including the developing of natural gas high horsepower engines, onboard natural gas (both CNG and LNG) storage systems, and natural gas refueling systems for the rail, marine, power and other mobile markets. Currently, OptiFuel is expanding its line of EPA certified, Tier IV, dual fuel (natural gas/diesel) solutions from 600 to 5,400 hp for rail and coastal/inland marine OEMs and will have, in 2018, a line of Near Zero NOx/PM (proposed Tier 5), natural gas solutions from 900 to 3,300 hp for rail OEMs.

About the Indiana Harbor Belt Railroad

The Indiana Harbor Belt Railroad (www.ihbrr.com), located in Chicago and northwest Indiana, is the largest terminal switching railroad in North America. The IHB provides service to more than 100 industrial customers, and interchanges with 17 railroads including six Class 1 railroads across its 35 miles of mainline and 350 miles of yard and siding tracks.

About Mainstay Fuel Technologies, Inc.

Based in Piedmont, S.C., Mainstay (www.mainstayfueltech.com) specializes in designing, engineering and producing CNG fuel-delivery systems. The company provides products and services for Class 7 and 8 heavy-duty vehicles, including refuse trucks, concrete mixers, vocational trucks and over-the-road tractors. The company also offers products and services for Class 3 through 6 medium-duty work trucks, service vehicles and commercial buses. Since 2006, the company has produced and sold over 5,800 units/systems for medium and heavy duty commercial vehicles.



About ANGI Energy Systems

Founded in 1983, ANGI Energy Systems (www.angienergy.com) is a North American company that designs and manufactures systems for CNG vehicle fueling and tube trailer transport in applications around the world. ANGI continues to be a leading supplier of CNG refueling equipment for natural gas vehicles, and has a standing reputation as a leader in the high pressure compression industry. ANGI provides superior customer service, project management, maintenance, and training programs that enable a complete and optimized natural gas refueling system solution for all systems CNG. ANGI is a wholly-owned subsidiary of Gilbarco Veeder-Root, the worldwide technology leader for retail and commercial fueling operations.

About R. J. Corman Railpower Locomotives, LLC

R. J. Corman Railpower Locomotives, LLC (www.rjcorman.com/railpower/) designs, builds and currently supports 165+ locomotives at over 20 locations around the U.S. Railpower Locomotives, LLC is a subsidiary of R. J. Corman Railroad Group, LLC. Altogether, the company employs more than 1,580 people in 23 states. Other R. J. Corman companies provide a myriad of services to the railroad industry such as industrial railcar switching, emergency response, track material distribution and logistics, track construction, signal design and construction, and railroad worker training. In 2000, Railpower Locomotives, LLC began developing a family of clean and efficient switchers. Since that time, their products have surpassed the competition with industry leading 33% adhesion, up to 60% fuel savings and the highest power density. Today, Railpower Locomotives, LLC provides Tier 3 and Tier 4 locomotive solutions that meet Class I, II, and III railroads and industrial switching needs.

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