

Project Information Form

Project Title	Development of Key-Enabling Technologies for a Variable-Blend Natural Gas Vehicle
University	University of California, Riverside
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Funding Source(s) and Amounts Provided (by each agency or organization)	US Department of Transportation - \$75,871.09
Total Project Cost	\$75,871.09
Agency ID or Contract Number	DTRT13-G-UTC29 UCR-DOT-306
Start and End Dates	July, 2016 through December, 2017
Brief Description of Research Project	<p>Renewable Natural Gas (RNG), i.e., natural gas produced from renewable feedstocks (e.g., landfill gas, biomass, etc.) is an important alternative fuel that can contribute to achieving a number of goals set by the local and federal governments related to fossil fuel replacement and greenhouse gas (GHG) emissions reduction in the transportation sector. A significant increase in the number of Natural Gas Vehicles (NGV) running on RNG is needed in order to make an impact on net GHG and criteria pollutant emissions reduction. Developing Variable Natural Gas Vehicles (VNGV) that can accept a broader range of RNG fuel properties is critical to achieve widespread RNG usage in transportation.</p> <p>This research developed a portable, economic and reliable sensor for measuring Natural Gas (NG) fuel quality. Both Wobbe Index and Methane Indexes, as well as inert gas content of the NG fuel, can be measured in real time within 5% accuracy. The VNGV is an NGV that can operate on any arbitrary mixture of methane and carbon dioxide, thus allowing the use of RNG for transportation without comprehensive gas cleanup/upgrading. This technology is non-invasive, rugged, and small in size, promising to overcome limitations and shortcomings such as bulky size and intrusive nature of conventional measurement technology. VNGV technology will enable widespread use of RNG as a transportation fuel, resulting in significant reductions in GHG emissions in the transportation sector.</p>



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Describe Implementation of Research Outcomes (or why not implemented) (Attach Any Photos)	Lead to California Energy Commission's PIER award. "Demonstration of Smart Combustion Technology Using Natural Gas Fuel Quality Sensors", Contract Number: PIR-17-005
Impacts/Benefits of Implementation (actual, not anticipated)	
Web Links <ul style="list-style-type: none">• Reports• Project website	https://ncst.ucdavis.edu/project/development-of-key-enabling-technologies-for-a-variable-blend-natural-gas-vehicle/