

Plasma assisted engines fuel efficient, cleaner

Gasoline, diesel, and turbine engines could soon burn cleaner or be more fuel efficient through the application of Plasma Assisted Combustion, a technology originated and developed at Los Alamos National Laboratory, and now poised to enter the marketplace.

The Laboratory has entered into a Cooperative Research and Development Agreement with PerriQuest Defense Research Enterprises, LLC to advance the technology for commercial refinement and implementation. PerriQuest, based in Meriden, CT, Los Alamos, and Idaho National Laboratory are collaborating on the research and development of Plasma Assisted Combustion, under a licensing agreement with Los Alamos, for turbine and internal combustion engine applications.

Los Alamos scientist Louis Rosocha and his team have been working on the technology for about four years, with the goal of making fuel-efficient or cleaner burning engines through more complete combustion. The technology consists of an electronic device that can be attached to an existing fuel injector that applies electrical voltage to the atomized fuel stream prior to combustion - generating a plasma in the fuel. This effect essentially breaks down the long chains of hydrocarbons in the fuel into smaller parts - allowing the fuel to be burned more completely, resulting in more miles per gallon, or reducing harmful emissions.

"The research was really driven by market needs," said Rosocha. "In 2004, regulations were announced about air pollutants by all vehicles. In the future, air pollutants by vehicles, on- and off-road, are supposed to be more highly regulated. We knew that this was going to create a great opportunity to develop a technology that would supply the demand for cleaner burning vehicles. So, we decided to see if we could do something about it."

With fuel prices at all-time highs, the need for better fuel efficiency is also market driven, but the technology is limited. "The technology does produce cleaner emissions, and can lead to better fuel efficiency, but probably not at the same time," said Rosocha. "Maybe if Mother Nature was super-kind you might get both."

PerriQuest founder and CEO, Nicholas V. Perricone said that his company, which routinely works with the U.S. Government on defense technologies, is dedicated to turning the plasma combustion technology into a commercial product that will improve turbine and internal combustion engines.

"We knew we wanted to work with Los Alamos because, not only are their scientists world-renowned, they also have some of the best plasma technologies in the world we already have and hope to commercialize the plasma combustion technology for fuel efficiency and reduced pollutants for the American public."

Source: Los Alamos National Laboratory

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