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DOE awards Wisconsin Engine Research Consultants \$1.5 million for dual-fuel engine optimization

Wisconsin Engine Research Consultants (WERC, LLC) was awarded \$1.5 million by the US Department of Energy's Office of Energy Efficiency and Renewable Energy on Wednesday 8/10/2011. The award addresses DOE's Vehicle Technologies goal to reduce the fuel consumption of on-highway vehicles, which account for 55% of total U.S. oil use. The research goal targets a 20% improvement over current diesel engines. This will have a significant impact on U.S. oil security.

The project is one of 40 awarded by the DOE for a total of \$175 million, intended to target new innovations and accelerate the development of the next generation of fuel-efficient vehicles. WERC, a spinoff company created by two Mechanical Engineering Professors Rolf Reitz and Christopher Rutland at the University of Wisconsin-Madison Engine Research Center (ERC), provides analysis and consulting services to the engine industry.

WERC will utilize the funding to advance a novel dual-fuel engine technology called Reactivity Controlled Compression Ignition (RCCI) that was developed at the university's Engine Research Center laboratories, and has been shown to have the potential to dramatically lower fuel use and emissions. RCCI uses a blend of diesel and gasoline fuels, injected at different times in the engine cycle. Optimized mixing of the two fuels allows combustion to take place at lower temperatures, which both reduces waste heat losses, significantly increasing engine efficiency, and minimizes the production of nitric oxides and particulate, without the need for expensive after-treatment systems.

Reitz says the grant will help commercialize RCCI technology, for which the UW-Madison Wisconsin Alumni Research Foundation (WARF) has several patent applications pending. The research will optimize RCCI for both light-duty and heavy-duty engines, and will be conducted in conjunction with the Engine Research Center, which will be installing new test facilities with additional matching funds from Caterpillar, Inc. for the heavy-duty engine tests. The Oak Ridge National Lab in Tennessee, also a subcontractor on the project, will test RCCI in light-duty multi-cylinder automotive engines.