



Water, Energy and Agriculture Initiative

Evaluation of Biofuel Driven Irrigation Pumps and/or Electric Generators for Use During Peak Electricity Demand

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ABSTRACT. The goal of this research is to support the development of a biofuel power unit industry in Nebraska to increase the use of agricultural resources, crops and the resulting biofuels that are produced in the region. Two Nebraska companies developed commercially available technologies to utilize denatured ethanol and other biofuels in industrial power-units. The successful validation and demonstration of these technologies will support adaptation in water pumping and electrical generation plant applications. It will also document exhaust emissions and compare operating cost with traditional engines and fuels. These technologies could reduce peak load electrical energy demand resulting from electrical powered irrigation pumping stations, improved emissions compared to petroleum power irrigation pumping stations or peak load electrical generating stations, and may reduce production costs for irrigated farming operations.

The Water, Energy and Agriculture Initiative funds research to maximize the efficiency with which water and energy resources are used to sustain economic development and water conservation in Nebraska agriculture.

The Nebraska Center for Energy Sciences Research administers the initiative, which was created in 2008 through a partnership of the center, the Nebraska Public Power District, the Nebraska Corn Board, the Nebraska Soybean Board and UNL's Agricultural Research Division.