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Customer: U.S. Department of Energy, National Energy Technology Laboratory

Project Definition and Objectives

Construction of a Clean Fuel Demonstration Facility and Evaluation of the Fuel in Diesel Engines

ICRC was awarded a cooperative agreement under the Department of Energy's Ultra-Clean Transportation Fuels Program to construct a clean fuel demonstration facility and to evaluate the fuel in diesel engines. The objectives of this project were:

- To demonstrate the feasibility of using a small footprint plant (SFP) for the commercial production of ultra-clean Fischer-Tropsch (F-T) diesel fuel from stranded natural gas.
- To build and operate a demonstration facility that converts pipeline natural gas into ultra-clean F-T diesel fuel, as an indicator of how stranded natural gas could be processed in an SFP to make ultra-clean fuel.
- To evaluate the usage of the ultra-clean F-T fuel in a variety of diesel engines.

Tasks

The tasks performed by ICRC for this project included:

- Coordinating with partner Syntroleum Corporation on the design, construction and initial operation of an SFP near Tulsa, Oklahoma, for the production of ultra-clean diesel fuel from pipeline natural gas.
- Evaluating the ultra-clean fuel as an alternative to traditional diesel fuel, including use of the fuel in two existing bus fleets and other diesel engines, as well as in laboratory research diesel engines.
- Conducting a well-to-wheels economic analysis of the gas-to-liquids production process.

Impact

ICRC delivered the following results:

- "One of the most successful recent projects for the agency," was how the project was described by the Department of Energy's project manager after the opening of the SFP.
- Built an SFP currently producing 70 barrels of ultra-clean diesel fuel a day. This is a major step in demonstrating the viability of ultra-clean diesel fuel produced from non-petroleum based energy resources.
- Brought our nation several steps closer to finding a cost effective means of producing ultra-clean fuel from stranded natural gas, coal or biomass.
- Helped the Department of Energy and other government entities make significant advances in fulfilling their mission of reducing the nation's dependence on imported petroleum.

Next Steps

ICRC recently initiated a program to produce ultra-clean F-T diesel and jet fuels from coal. The initial work, led by the Department of Energy in cooperation with the Department of Defense, will include an assessment of environmental factors associated with the coal-to-liquids production process.

Other ICRC Services:

Information Sciences
Aerospace Services
Infrastructure Support Services

For more information or to discuss potential contracting opportunities, contact ICRC's Corporate Headquarters:

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The completed small footprint plant near Tulsa, Oklahoma.