# Oil and Gas Research Program

North Dakota Industrial Commission

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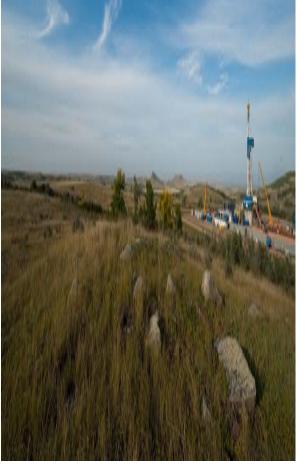
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## **Optimizing Oil Recovery**

### Continental Resources

The objective of this project is to determine if the Middle Bakken and Three Forks production are separate and distinct reservoirs. If the two intervals are actually separate and distinct, producible reserves per spacing unit would greatly increase with proper development. The success of this project will be measured by the development of a dataset and performance of reservoir modeling that leads to the establishment of evidence regarding relationship, or lack thereof, between the Three Forks-Sanish and Middle Bakken oil producing zones. Understanding the degree of communication is key in determining the number of wells and where they should be drilled to optimize recovery from each zone. This work tested whether wells should be drilled directly over or beneath an existing producer in the Bakken or Three Forks-Sanish zones or whether one well would be able to adequately drain both zones.

#### New Environmental Practices

Energy & Environmental Research Center (EERC), Grand Forks, ND

The objective of this project is to investigate the recycling of water flowed-back after Bakken fracture stimulation. The project has the following two phases under the Northern Great Plains Water Consortium program. The first phase is to assess the technical and economic potential of recycling frac flowback water. The second phase consists of a field demonstration of a mobile frac flowback water recycling technology.

### **CDL** Training Program

Train ND Northwest, Williston State College, Williston, ND

Funding will be used to purchase two simulators and a trailer for the simulators to allow the training to be delivered at various locations. The Commercial Drivers License Program is a three-week, 135 hour course. The training includes: classroom instruction and behind the wheel driving. This program offers the best opportunity to learn by presenting information in hands on situations from behind the wheel and from experienced instructors in the classroom. Access to the simulators will provide an additional training environment. Students will be able to have hands-on driving experiences in the safety of a classroom, before they get behind the wheel of a semi-truck.



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## **Recycled Energy Project**

Blaise Energy, Dickinson, ND

**D** laise conserves a valuable re-**D** source by transforming otherwise wasted wellhead flare gas into high quality, reliable, environmentally friendly electricity. The Blaise Solution consists of diverting the wellhead gas before it is flared and burning it more efficiently in an onsite generator, sending the electricity back into the local grid. Classified as "Recycled Energy" in North Dakota, Blaise Energy's electricity demonstrates the efficient use of resources and reduces green house gas emissions through reduced flaring.



# Automated Regulatory Center

Pedigree Technologies, Fargo, ND

Pedigree has developed capabilities to allow for remote data collection from injection well sites allowing or continuous monitoring of those sites as well as providing reportable injection data to government agencies. The system regularly monitors and records pressure readings which is stored at and made accessible from a remote location at Pedigree Technologies' data center. From this data, reports will be automatically generated meeting State of North Dakota reporting requirements.

## Maximizing Market Potential

Bakken Express, LLC

The purpose of this project is to evaluate compressed natural gas technologies as an economic method to



capture and transport produced natural gas and has liquids to market. Over the course of 12 months, Bakken Express will demonstrate the economic viability of capturing and transporting wellhead gas for both the producers (and mineral owners) and the companies providing this service.

## Enhanced Oil Recovery—Data Sharing

#### Enerplus

This project proposes to drill and then simultaneously fracture stimulate two horizontal Middle Bakken wells on the Fort Berthold Indian Reservation (FBIR) in order to validate a completion technique maximizing oil recovery. This technique/data is used to educate and encourage the use of new technologies by all FBIR operators and others in similar geologic settings within the Bakken petroleum system. The successful completion of this program and subsequent data evaluation by other operators will effectively help to prevent waste provide critical data for proper planning of both present and future development and have positive economic impact by proving up an economically attractive methodology for maximizing reserve recoveries from this resource.

# **Project Solicitations**

*Currently, the program is soliciting project applications in the following areas:* 

1. Demonstration the safeguards and effectiveness of the regulatory system in hydraulic fracturing techniques.

2. Demonstrations/study of the technical viability of a proppant by conducting analysis of sand, ceramic, and/or resin-coated applications in a hydraulic fracturing treatment.

3. Demonstration of the technical and economic viability of a bi-fuel system to reduce diesel consumption at drilling rigs by conducting a pilot project of a natural gas bi-fuel system at one of North Dakota's Bakken drilling rigs with specific focus being on:

- Safety and environmental impacts
- Suitability of raw Bakken well gas as a bi-fuel.
- Engine maintenance issues
- Initial cost to modify the enfines
- Costs, reliability and logistics of transporting natural gas
- Engines reaction to interruptions in the gas flow.

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