Bakken Petroleum: The Substance of Energy Independence

Subcommittees on Energy and Oversight

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Written Testimony

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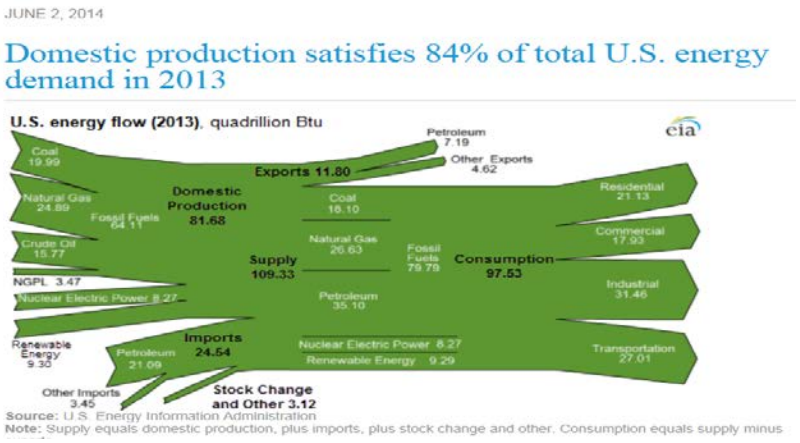
The North Dakota Petroleum Council (NDPC) represents over 530 companies engaged in all aspects of oil and gas activities in North Dakota, South Dakota, and the Rocky Mountain region. NDPC members produce 98% of all oil and gas in North Dakota.

The State of North Dakota is one of the only states with a multi-resource comprehensive energy policy. North Dakota is proactive and aggressive in addressing energy development and serves as a model for America in fostering innovation, long-term energy development to meet our nation's growing demand and need for energy security in an environmentally responsible manner.

North Dakota is now the second largest oil-producing state in the nation, reaching 1 million barrels of daily production in May 2014, up from 100,000 barrels per day in 2007. The industry has almost 11,000 producing oil wells, employs tens of thousands of direct and indirect jobs, has a $30 billion economic impact and contributes $11 million per day to the state and political subdivisions in oil production taxes.

The states of Texas and North Dakota combined produce nearly half of the crude oil produced in the United States, and increased domestic production has helped stabilize energy prices despite turmoil overseas. In fact, this new domestic energy production has reduced imports by 4.4 million barrels per day or 18.5 percent since 2007, the year that Bakken production started increasing. Imports from Saudi Arabia are down 25.3 percent, while imports from Venezuela are down 47.8 percent. Because of shale oil and gas, North American energy security is now achievable and North Dakota is proud of its role in this progress. The U.S. Energy Information Administration recently stated that U.S. energy production now meets 84% of the country's energy demand, up from 69% in 2005.



Although North Dakota's oil and gas production has grown substantially in recent years, pipeline capacity to key markets has not, requiring 59 percent of Bakken crude to be hauled via rail in June. Since the increase of crude being transported by rail, there have been eight railway incidents involving crude oil that have raised questions as to the chemical characteristics of Bakken crude, how it compares with other flammable liquids under U.S. Department of Transportation regulations and whether it can be safely transported across North America under the current regulatory environment as enforced by the Pipeline and Hazardous Materials Safety Administration.

Rail transport of crude oil from North Dakota will continue to play a vital role in providing this commodity to refineries on the East and West Coast of the U.S. Pipelines traditionally have been focused on product delivery to the U.S. Gulf Coast. Rail delivery of crude feedstock to the coasts is directly responsible for reduction in crude imports from the Middle East and Africa. In addition, Bakken crude oil is a less expensive feedstock, and combined with abundant supply and reliable domestic delivery has led to a revitalization of coastal refineries, resulting in job creation and job security in these locations. In larger terms, increases in domestic production are reducing the U.S. trade imbalance, strengthening the U.S. economy and reducing foreign influence.

Three independent studies have now shown that Bakken crude is similar to other North American light, sweet crude oils in gravity, vapor pressure, flash point and initial boiling point, the key parameters in proper classification.

- *A Survey of Bakken Crude Oil Characteristics Assembles For the U.S. Department of Transportation*, 14 May 2014
    - Submitted by American Fuel & Petrochemical Manufacturers, Prepared by Dangerous Goods Transport Consulting, Inc.
- *The Turner Mason & Company Study on Bakken Crude Properties*, 16 July 2014
    - Submitted by the Bakken Crude Characterization Task Force, Prepared by Turner, Mason & Co. Consulting Engineers
- *Operation Safe Delivery*, July 2014, including *Operation Classification*, August 2013, as pertaining to Bakken Crude
    - Pipeline and Hazardous Materials Safety Administration (PHMSA), U.S. Department of Transportation

According to these studies, Bakken crude oil chemical properties attest to its proper classification as a Class 3 flammable liquid. This category contains most of the valuable fuels and fuel feed stocks offered for transportation in the United States.

Bakken crude oil has an API gravity of approximately 42 degrees, which classifies it as a light sweet crude and comparable to other light crudes. The Energy Information Administration defines light crudes as those having an API gravity of 35 degrees or higher. There are many crude oils in the world, some are lighter and some are heavier in their component makeup than Bakken crude oil. API gravity is one measure the industry use to communicate crude oil properties. The higher the API number, the lighter the crude oil. Bakken crude oil with a gravity of 42 degrees, is very close to West Texas Intermediate and Brent, the most commonly discussed world crude oils. Light crude oils now compose 60% of all crude oils produced in the United States and this category of crude oils is a fast growing majority.

Heavier crudes, those having API gravity of less than 35 degrees, often require cracking and additional processing to yield create marketable transportation fuels.

CRUDE NAME	ORIGIN	API
Eagle Ford Light	Texas	58
Arabian Super Light	Saudi Arabia	51
Eagle Ford	Texas	48
Agbami	Nigeria	48
DJ Basin	Colorado	45
Sarahan Blend	Algeria	43
Bakken	North Dakota	42
West Texas Intermediate	Texas/New Mexico	41
Brent	United Kingdom	38
LLS	Louisiana	36
Alvheim Blend	Norway	35
Arabian Heavy	Saudi Arabia	28
Alberta Dilbit	Alberta	21

The Turner Mason & Company study (TM&C) was commissioned by the NDPC to answer questions raised about the chemical properties and transportation safety of Bakken crude oil. The study included a comprehensive sampling, and analysis plan and was conducted by Turner Mason & Company, an internationally known and recognized group of engineering consultants with extensive crude oil expertise, at a significant cost.

The oil and gas industry in North Dakota has a strong safety culture focused on zero incidences. All incidences, large and small generate a safety investigation to determine the root cause of the safety incident. Procedural changes or additional safety measures are implemented to mitigate the root cause and prevent a reoccurrence of a similar incident. This is true whether the incident occurs during drilling, completions, production or transportation aspects of the industry's activities. Commissioning of the Turner Mason study is an example of the industry's desire to investigate safety incidences.

The TM & C study was designed to provide scientific answers to address the growing perception that light crude oil is more hazardous than other flammable liquids or hazardous materials being transporting in the United States. The results of the study do not support the speculation that Bakken crude, in particular is more volatile than all other crude oils or other flammable liquids.

There are nine classes of hazardous materials transported by truck, rail, ship and cargo air in the United States. Materials from all nine hazardous materials classes are transported safely every day in this country, millions of times per year. Those who offer hazardous materials for shipment must be certified and are required to properly classify the material being offered for transportation.

9 HAZARDOUS MATERIALS CLASSES AUTHORIZED FOR TRANSPORT	
Class 1:	Explosives
Class 2:	Flammable gas
Class 3:	Flammable liquid
Class 4:	Flammable solid
Class 5:	Oxidizer
Class 6:	Toxic
Class 7:	Radioactive
Class 8:	Corrosive
Class 9:	Miscellaneous

All classes of Hazardous Materials transported by rail arrive safely at destination 99.997% of the time. The efforts of all stakeholders, including PHMSA, the oil and gas industry, tank car builders and owners, the railroads and the state of North Dakota, are focused on effecting an incremental safety improvement for the remaining 0.003% incidences.

Safety always has and continues to be a core value of the oil and gas industry. The NDPC and its members believe rail safety improvements must be developed using a holistic, comprehensive, and systematic approach that examines prevention, mitigation, and response. Safety solutions must be data-driven and produce measurable improvements to safety without creating new risks or inadvertently shifting the risks to other businesses or operations. To achieve this, collaboration is needed among government, shippers, railroads, and tank car builders.

All stakeholders recognize the importance of implementing additional safety measures to reduce the probability of the remaining 0.003%; efforts to improve safety of the railcar, routing analysis, infrastructure inspection and enhancements as well as additional training and information for Emergency Management personnel are all efforts being addressed. The oil and gas industry in partnership with the railroads is working to develop a common educational tool to be distributed broadly to fire departments either through web portal or DVDs. This information will also be available for companies to use in continued interaction with fire departments and other EMS personnel. Rail and oil industries in many states have worked collaboratively on drills and exercises, development of additional response resources and periodic meetings to keep the lines of communication open to maximize information sharing of the latest data on emergency response for crude incidents.

We look forward to continuing our work with state and federal leaders to enhance safety in bringing this product to market and ensuring our state can continue to improve our energy security by providing a reliable energy resource for our nation.