



## **Opportunities in Tank Barges Related to Crude Oil Production and Movement**

*A Special Industry Study*

**December 2011**

**Informa Economics, Inc., is pleased to announce the release of an important new industry study on how changes in petroleum production in Canada, the Bakken Region and natural gas in major shale gas regions, such as the Marcellus region will impact the U.S. inland navigation system. Driving such an interest is the wide arbitrage spread between the Cushing, Oklahoma crude and the Brent futures crude prices associated with surplus supplies of petroleum crude in Cushing. This spread and other discontinuities in the market are creating opportunities for river movements of crude oil.**

### **Introduction**

Over the last 20 years, new technology has emerged tapping natural gas and crude oil that was previously inaccessible because it was trapped in shale, which has low permeability or is "tight." The primary new technologies include hydraulic fracturing and horizontal drilling. The use of such technologies was expensive to employ and uneconomical until the price of crude oil turned higher. At the end of 2001, crude oil was priced under \$20 per barrel, and then ran up to more than \$140 per barrel. Currently the price is \$85 to \$95 per barrel, which could be the new midpoint price as shown in Figure 1. From peak of the market in September 2008 until October 2011, U.S. crude oil production has increased from 3.9 million barrels per day to 5.8 million or an increase of 49%, which is now creating transportation opportunities. These higher price levels have also triggered an expansion in shale extraction production as shown in Figure 2.

The impact of the increased energy production is only beginning to be truly felt by the transportation market. Cushing, Oklahoma has been in the news with its surplus supply of crude oil, but it is the tip of the iceberg. Barge locking information queried from the Army Corps Lock Performance data indicated a dramatic increase in crude petroleum barge loadings. All indications point to the increases in crude oil production from the natural gas and oil site extraction continuing in areas tributary to the river system, and an important question has emerged such as "what adjustments will be required by the inland barge industry in the short and long term to handle this extra volume?"

Figure 1: NYMEX Nearby Monthly Crude Oil Price



Figure 2: Shale Gas Locations



Source: U.S. Energy Information Administration based on data from various published studies. Canada and Mexico plays from ARI. Updated: May 9, 2011.

## **Questions of Critical Concern**

*How large will Canadian and U.S. crude oil production be through 2016? More importantly, where will the production be located or will potential new opportunities emerge?*

*How will the new production areas impact the transportation system, especially the Mississippi River inland navigation system?*

*What will be the barge equipment requirements to meet the new demand?*

*In the long term, how quickly could pipelines be installed? How does a potential new pipeline impact the investment in new equipment?*

## **Preliminary Study Outline**

### ***I. Natural Gas and Petroleum Outlooks***

This section will provide a five-year outlook on U.S. supply and demand of natural gas and petroleum production, and price outlook. The balance sheets will provide the baseline and assumptions for the energy markets.

### ***II. Background of US and Canadian Natural Gas and Petroleum Production***

This section describes the need for this study: the historic context of energy production within the U.S. and Canada. This will include the production capabilities and potential capabilities, identification of the production fields, and the likely mode of transportation required through 2016. The announced locations of new production include:

1. Eagle Ford shale (Eagle Ford), south Texas
2. Haynesville shale (Bossier shale), Louisiana and Texas
3. Bakken shale, Montana and North Dakota
4. Colony Granite Wash shale, West Oklahoma and Texas Panhandle
5. Marcellus shale, Pennsylvania
6. Monterey shale, California
7. Barnett shale, Fort Worth basin, Texas
8. Woodford shale, Oklahoma
9. Utica shale, New York
10. Fayetteville shale, Arkansas
11. Horn River shale, Canada
12. Green River shale, Colorado and Wyoming

### ***III. Background of Inland Navigation System***

This section of the report will incorporate the results of the analysis describe above and how it will impact the transportation system. This will include an extensive review of the current transportation system. To execute this task, Informa will rely on its ongoing transportation service databases and the annual *Barge Fleet Profile* report (now in its twenty-fourth year of publication) while assessing information from other resources (i.e., *Waterborne Transportation Lines of the United States, Volume 3 – Vessel Characteristics*). Informa will interview transportation operators and equipment builders to further develop the picture of the transportation equipment profile and ascertain the perspective of the industry on the life expectancy (e.g., has the average life expectancy increased, why and by how much), values, etc., of liquid equipment.

#### **1. Barge**

This part of the study will evaluate the situation and outlook of the liquid barge fleets. The analysis will focus on four types of liquid barges including small (10,000 barrel and less), jumbo (10,000 to 20,000 barrel), unit tow (greater than 20,000 barrel) and specialty tow. The outlook will be for a five-year period. Special attention will be given to the equipment used to transport crude oil. The market share among the operators and barges in operation by year of construction will be assessed for the past five years, highlighting changes in the fleets for the key operators and by age category. This analysis will be important in order to frame the dialog and assess the macro picture for the liquid barge analysis.

#### **2. Other Transportation Modes**

This section of the study will evaluate how the other transportation modes will impact the liquid barge market. A basic review will be prepared as to the current location on pipelines and proposed pipelines. Assumptions will be made as to the likelihood of the pipelines becoming operational.

### ***IV. Commodity Profile***

Informa will evaluate the demand for barge service by reviewing the trends in the liquid commodity movements. The outlook for movements will be provided with discussion on the drivers for the key commodities and products, especially liquid barges carrying crude products. A five-year outlook of liquid barge movements will be developed based on the drivers influencing the respective commodity markets, the lead time to order, build and deliver equipment, and the current trends and activity in the markets. The results of the section of the study will be used to develop the liquid barge fleet pressure index.

The major commodities that will be explored are crude petroleum, clean petroleum products (products will be broken out if necessary), dirty petroleum products (broken out if necessary), chemical, and other.

## ***V. Fleet Pressure Indices***

The results of the previous work will be summarized into a liquid barge fleet Pressure Index. A summary table of barge supply and demand by commodities hauled by tank barge, and the number of barges in operation will be provided. The Pressure Index is a barometer that measures the relative supply and demand pressure on the tank fleet. The Pressure Index provides a measure by which the economic value of tank barges can be ascertained.

## ***VI. Terminal Market Situation***

Informa will assess the terminal market and infrastructure in geographic proximity of the locations listed in Section I. To prepare this, Informa will use its terminal database and Port Series information from the Army Corps of Engineers to provide general descriptive data points and information on competitors. Informa will assess the volume of the respective commodities captive to those areas (e.g., the volume that originates, terminates or passes through the geographic reaches).

## ***VII. Summary and Conclusion***

Completing the report, Informa will summarize the current supply, demand and rate outlook for the liquid barge market with conclusions on what will be the key market drivers to monitor. With this information, participants can develop a strategy with respect to the investment in and use of liquid tank barges.

## **Study Staff and Review Team**

Mr. Ken Eriksen, Senior Vice President of transportation, industrials and energy services will serve as Project Director and lead the barge analysis. Mr. Alan Barrett, Senior Consultant, will direct the barge rate and industry impact analysis, while Mr. Michael Bruchhaus, Consultant, will lead the liquid commodity movement analysis. Mr. Kip Butts, Senior Energy Analyst, Ms. Karen McCary, Energy Analyst, and Dr. Sijesh Aravind, Energy Analyst, will lead the energy analysis. Mr. Tom Scott, President and COO and Dr. Bruce Scherr, Chairman of the Board and CEO will serve as project reviewer.

**Bruce A. Scherr, Chairman of the Board and Chief Executive Officer.** Dr. Scherr has been with Informa Economics, Inc. (formerly Sparks Companies, Inc.) since 1987 in several executive capacities including President and CEO. In addition, he is an Advisor for Metalmark Capital LLC, a private equity fund. Formerly he was president of Sparks, Jacobs, Scherr, Inc. (SJS), a sister company to Sparks, and president of Agri-Commodities, Inc., an agriculture consulting firm based in Andover, Massachusetts, which was acquired by SJS. Prior to forming Agri-Commodities, Dr. Scherr was a divisional vice president at Data Resources, Inc., where he developed and utilized for the public and private sectors the first commercially available econometric model for US agriculture. Dr. Scherr received his bachelor's degree from Rutgers University and his master's and doctorate degrees from Purdue University, all in agricultural

economics. Currently, he is a member of the Board of Trustees of the North American Electric Reliability Corporation, E. Ritter & Company, and he serves as a member of the Global Strategy Institute Advisory Council of the Center for Strategic and International Studies. He served as a member of the Board of Directors for Desert STAR Inc., an electrical transmission Independent System Operator for the Desert Southwest from January 2000 through February 2002. In addition, Dr. Scherr has served as a member of The University of Tennessee's (UT) Institute of Agriculture Agricultural Development Board and UT's Committee for the Future. He was named a 2007 Distinguished Agriculture Alumni from Purdue University and he is a member of several honorary research and agricultural societies, a member of the National FFA Foundation Sponsors' Board 2000 through 2001 and a former advisor to the President's Council of Economic Advisers and National Aeronautics and Space Administration.

**Thomas P. Scott, President and Chief Operating Officer:** Mr. Scott has been with Informa since 1989 with the majority of that time being the head of the Informa Economics Project Consulting Group. Mr. Scott's specialized work has included business strategy, agribusiness economic development, feasibility and site selection work, as well as various market analyses. In addition to his work in North America, Mr. Scott has extensive experience in the agribusiness sectors of Central Europe, Southeast Asia and South America. He has been involved in many training programs developed and delivered by Informa Economics. Prior to joining the company, he had various assignments in management, trading, logistics and merchandising with Continental Grain Company. He received his bachelor's degree in agricultural economics and business from Cornell University and a master's degree in business administration from the Amos Tuck School of Business Administration at Dartmouth College where he was an Amos Tuck Scholar.

**Ken A. Eriksen, Senior Vice President.** Since 2011, Mr. Eriksen has been the leader of Informa Economics' Transportation, Industrials and Energy Services Group. In this capacity, he directs the group's efforts in client service, research, risk management, consulting and events. Since joining Informa in 2001, Mr. Eriksen has led Informa's transportation services and co-led Informa's project consulting practice. Mr. Eriksen regularly speaks on transportation and infrastructure issues and developments, and is an expert witness in the area of transportation, logistics and supply-chain matters. Prior to joining the company, Mr. Eriksen worked for the USDA's National Agricultural Statistics Service as an agricultural statistician. In that capacity, he conducted national surveys and set national estimates in agriculture. Also while at USDA, he worked for the Agricultural Marketing Service on its transportation and marketing program, conducting research and analysis on domestic and international transportation issues. He also worked as an international longshoreman for the Pacific Maritime Association in Tacoma, Washington. He received his bachelor's and master's degrees in agribusiness and agricultural economics from Washington State University. While working on his master's degree there, Mr. Eriksen was a transportation economist for the Department of Agricultural Economics, performing economic transportation data analysis and modeling.

**Sijesh C. Aravindhakshan, Energy Analyst.** Dr. Aravind's responsibilities include fundamental analysis of the energy markets, price forecasting, and supporting consulting projects in the areas of petroleum and renewable energy. Before joining Informa Economics, he worked

as a research assistant professor at North Dakota State University (NDSU) at the Center for Agricultural Policy and Trade Studies. At NDSU, he conducted research in the area of renewable energy production and taught macroeconomics for undergraduate students. Dr. Aravind was a research assistant at Oklahoma State University and has extensive research experience in renewable energy production and quantitative finance. He has been published in international peer reviewed journals and made presentations at academic conferences in the area of renewable energy. He also worked as an agricultural officer for the government of Kerala, India. Dr. Aravind received his master's degree in agribusiness and applied economics from North Dakota State University and a doctorate in agricultural economics, with a minor in quantitative finance, from Oklahoma State University.

**J. Alan Barrett, Senior Consultant.** Working within Informa's Transportation, Industrials and Energy Services Group, Mr. Barrett's primary responsibilities have been futures and cash market commodity projects, including feasibility studies of soybean crushing plants, grain elevators, flour mills and other processing facilities. Mr. Barrett also has directed the company's review of crop insurance policies administered by USDA's Risk Management Agency. Commodity analysis work has included studies of various fruit and vegetable markets and technologies that impact these markets. He also has considerable experience in conducting industry analysis efforts including studies in the areas of fertilizers and micronutrients. Mr. Barrett came to the company from Refco, Inc., one of the world's largest futures commission merchants headquartered in Chicago with a branch office in Memphis, Tennessee, where he advised clients on futures markets. Prior to his work at Refco-Memphis, Mr. Barrett was sole owner and president of Prophet, Inc., a registered commodity trade advisor. He also was a principal in two corporations that assisted in cotton merchandising. In addition, Mr. Barrett worked for the Tennessee Extension Service where he developed new enterprise budgets for different cropping practices. Mr. Barrett received both his bachelor's and master's degrees in agricultural economics from the University of Tennessee.

**Michael N. Bruchhaus, Consultant.** Mr. Bruchhaus is a consultant within Informa's Transportation, Industrials and Energy Services Group. Prior to joining Informa, Mr. Bruchhaus was an economist with Gulf Engineers and Consultants in Baton Rouge, Louisiana, where his duties included calculating national and local economic development impacts for federal and state navigational projects. Mr. Bruchhaus also has worked independently on various consulting projects which involved logistics, market analyses, and assisting a start-up business through its initial stages of launch. He received his bachelor's degree in accounting from McNeese State University in Lake Charles, Louisiana, and received his master's in agricultural economics from Louisiana State University. His research in graduate school focused on analyzing consumer preferences and effective promotion and merchandising for the fresh produce industry, particularly strawberries. In addition, he identified marketing strategies for local grocery stores and promoted the local strawberry growing industry.

**H. W. "Kip" Butts, Senior Analyst, Cotton and Energy.** Mr. Butts is responsible for the Informa Economics fundamental research of cotton cash and futures markets with emphasis on hedging and trading strategies. Mr. Butts also is a member of the Informa Economics' Transportation, Industrials and Energy Services Group, conducting analyses and developing

customized trading strategies for the energy products. Concurrent with his cotton analyses, Mr. Butts helped establish and was the inaugural manager of Informa Economics' Producer Services, a farm-level consulting business devoted to assisting farmers in marketing their crops through the development of customized farm price risk management programs. Prior to joining the company, Mr. Butts was a corporate economist for Cargill subsidiary Hohenberg Bros. Co., now Cargill Cotton, in Memphis, Tennessee, where he provided economic analyses, interpreted and analyzed farm program legislation, conducted fundamental analyses of domestic and world cotton markets, and was a critical member of the company's risk management team. Mr. Butts received his bachelor's degree in economics and international relations from The University of Memphis.

**Karen M. McCary, Director of Communications, Energy Analyst.** Ms. McCary's primary responsibilities include coordination and publication of the Informa Economics reports. This includes being the primary writer and research analyst for the company's Energy Comments publication and contributing to and overseeing the Informa Economics daily Morning Comments publication. As a key member of the company's Transportation, Industrials and Energy Services Group, Ms. McCary has integral knowledge about all of the energy (natural gas, petroleum and renewable) futures and cash markets. In addition to editing the company's other publications, Ms. McCary also is responsible for coordinating and coverage of grain and livestock government policy information, as well as working with the press in disseminating the Informa Economics press releases and other company promotional information. Prior to joining the company, she was an associate editor of marketing for Farm Journal and marketing editor for Top Producer (a Farm Journal, Inc., sister publication). Ms. McCary also was the editor of several agricultural trade publications for Watt Publishing Co. and headed the communications for a large agricultural co-op in Indiana. She received her bachelor's degree in agricultural economics and agricultural communications from The Ohio State University.

## **Study Fees and Timeline**

The fees for participating in the study are \$12,500 for Informa clients and \$15,500 for non-clients.

Informa staff will be available for an office visit to present the findings during a strategy session with staff. Expenses for Informa staff to travel to companies' offices for a report presentation are not included in the project fee and will be invoiced separately.

### **About Informa Economics**

Informa Economics, Inc. (Informa) is the world leader in broad-based domestic and international agricultural and commodity/product market research, analysis, evaluation and consulting. Informa serves hundreds of firms, institutions and trade organizations worldwide from our headquarters in Memphis, Tennessee. Informa also maintains offices in McLean VA, St Paul MN, Winnipeg MB (Canada), São Paulo (Informa Economics-FNP), London and Brussels (Agra CEAS) and Washington DC (WPA).

Informa's broad categories of services include:

- Management Consulting for Agribusiness;
- Commodity Market Analysis and Evaluation (Agriculture and Energy);
- Risk Management Strategies;
- Education and Training;
- Newsletters and Other Publications; and
- Transportation, Industrials and Energy Market Analysis.

The company's professional depth and experience allow us to provide a wide range of services related to the economic and management concerns of clients, as well as to focus on broader issues concerning markets, facilities, resources and many others. In addition, Informa Economics is a world leader in the collection, analysis, and dissemination of agriculture and food information.

The Informa team has also has extensive experience in agricultural policy analysis, especially since many employees formerly held senior policy, analysis or advisory positions in government; worked for major trade associations; held positions in land grant universities; or held senior management positions in leading agribusiness companies; most hold advanced degrees in agricultural economics or related fields. (For more information on Informa Economics, its staff and the services it provides see [www.informaecon.com](http://www.informaecon.com)).



## ENROLLMENT FORM

- Yes, I want to purchase the special industry study, entitled *“Evaluation of the Impacts of Increasing Energy Production on the Inland Navigation System”*. The cost of the study for current Informa Economics’ clients is \$12,500 and \$15,500 for non-clients. An invoice for the full amount will be sent up upon return of a signed enrollment form. The study will be delivered electronically in Acrobat format. Travel expenses for Informa staff to present the report will be invoiced separately.

**Return Form to Informa Economics, Inc.**

***Via Fax to (901) 766-8158***

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