The Future Price of Oil: A Perspective

Presented by
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STS-AIChe First Friday Networking Forum
Houston, June 1, 2018

www.XTLinstitute.com
First Friday Networking Forum – June 2018

Purpose

• Share insights, perspectives and analyses of forecasts for future oil prices

• Discuss implications

• Q&A
Crude oil price volatility over the past 50 years

Crude oil prices 1861-2016
US dollars per barrel, world events

Source: BP Statistical Review of World Energy 2017 with update by lecturer in red by presenter
Analyzing the GTL Value Chain: Economic Perspectives on the Impact of the “New Normal” for Crude Oil Prices

Presented by
Dr. Ron Sills, Co-Founding Director, XTL & DME Institute℠

Monetizing C1 Methane Feedstocks 2015
February 25, 2015

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$65/bbl the "new normal" for oil prices

Methane feedstock projects imperiled by products linked to crude markets

By Ben DuBois
Online Editor

HOUSTON – The economics of global gas monetization projects are stressed since the market value of products are significantly affected by global oil prices, according to Ron Sills, director of the XTL & DME Institute.

The institute was founded in 2010 as an educational service about all aspects of the XTL and DME value chains, namely the conversion of gas, coal and biomass to fuels and chemicals through processes such as gas to liquids (GTL).

“GTL projects need either technological innovations to significantly lower costs, or to solve a problem such as reducing flared gas,” said Sills, who delivered the keynote address at the Monetizing C1 Methane Feedstocks 2015 conference.

"$65/bbl the "new normal" for oil prices

Sills says the belief the “new normal” for crude oil prices is roughly $65/bbl based on the breakeven cost estimates for shale oil and given current oil supply cost curves. For example, roughly 80% of US production would be at or above their breakeven point at $70/bbl oil, while only 20% of production would break even at $60/bbl.

As such, most oil companies are basing their guidance on oil prices near the $65/bbl midpoint, Sills said.

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Oil price determinants

Supply

- Oil Supply Cost Curve
- OPEC decisions, particularly Saudi Arabia
- Geopolitical disruptions, e.g. conflicts, sanctions etc
- E&P and conversion technology innovations
- Government policy and regulations
- Midstream bottlenecks

Demand

- Global, regional and country economics
- Financial Crisis
- Strength of Dollar
- Price elasticity
- Utilization technology innovations
- Alternative fuels
- Government policy and regulations

Other

- Commodity Trading
- Trigger events/breaking news

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Breakeven oil price for near-term shale production is clustered around $60-$70

(1) % of total shale production in 2016/2017 by volume; Estimated from WoodMacKenzie bar graph slide, CWC Shale Conference.
CURRENT OIL PRICE PROJECTIONS
Annual Energy Outlook 2018

North Sea Brent oil price
2017 dollars per barrel

May 10, 2018
EIA raises crude oil forecast for 2018
• The AEO is published pursuant to the Department of Energy Organization Act of 1977.

• Projections in the Annual Energy Outlook 2018 (AEO2018) are *not predictions of what will happen, but rather modeled projections of what may happen given certain assumptions and methodologies.*

• *Energy market projections are subject to much uncertainty, as many of the events that shape energy markets and future developments in technologies, demographics, and resources cannot be foreseen with certainty.*
HOW ACCURATE ARE CRUDE OIL PRICE PROJECTIONS
Each year, the International Energy Agency publishes the World Energy Outlook.

- This year, researchers from Uppsala University, Sweden, authored an article in the Journal of Applied Energy, entitled: “Oil projections in retrospect: Revisions, accuracy and current uncertainty”

- **Objective:** Quantify accuracy of oil price projections by International Energy Agency’s World Energy Outlook, 2000-2016.
• WEO 2004-2007 projected almost flat prices
• WEO 2008-2015 projected $120/bbl in long term.
• WEO 2016 projection for 2020
  • $78/bbl, with
    • 58% probability of $49-107/bbl; and
    • 89% probability of $20-139/bbl.
• No trend of accuracy improvement can be distinguished

**Fig. 10. Actual (2000–2015) and projected oil prices.**
Forecasting energy prices is a fool’s errand, but that is the task that we are asked to do.

Dr. Howard Gruenspecht, EIA Deputy Administrator, 2016

We’ve never been good at predicting these (price) cycles, neither when they occur nor their duration. We don’t spend a lot of time even trying.

Rex Tillerson, Former CEO Exxon Mobil

If I could predict oil prices, I’d be sitting on the beach in Galveston, instead of running an energy company.

Stephen Chazen, Former CEO Occidental, 2014
Given that future oil prices are unforecastable and likely to be very volatile.

Advice

• Build your professional network (e.g. via LinkedIn; AIChE)

• Continue to increase your knowledge and improve your professional skills – that is: managerial, technical and non-technical (for example, Join Toastmasters)
Acknowledgements

The lecturer gratefully acknowledges the significant information provided by others used in this presentation.

Disclaimer

The lecturer has prepared this presentation utilizing reasonable care and skill in applying methods of analysis consistent with normal industry practice.

Information contained in these materials or presented orally at this meeting, either in prepared remarks or in response to questions, contains forward-looking statements. The lecturers believes that it has a reasonable basis for making such forward-looking statements. Such statements should not be a substitute for the exercise of one’s own due diligence and judgment. No implied warranty of merchantability or fitness for a particular purpose shall apply.
About the XTL & DME Institute℠

Educational and consulting service, formed in 2010, provided by Founding Directors, Dr. Ronald Sills, Dr. Theo Fleisch and Director, Dr. Iraj Isaac Rahmim, on all aspects of the XTL supply chain, including GTL, BTL and DME as a fuel and chemical feedstock.

www.XTLinstitute.com

XTL Tutorial at Future Fuels for Australian Conference in Brisbane, July, 2011
GTL Fundamentals Tutorial in Houston, May 2013
DME Fundamentals Tutorial at DME 6 in San Diego, October, 2014

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OVERVIEW

DragonFly UAS is a **US Government approved**, international aerial services company specializing in the safe application of unmanned technology.

**Mission Statement**

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Improve data quality, accuracy and the timeframe in which it is collected while eliminating risk of human life from aerial and above ground level services

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At DragonFly our **core strength** is our ability to provide safe, efficient data collection and aerial inspection services free from the risks associated with manned aircraft and bulky equipment.

Experienced tactical operations teams are available across U.S., Canada, Central and South America, and the EU.

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