Methanol Policy Forum
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The Shale Gas Advantage: Born in the USA
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South Louisiana Methanol Project Description

Project Description

- SLM is in advanced stages of developing a 5,150 MTPD Methanol project in St. James Parish, Louisiana
  - Approx. 1.8 mmtpy of methanol
  - 165,000 MMBtu/day of natural gas consumed
  - 1,750 tons of CO2 consumed
  - Targeting financial close in Q1/Q2 2014
  - Plant startup expected in Q4 2016
  - Designed MTG-ready

- Preliminary cost estimate of $1.3 billion; $946 million in EPC based on LSTK price received from SK E&C with the balance in owner’s costs
  - Plant design is based on a template facility using proven CO2-assisted SMR technology that has been operating in Trinidad since 2005
  - The template facility allows for schedule reduction, minimizes operational risk, and reduces capex spend

- Strategically located
  - Located in the heart of U.S. natural gas infrastructure: 2 inter state lines and 1 intra state line within 5 miles of site

- Transport/logistics
  - Dock lease being negotiated; also reviewing self-build

- Pursuing investment grade off-take structure
  - In advanced negotiations for fixed margin off-take tied to natural gas supply with creditworthy counterparties

M5000 Template Facility

- Technology Selection: Davy / ICI / Johnson Matthey Low Pressure Methanol Process
  - Proven Platform for Natural Gas-to-Methanol (M5000 plant)
  - Largest scale proven single-train plant
  - SMR provides comparable capex and reduces process and commercial complexity compared to other designs
  - CO2 addition increases output and yield by approx. 20% and 5%
  - Utilities requirements and emissions well known
Data through 2011. BOE reserves at the end of 2012 likely surpassed previous all time high, set 42 years earlier. Note that reserves during ‘Industrial Revolution’ are rising faster than during ‘Classical Period’.
Shale is a Mass Production Operation

What does it take to make the Shale Play work?

- Shale (easy)
- Roads
- Pipes
- People
- Water
- Sand
- Trucks
- Private property rights
- And a little technology

- How many service companies can you name?
- How many service companies are there in the United States?

Pipeline “Pop Quiz”

- 305,000 miles of natural gas transmission pipelines in the U.S.
- 150,000 miles of transmission pipelines in China by 2015 (claimed)
- How many total miles of pipelines are there in the United States?

Answers: 10,000 U.S. oil & gas service and supply companies; 2.2 million total miles of natural gas pipelines in the United States

Sources: American Petroleum Institute, U.S. Dept. of Energy, China Natural Gas Map
Methanol represents a Renaissance in SCOPE and SCALE

<table>
<thead>
<tr>
<th>Products</th>
<th>Plants Worldwide</th>
<th>Typical Investment</th>
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<tbody>
<tr>
<td>Refinery</td>
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<tr>
<td>LPG</td>
<td>100</td>
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<td>Olefins</td>
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<td>Gasoline</td>
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<td>Diesel</td>
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<td>Heating oil</td>
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<td>Asphalt</td>
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<tr>
<td>FT</td>
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<tr>
<td>Diesel</td>
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<td>Synthetic Crude</td>
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<tr>
<td>LNG</td>
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<td>Natural Gas</td>
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<tr>
<td>Methanol</td>
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<td>Gasoline</td>
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<td>Formaldehyde</td>
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<tr>
<td>Methanol has advantages in selectivity and scalability:</td>
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<tr>
<td>Growth in worldwide methanol demand 2008-2012: 45%</td>
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<tr>
<td>Growth in worldwide liquid fuel demand 2008-2012: 3.1%</td>
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