Geismar Project

Status and Site Overview

January 22, 2009
Louisiana 25 X 25 State Alliance
New Orleans
Dynamic Fuels, LLC formed June 2007

50:50 Venture to Produce Renewable Synthetic Fuels

Dynamic Fuels LLC
Plan to build multiple plants

Syntr oleum
Leading Ultra Clean Synthetic Fuels Technology Provider

Technology Operations Capital

Dynamic Fuels LLC

Feedstock Logistics Capital

Tyson
World’s Largest Processor & Marketer of Chicken, Beef, & Pork
First Renewable Synthetic Fuel Plant in the US
Located in Geismar, Louisiana

- $138 million capital cost
- 75 million gallons per year
- Diesel primary product
- Brownfield construction
- Start construction 2008
- Mechanical completion in late 2009
- Commercial operations 2010
Geismar Area Industries
Syntroleum
A Synthetic Fuels Technology Company

Three Core Technologies

- Fischer-Tropsch (gasification)
  - BTL: biomass to liquids
  - CTL: coal to liquids
  - GTL: gas to liquids

- Hydro-Processing
  - Synfining®
  - Bio-Synfining™

- Commercializing via Dynamic Fuels LLC
Bio-Synfining™ Process Chemically Transforms the Structure of the Carbon Chain from the Fat Molecules

Bio-Synfining™ converts triglycerides to normal paraffin isomers

Triglycerides (fats & oils)

\[
\begin{align*}
\text{Propane} & : & \text{H}_2\text{C} - \text{H} & + & 2\text{H}_2\text{O} & + & \text{C}_{18}\text{H}_{38} \\
\text{Hydrogenation} & : & \text{H}_2\text{C} - \text{H} & + & 2\text{H}_2\text{O} & + & \text{C}_{18}\text{H}_{38} \\
\text{Thermal Depolymerization} & : & \text{H}_2\text{C} - \text{H} & + & 2\text{H}_2\text{O} & + & \text{C}_{18}\text{H}_{38} \\
\end{align*}
\]

Isoparaffins

\[
\begin{align*}
\text{Isomerization} & : & \text{CH}_3
\end{align*}
\]

This is Ultra Clean Synthetic Diesel
Bio-Synfining™ Process

- Feed Pretreatment primarily removes water and salts in the feedstock.
- Triglyceride conversion is a relatively high-pressure hydrotreater.
- Paraffin conversion is a moderate pressure hydrotreater.
- Product Separation is distillation of the products.
- Products are:
  - LPG
  - Naphtha
  - Diesel
Extensive Testing - Syntroleum Synthetic GTL Fuels

- US Department of Energy – synthetic diesel fuel Fleet tests
  - Wash DC metrobuses
  - Denali, Alaska Park Vehicles

- US Military – synthetic jet fuel Flight tests
  - B52 Synfuel Certification

Renewable Synthetic Fuels are Chemically identical as those made from natural gas via GTL Process
## Geismar Project Schedule – from July 2007

<table>
<thead>
<tr>
<th>Dynamic Fuels Plant Timeline</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
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<tbody>
<tr>
<td></td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
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<tr>
<td>Dynamic Fuels LLC Contract Finalized</td>
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<tr>
<td>DF LLC Initial Budget Funded</td>
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<tr>
<td>Final Feed Selected</td>
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<tr>
<td>Site Selection</td>
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<tr>
<td>Basic Engineering</td>
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<td>Permitting</td>
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<td>Site Survey</td>
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<td>Used Equipment Evaluation</td>
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<tr>
<td>Procure Long-lead Equipment</td>
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<tr>
<td>Submit +/- 20% Cost Estimate</td>
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<td>Sanction Project</td>
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<td>Select PMC</td>
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<tr>
<td>Detailed Engineering</td>
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<tr>
<td>Fabrication, Construction &amp; Erection</td>
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<tr>
<td>Mechanical Completion</td>
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<tr>
<td>Commissioning &amp; Start-up</td>
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<tr>
<td>Normal Operations</td>
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</tbody>
</table>

- **Milestone**
- **Task Bar**
- **Critical Path Task**
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 15, 2007</td>
<td>Geismar site selected</td>
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<tr>
<td>February 28, 2008</td>
<td>Awarded Front End Engineering Design to CDI Engineering</td>
</tr>
<tr>
<td>March 19, 2008</td>
<td>Applied to Louisiana State Bond Commission for GO Zone Bonds</td>
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<tr>
<td>June 16, 2008</td>
<td>Applied for Air Permit</td>
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<tr>
<td>June 19, 2008</td>
<td>Bond Commission approved $100 million of GO Zone Bonds</td>
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<tr>
<td>July 11, 2008</td>
<td>Final investment decision approved by Tyson and Syntroleum</td>
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<tr>
<td>August 21, 2008</td>
<td>Awarded construction contract to L-Con Constructors of Houston</td>
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<tr>
<td>September 9, 2008</td>
<td>Received Air Permit</td>
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<tr>
<td>October 6, 2008</td>
<td>Groundbreaking ceremony with Louisiana Governor Bobby Jindal</td>
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<tr>
<td>October 21, 2008</td>
<td>Issued $100 million in GO Zone Bonds</td>
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<tr>
<td>November 3, 2008</td>
<td>Began installing construction offices on site</td>
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<tr>
<td>December 15, 2008</td>
<td>Poured first concrete foundations</td>
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Geismar is On Schedule and On Budget
Geismar Construction

Site Cleared and New Construction Has Begun

Before Start of Construction

After Start of Construction
Geismar Construction

Finished-Product Tank Farm Foundation

Equipment Fabrication in Process
Why is the Dynamic Fuels Plant Being Built in Geismar

- Existing Infrastructure that was readily adapted to our needs
  - Hydrogen
  - Steam
  - Power
  - Water
  - Rail
  - Road Access
  - River Access
  - Pipelines

- Louisiana Economic Development – Tax Equalization
- Ascension Parish Economic Development – Infrastructure Upgrade
- Great Industrial Community
- Highly Trained Workforce
- Low Cost Financing – GO Zone Bonds

In the end, this location had the best economics
What is needed to expand Renewable Fuels Production

- Target feedstocks that are available in greater quantities:
  - Advance from First Generation Bio-Fuels (biodiesel, fermentation ethanol) to
  - Second Generation Bio-Fuels – Renewable Synthetic Diesel, to
  - Third Generation Bio-Fuels – Cellulosic feedstocks via Gasification

- Facilities are much more expensive, financing is much more difficult
  - Need access to Loan Guarantees or Low Cost Financing
  - Challenge due to new technology risks

- Government should provide the framework and support that encourages development
  - Programs should be technology neutral, and let the technologies compete on their merit
  - Encourage production of fuels that are compatible with existing infrastructure
  - Encourage production of fuels that have positive environmental impact
Thanks for your Attention and Interest

Jeff Bigger
Syntroleum Corporation
5416 South Yale, Suite 400
Tulsa, Oklahoma 74135

(918) 764-3490
jbigger@syntroleum.com

www.dynamicfuelsllc.com