Advanced Biofuels Leadership Conference
Rentech’s Road to Scale
About Us

Rentech

• Portfolio of clean-energy technologies for renewable power and drop-in fuels production

• 61% owner of Rentech Nitrogen Partners

Rentech Nitrogen Partners

• Natural gas-fed nitrogen fertilizer plant

• Customers in mid-corn belt

• Approx. 830 tons per day of ammonia production capacity

• Expansion underway to increase ammonia production capacity to approx. 1,022 tons per day

1As of 3/30/2012
Rentech, Inc. (NYSE AMEX: RTK)

• Develop and commercialize clean energy solutions from carbon-based feedstocks
  • Biomass gasification
  • Syngas-to-fuel conversion technologies

• 61% owner and non-economic general partner of Rentech Nitrogen Partners (NYSE: RNF), a publicly traded fertilizer company
# Rentech’s Clean Energy Technologies

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Finely ground virgin biomass: sugarcane bagasse &amp; wood</td>
<td>Wood, agricultural residues, straw, switch grass, RDF &amp; energy crops</td>
<td>Syngas from any carbon-bearing materials</td>
</tr>
<tr>
<td>Products:</td>
<td>Hydrogen, Syngas (H₂ + CO) optimized for fuels</td>
<td>Syngas to Power; fuels &amp; power</td>
<td>Hydrocarbons for synthetic fuels, specialty chemicals and base oils</td>
</tr>
<tr>
<td>Readiness:</td>
<td>Currently under demo (20tpd) at PDU w/ aid of $23M DOE grant</td>
<td>Deployable today</td>
<td>Deployable today</td>
</tr>
</tbody>
</table>
Rentech-ClearFuels Technology

Rentech-ClearFuels Gasifier

- Pilot: 10,000 hrs.+
- Demo: Currently underway at our existing demo facility

Rentech Process

- High carbon conversion to syngas
- No O₂ required
- Clean syngas with low tar content

UOP Upgrading

Powerblock
Rentech-SilvaGas Technology

- Pilot: 20,000 hrs.
- Demo: over 1,000 hrs.
- Commercial: Ready

- More efficient than incineration/steam
- Very low carbon footprint & emissions
- Indirect gasification minimizes syngas dilution
- No oxygen plant required
The Rentech Fischer Tropsch (FT) Process

- No moving parts
- Scale-up is straightforward. Increase diameter at the same height
- Catalyst – Wax Separation using magnetically enhanced dynamic settler
- Demonstrated over the last 3 years at 10 BPD capacity
  - Low catalyst losses
  - Stable catalyst activity
  - Over 2400 hours continuous operation
- Commercial scale: ready
Rentech’s Technology Scale-Up

**Rentech-ClearFuels Gasifier**
- Pilot Plant: 1X
- Demo Facility: 4X
- Commercial Project: 10-25xDemo

**Rentech-SilvaGas Gasifier**
- Pilot Plant: 1X
- Demo Facility: 20-40X
- Commercial Project: 2.5-5xDemo

**Rentech’s Fischer Tropsch**
- Pilot Plant: 1X
- Demo Facility: 10-20X
- Commercial Project: 100-150xDemo
Development Steps for New Technologies

<table>
<thead>
<tr>
<th>Phase</th>
<th>Feedstock</th>
<th>Expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bench / Lab</td>
<td>Pounds/day</td>
<td>$xxx thousands</td>
</tr>
<tr>
<td>Pilot</td>
<td>1-5 tpd</td>
<td>$x millions</td>
</tr>
<tr>
<td>Demonstration “the valley of death”</td>
<td>20-100 tpd</td>
<td>$xx millions</td>
</tr>
<tr>
<td>Commercial</td>
<td>&gt;250 tpd</td>
<td>$xxx millions</td>
</tr>
</tbody>
</table>

Critical factors to raise the capital required for commercialization:

- Systematic operating data
- Integrated demonstration of all technology components
- Extended periods of operation
Integrated Technology Demonstration

- **Natural gas-to-liquids (GTL)**
  Steam Methane Reformer (SMR) + Rentech FT + Upgrading

- **Biomass-to-liquids (BTL)**
  Rentech-ClearFuels biomass gasifier + Rentech FT + Upgrading

- Collecting operating data on various feedstocks

- Enables us to overcome start-up issues prior to commercialization

- Labs and demo plant provide an efficient platform for NextGen technology development for Rentech and others
Product Characteristics

Certified Fuels from Rentech’s FT Technology

Diesel: Audi 1000 Mile Drive
Certified Jet: United Airlines Flight
Lower tailpipe emissions

Low carbon footprint & cellulosic RINs

Other Cellulosic Fuels
- Cellulosic ethanol using syngas from our biomass gasification technologies
- Fuels can qualify for cellulosic RINs

Renewable Hydrogen
- Produced from biomass by Rentech-ClearFuels gasifier

Renewable Power
- **Renewable baseload** power; no backup required
- **Close** to interconnection and transmission

Synthetic Waxes and Base Oils
Rentech’s recent experience with commercialization

• In 2009, Section 1705 Loan Guarantee Program seemed to offer a once-in-a-lifetime opportunity for financing first-of-a-kind technologies

• We developed and acquired two projects for the SilvaGas gasifier, and applied for loan guarantees:
  • Rialto: biomass-to-diesel and power; $500M+
  • Port St. Joe: biomass-to-power; $225M

• In order to hit deadlines, we funded development and engineering ourselves, and spent significant capital to stay on schedule to remain eligible for financing

• DOE funding proved to be unreliable and expensive

• We completed the IPO of Rentech Nitrogen Partners, providing Rentech with $200M of liquidity

• We paused and changed our deployment strategy
Renewable Energy Landscape

Challenges

• Regulatory uncertainty and lack of carbon regulation
• Low natural gas prices in North America
• Security of feedstock
• Long-term offtake contracts
• Financing for first commercial projects
• Equity investors’ skepticism following the IPO’s of 2011

Rentech’s Opportunities

• Strong balance sheet allows patience and measured investment at smaller scale and within our control
• RFS 2 provides incentives for renewable fuel production in the U.S.
• Opportunities outside North America
  • Higher prices for natural gas
  • Demise of nuclear power in Japan and Germany
  • Regulatory mandates in Europe
• Large multinational potential partners are looking outside North America
Rentech’s Path Forward

- Complete operation of the integrated bio-refinery in 2012 and reduce Rentech’s R&D spending in 2013

- Open our technology center to partners and other technologies who need to reach demonstration scale

- Do not rely on DOE funding for commercial projects

- Deploy our technologies in projects integrated with other technologies and partners
  - Minimal spending on development and engineering by Rentech
  - Higher spending (e.g., for FEED) only when partners and complete financing package has been arranged

- Consider investments in under-valued assets in related energy businesses with near-term cash flow, that can meet return thresholds.

- Create value with existing assets
Building on Existing Assets

• **Olympiad Project**
  • 1.3 million tons per year of timber conditionally awarded by Province of Ontario
  • Potential funding of up to C$200M from Canada’s federal funding program (SDTC)
  • Studying ways to generate cash flows from the wood in the near term

• **Natchez Site**
  • 450 acre site adjacent to Mississippi River
  • Access to biomass supply, barge, pipeline and rail
  • Carbon Capture Sequestration solution available
  • Evaluating proposals to use site in ways that are not limited to our technologies
Advanced Biofuels Leadership Conference
Rentech’s Road to Scale