“IT’S THE FEEDSTOCK – TECHNOLOGY – LOGISTICS ….DUMMY”
BIODIESEL OVERVIEW

- Renewable Environmentally Friendly Energy Source
- Used Mainly to Replace/Supplement Diesel Fuel
- Two Main Feedstock Categories – yellow grease/fat & vegetable oil
- Currently Displaces Only 0.3% of U.S. Diesel Consumption
- U.S. Government Tax Credits are Important to the Overall Economics
MARKET DRIVERS

- Carbon Emissions issues
- Federal & State Mandates
  - ULSD Requirements
  - Energy Act 2005
- Federal Environmental Support Through Tax Credits & Research
- Homeland/Energy Security
National Statistics

- Total Vegetable Oil and Fats in the U.S. = 35 Billion lbs/yr

- @ 7.5 Pounds per Gallon of Oil = 4.67 Billion Gal Biodiesel/ Yr - the Total Potential U.S. Production Today

- This is Still Only 12.6% of the Total Diesel Usage in the U.S. for Transportation, which is 37 Billions of Gallons per Yr.

- There was 250 Million Gallons of Biodiesel Produced in 2006 which was only 0.68 % of the Diesel used in the U.S. for Transportation
THE BIODIESEL TECHNOLOGIES
TYPES OF TECHNOLOGY

- Batch Systems (Gravity Separation) Up to 10 Million Gal/Yr Processes
- Continuous Systems (Pressurized Separation) Greater Than 10 Million Gal/Yr
- Thermal Depolymerization (Tyson Foods & Conoco)
- Neste Process

The DeSmet Ballestra Continuous Transesterification Technology has Been Chosen by FREEDOM ENERGY
THE

FEEDSTOCKS
CONSIDERATIONS OF FEEDSTOCK

- Type of Fatty Acid Chains
- Cost
- Market Supply and Demand
- Meeting European Chemistry Standards
- Immediate Availability
- Adaptability to Processing
- What Happens to Feedstock Remnants After the Oil is Removed
- Soy Oil is the Best Option Today in PA and Most of the U.S. But New Technologies Using Other Feedstocks Will Reduce Future Costs
FEEDSTOCK OPTIONS

- Soy (dominant today)
- Canola (edible rape seed)
- Palm Oil (tropical plantations)
- Jatropha (African weed)
- Rape Seed (dominant in Europe)
- Algae (still in research)
- Yellow Grease (restaurants)
- Tallow (liquefied fats)
SOY OIL PRICE TREND

Historical Commodity Futures Charts for
Soybean Oil (BO, CBOT), July 2007 (detailed line chart)

© TradingCharts.com
C: 24.00 H: 37.35 L: 23.05 C: 37.72
## Approximate Crop Yields

<table>
<thead>
<tr>
<th>Crop</th>
<th>lbs oil/acre</th>
<th>US gal/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>corn</td>
<td>129</td>
<td>18</td>
</tr>
<tr>
<td>cotton</td>
<td>244</td>
<td>35</td>
</tr>
<tr>
<td>hemp</td>
<td>272</td>
<td>39</td>
</tr>
<tr>
<td>soybean</td>
<td>335</td>
<td>48</td>
</tr>
<tr>
<td>mustard seed</td>
<td>430</td>
<td>61</td>
</tr>
<tr>
<td>camelina</td>
<td>438</td>
<td>62</td>
</tr>
<tr>
<td>sesame</td>
<td>522</td>
<td>74</td>
</tr>
<tr>
<td>safflower</td>
<td>585</td>
<td>83</td>
</tr>
<tr>
<td>peanuts</td>
<td>795</td>
<td>113</td>
</tr>
<tr>
<td>rapeseed</td>
<td>893</td>
<td>127</td>
</tr>
<tr>
<td>olives</td>
<td>910</td>
<td>129</td>
</tr>
<tr>
<td>jatropha</td>
<td>1420</td>
<td>202</td>
</tr>
<tr>
<td>oil palm</td>
<td>4465</td>
<td>635</td>
</tr>
</tbody>
</table>

### Biodiesel Yield (Gallons per Acre)

- Soybeans
- Sesame
- Peanut oil
- Rapeseed
- Jojoba
- Coconut oil
- Oil palm
One Form of Algae Production
LOGISTICS
Outputs
Every 10 MM Gallons of Biodiesel Needs...

2400

<table>
<thead>
<tr>
<th>Truck Movements</th>
<th>Rail Movements</th>
<th>Barge Movements</th>
<th>Pipeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>or</td>
<td>or</td>
<td>or</td>
<td></td>
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<tr>
<td>or</td>
<td>or</td>
<td>or</td>
<td></td>
</tr>
</tbody>
</table>

25

1
Coverage by all 4 Plants
THE BUSINESS
BUSINESS DRIVERS

- A Renewable Diesel Fuel Source that is Competitive with Petroleum Diesel
- Made with 93% American Produced Raw Materials
- Environmentally Better Emissions
- Energy Security
- Excellent Lubricating Properties for Ultra Low Sulfur Fuels
GOVERNMENT SUPPORT

- State and Federal Tax Relief
- Loans and Grants
- Pennsylvania is a Leader in Alternative Fuels
### Production Profile – Infrastructure Challenges

#### Logistical Infrastructure Challenges

- Largest demand segments east of Mississippi
- Increased logistical / distribution challenges as product shipped from Midwest to meet East Coast demand
- Demand led higher price environment

#### PADD Demand Table

<table>
<thead>
<tr>
<th>Region</th>
<th>Bio Production Capacity (000' Gallons)</th>
<th>Annual Diesel Demand (000' Gallons)</th>
<th>Blended (B5) Demand (000' Gallons)</th>
<th>Demand Strength (000' Gallons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I – East</td>
<td>47,750</td>
<td>23,908,416</td>
<td>1,195,421</td>
<td>1,147,671</td>
</tr>
<tr>
<td>II – Midwest</td>
<td>243,400</td>
<td>18,937,296</td>
<td>946,865</td>
<td>703,465</td>
</tr>
<tr>
<td>III – Gulf Coast</td>
<td>127,850</td>
<td>10,871,532</td>
<td>543,577</td>
<td>415,727</td>
</tr>
<tr>
<td>IV – Rocky Mtn</td>
<td>28,000</td>
<td>2,560,068</td>
<td>128,003</td>
<td>100,003</td>
</tr>
<tr>
<td>V – West</td>
<td>24,765</td>
<td>8,434,692</td>
<td>421,735</td>
<td>396,970</td>
</tr>
</tbody>
</table>

**1.14 Billion Gallons**
CRUDE OIL PRICE TREND

Reference: Hamilton Clark & Co.
PADD 1B Monthly Average Retail Price

Source: Energy Information Administration
**National Renewable Fuel Feedstock/Component Cost Index**

<table>
<thead>
<tr>
<th>Feedstock/Blandstock</th>
<th>Location/Source</th>
<th>Spot Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soy Oil</td>
<td>Kansas City - USA</td>
<td>$1.715/gal.</td>
</tr>
<tr>
<td>Crf</td>
<td>OPIS National Average</td>
<td>$1.736/gal.</td>
</tr>
<tr>
<td>ULSD</td>
<td>OPIS National Average</td>
<td>$1.632/gal.</td>
</tr>
<tr>
<td>Low Sulfur Diesel</td>
<td>OPIS National Average</td>
<td>$1.632/gal.</td>
</tr>
<tr>
<td>RBD</td>
<td>OPIS National Average</td>
<td>$1.632/gal.</td>
</tr>
<tr>
<td>Ethanol</td>
<td>OPIS National Average</td>
<td>$1.632/gal.</td>
</tr>
<tr>
<td>Unleaded RFS</td>
<td>OPIS National Average</td>
<td>$1.632/gal.</td>
</tr>
</tbody>
</table>

**National Renewable Fuel Averages**

<table>
<thead>
<tr>
<th>Ethanol Spot</th>
<th>Ethanol Rack</th>
<th>Ethanol Blended Rack Gasoline (5.7%)</th>
<th>Ethanol Blended Rack Gasoline (10%)</th>
<th>E85 Racks (w/tax)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.234</td>
<td>210.459</td>
<td>180.853</td>
<td>169.498</td>
<td>203.526</td>
</tr>
<tr>
<td>Biodiesel B100</td>
<td>Biodiesel B20 w/ULSD</td>
<td>Biodiesel B20 w/ULSD</td>
<td>Biodiesel B5 w/ULSD</td>
<td>Biodiesel B5 w/ULSD</td>
</tr>
<tr>
<td>3091.170</td>
<td>190.131</td>
<td>184.200</td>
<td>181.300</td>
<td>180.300</td>
</tr>
</tbody>
</table>

**Key Renewable Fuels Regional Averages**

<table>
<thead>
<tr>
<th>NORTHEAST</th>
<th>Ethanol Spot</th>
<th>Ethanol Rack</th>
<th>Ethanol Blended Rack Gasoline (5.7%)</th>
<th>Ethanol Blended Rack Gasoline (10%)</th>
<th>E85 Racks (w/tax)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodiesel</td>
<td>2.225</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Biodiesel</td>
<td>315.117</td>
<td>181.218</td>
<td>181.300</td>
<td>103.168</td>
<td>101.142</td>
</tr>
</tbody>
</table>

$3.15 /gal. retail pump price for biodiesel still true in July
EXISTING BIODIESEL PRODUCERS

Commercial Biodiesel Production Plants (June 7, 2007)

148 Plants

BQ-9000 Accredited Producers
...and - DON'T FORGET THE PENNSYLVANIA FARMERS WHO RAISE THE SOY BEANS!
FREEDOM ENERGY, LLC
WHO IS FREEDOM ENERGY?

- Regional Multi-plant Biodiesel Start-up
- Established, Proven Technology
- Management Team with Extensive Operating Experience
FORMULA FOR SUCCESS

- Regional Approach Allows Us to be a Low Cost Producer
- Proven Management Team
- Best Logistic Operation Through Third Party Companies
- Access to Future Technologies Through the USDA & Penn State University
- Produce a Quality Product Through BQ-9000 Certification Standards
A COLLABORATIVE ATTITUDE

We are currently finalizing agreements with the Penn State Biomass Energy Center and the USDA Research Service to work together at a production/research facility here in State College.
BECOMING THE LOW COST PRODUCER

- Manage today’s **Feedstock** costs (80% of the production cost)

- Be Ahead of the Industry with Emerging **Technologies** Through Joint Ventures with PSU, the USDA & Others Coming to Market

- Manage the **Logistics** of Raw Material “in” and Biodiesel Product “out”
FREEDOM ENERGY PLANT
LOCATIONS AND CAPACITIES

REGIONAL MARKET STRATEGY

1. ELLSWORTH (near Youngstown) - 30 MMgy Build in Yr. 1
   STATE COLLEGE, PA - 2-1/2 MMgy Build in Yr. 1

2. PHILADELPHIA - 30 MMgy – Build in Yr. 2

3. PITTSBURGH - 30 MMgy – Build in Yr. 3

4. WARREN, PA - 15 MMgy – Build in Yr. 4
SUMMARY

- Strong, Proven Management Team
- Proven Technology
- Regional, Multi-plant Low Cost Approach
- Strong and Growing Market Demand
- Limited Supply in the Target Market
- Strong Research Capabilities and Relationships