Biofuels at BP

BP Biofuels a growing alternative

“Developing an integrated energy grass feedstock supply chain for cellulosic biofuels”

Brett Callaway
Head of Agricultural Business Development
BP in the US

- Invested more in the US than any other oil company, over $52bn in last 5 years
- Supports 250,000 direct and indirect US jobs

Alternative Energy

- Invested over $7bn globally since 2005
- Over $4bn of it invested in US
- 500 employees in US

Wind

- Invested $2bn globally since 2006

Biofuels

- Over 300 employees in US and growing
Renewable Fuel Standard

- Incentives
- Targets
- RFS1
- RFS2
- Biodiesel
- Cellulosic
- Advanced
- Corn
- Today

Source: EPA
BP will produce biofuels that are...

- Affordable
- Scalable
- Sustainable

Sugar Fermentation

- Bioethanol
- Biobutanol
- Biodiesel
Feedstock supply chain

Cellulosic Feedstock

- Electricity
- Bioethanol
- Specialty Chemistry
- Biodiesel
- Biobutanol
- Pellets
An integrated supply chain

- Agronomy
- Agriculture at scale
- Conversion technology
- Demonstration scale
- Project Management
- Commercialization at scale
- Fuel markets
Large-scale Demonstration, LA
Highlands, Florida

BP Biofuels - Highlands

• 20,000 acre farm on completion
• 36 million gallon/year facility
• 365 day Ag and operation facility
• 3500 acres constructed
• 2000 acres planted
• 600-800 jobs during construction
• About 200 jobs during operation
• Of the 200, 60 jobs for agriculture
Energy grass
BP Biofuel’s strategic approach

Evaluating future sites

In development
This is not corn

70 million gallon a year

Corn

• 800,000 + acres
• Or Greater than Louisiana and Florida corn crops combined
• Or all the stover from all acres of the top 4 producing Iowa counties

Energy grass

• 50,000 acres
• 4-5 times the yield of corn
• Highly scalable
• Lower haul costs

Precision Ag and Engineering

Increased returns

BP Biofuels a growing alternative
Relative scale agricultural land use

* Does not reflect actual location

- Total corn acres
- Corn acres for biofuels
- Total soy acres
- BP acres for LC crops
- Industry acres for LC crops
Extensive resources required

70 mgy needs 150 acres harvested a day, 50,000 cropped acres

<table>
<thead>
<tr>
<th>Equipment &amp; Labor</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>Harvesters</td>
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<tr>
<td>Tractors</td>
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<td>Field Wagons</td>
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<td>Operators</td>
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<td>Tradesmen</td>
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</tbody>
</table>
Precision Agriculture reduces costs and improves sustainability

Optimizing Equipment Management = Lower $$$
Partnerships
Total Industry Jobs

400,000* now

800,000** future

* source: Renewable Fuels Association. Direct and Indirect jobs.
** assumes Renewable Fuel Standard volume targets remain stable
What does all this mean?
Questions?