

Waste to Energy – Biorefinery

One World Clean Energy



ONE WORLD
cleanenergy

Opportunity

- The Energy Information Administration (EIA) predicts rolling brown outs in the US by 2012 due to generation capacity being outpaced by demand.
- The EIA predicts world wide natural gas demand to double this year.
- US oil demands continue to grow while no new US oil refineries are planned for construction in the near future.

OWCE Integrated Biorefineries Overview

- Lower Operating Cost – Energy Efficient
- Independent of Fossil Fuel
- Feedstock Agnostic – Symbiosis w/ Farms
- Shop Fabricated Modular Construction
- Operational Size for Optimal Regional Symbiosis
- Zero Waste – Near Zero Emissions
- Multiple Revenue streams for input and output
- Applicable anywhere in the WORLD

OWCE Integrated Biorefineries

Differentiators

Major Differentiators

- ◆ Distributed Generation/Production vs. Distributed Energy/Fuel
- ◆ Regional operations (small facilities) symbiotic to area
- ◆ Variety of feedstock for ethanol and Biodiesel versus single feedstock (corn ethanol or soy biodiesel)

Minor Differentiators

- ◆ Integration of commercialized technology for efficiency
- ◆ Waste Water as primary ethanol production
- ◆ Positioned to commercialize future modules

Major Differentiator – Distributed Generation

- Transmitting electricity over long distances and via networks involves energy loss. Due to age and over burden the Electricity Grid is unstable. The EIA anticipates rolling brownouts by 2015.
- OWCE believes that distributed production/generation is more economically viable than distributed energy/fuel.
 - ◆ The model for renewable energy generation designed by OWCE provides a boost for the local economy by utilizing the area's resources, and by providing energy back to the communities in proximity.

Major Differentiator – Regional Operations

- Large scale renewable fuel facilities often increase the local cost of electricity, natural gas, transportation and water. Purchase feedstock from corporate producers. Sell product internationally.
- Our Production plants will

 - ◆ Positively impact the local economy
 - ◆ Positively impact the environment
 - ◆ Work with local farmers
 - ◆ Help to reduce the need for crop subsidies
 - ◆ Still reducing national dependency on oil imports

Major Differentiator – Variety of Feedstock

- Corn to Ethanol or Soy to Biodiesel, recently we have witnessed plant failures due to commodity price issues.
- We use ANY agriculture crop...
 - ◆ Ethanol-Sorghum is our primary crop. We are tooled to use any starch crop to produce ethanol.
 - ◆ Biodiesel-Waste cooking oil is our primary feedstock. We are equipped to use any animal fat or vegetable oil to produce biodiesel.
 - ◆ Our volume contracting model with “indexed” pricing for both off take and feedstock mitigates ALL commodity price issues.

Minor Differentiator – Integrated Technology Improved Production & Energy Efficiency

- Traditional Biorefineries are constructed on site. It is not scalable for optimal multi plant construction. Single revenue streams are subject to commodity price risk.
- Our design encompasses...
 - ◆ Combined processes (e.g., ethanol, biodiesel, & electricity generation) allow for economic flexibility
 - ◆ Modular Design, Shop Fabricated and Site “Lego” Construction to mitigate Capital “Stall”
 - ◆ Implementing equipment in stages to fully optimize the output streams to the input streams

Minor Differentiator – Waste & Waste Water Clean Up

- Ethanol facilities use 3 gallons of potable water to produce 1 gallon of ethanol
- Our process uses...
 - ◆ We process pre-treated waste water to use in our ethanol production. We will treat 35 Million gallons of sewer water per year at each of our facilities.
 - ◆ Repurposing waste to become an asset; Cooking grease, yard waste, construction waste
 - ◆ Utilizing landfill methane for increased capacity

Integrated Biorefinery - Environmental Impact

- Carbon credits
- Reduction of greenhouse gases
- Renewable electric energy source
- Alternative fuel source for automobile energy
- Reduced human waste and landfill deposits
- Self-contained production process
- Very low emissions

Two Business Models

- Build and Operate (BO) or Build Own & Operate (BOO)
- Multiple Applications/Commercialization Paths
 - ◆ Military
 - ◆ Municipality
 - ◆ Tribal Lands
 - ◆ Corporate Owned North America
 - ◆ Corporate Owned Latin America

Design Once....Replicate Many

OWCE Future Modules R&D

- Pyrolysis of Any Carbonititious Material
- Cellulosic Ethanol-multi feedstock hydrolysis
- Algal Biodiesel and Methane
- Bio JP8/Jet A

OWCE Milestones

- Completion of feasibility studies on the integrated biorefinery technology by professors from UK and UofL
- Patent Application of Integrated Biorefinery Intellectual Property
- Organization of One World Clean Energy, Inc and Latin America Clean Energy, Inc.
- Completion of the commercialization plans for North America, Latin America and the Caribbean
- Completion of Case studies on use of the OWCE/LCE Integrated
- Engineering Contract with Ft Knox which will lead to build and operate an integrated biorefinery on post
- Submission of a concept proposal to NASA
- Establishing an infrastructure to build as many as 10 integrated biorefineries at any given time...world wide



4/1/10

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Q & A





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