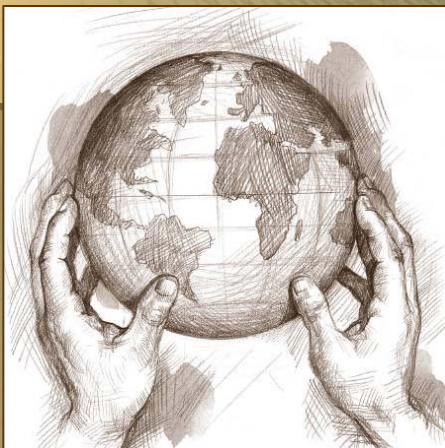


BRI Energy, Inc.

Presentation for the
Regional Audience

Renewable Energy
For the 21st Century



Too Stressed?



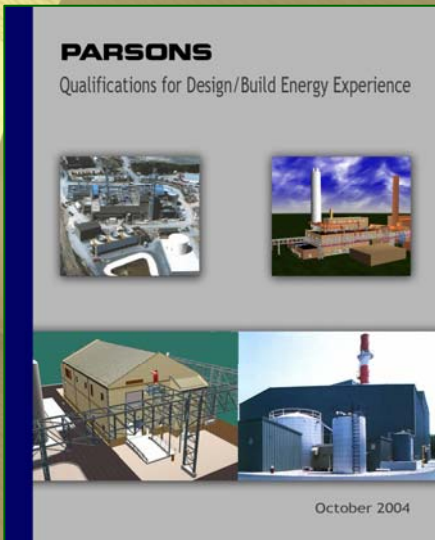
**View the following picture,
carefully...**

- **If you see both dolphins as exactly the same, you have a normal amount of stress in your life.**
- **However, if you see any difference between the dolphins, you should reduce your stress level immediately.**

Too Stressed?



Technology Partners



- Parsons Corporation will be the EPC lead and provide the overall technical leadership and commissioning guarantees
www.parsons.com
- Katzen International will provide the process design, efficiency, optimization and technical support.
www.katzen.com
- Bio-Engineering Resources, Inc will provide the proprietary support for the bio-catalytic systems.

Required Project Elements



- Secure commitments for feedstock
- An interconnection to the electrical grid for the delivery of surplus energy
- Secure option for disposal of the ash residue (about 15% by weight) of the feedstock
- A site equal to approximately 8 acres

BRI Technology



Produces bioethanol and electricity from carbon also called "carbonaceous feedstock" that can be sourced from:

- Carpet Waste
- Municipal Solid Waste
- Biosolids & Animal Wastes
- Refinery Tars & Waste Oils
- Green Waste
- Agricultural Residues
- Used Tires & Plastics
- Wood Wastes
- Coal & Other Hydrocarbons

A patented microorganism ingests synthesis gas (gasified wastes) and emits pure bioethanol

Yields of Ethanol from Biomass

by various conversion technologies



Conversion Process

Theoretical Yield

(Gal EtOH / Dry Ton)

Biomass $\xrightarrow{\text{acid}}$ Sugars $\xrightarrow{\text{fermentation}}$ Ethanol 80

Biomass $\xrightarrow{\text{enzyme}}$ Sugars $\xrightarrow{\text{fermentation}}$ Ethanol 85

Biomass $\xrightarrow{\text{catalyst}}$ Syngas \rightarrow Ethanol 77

Biomass $\xrightarrow{\text{Biocatalyst (BRI Process)}}$ Syngas \rightarrow Ethanol 145

Fermenter



Distillation



Gasifier



Emission Streams



By-products

Source

Handled By

Solids

Ash from
Gasifier

Landfill

Liquid

Cell Purge

Recycled to
Gasifier

Gas Scrubber

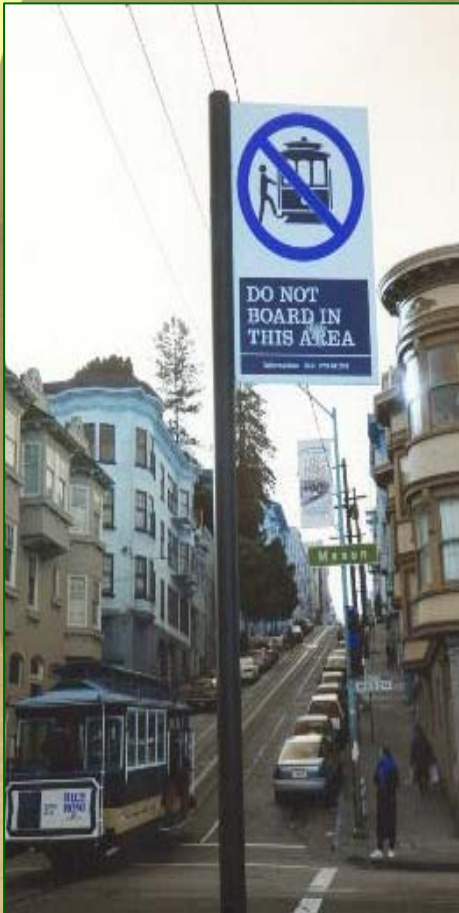
Wastewater

Gas

Fermenter
Exhaust

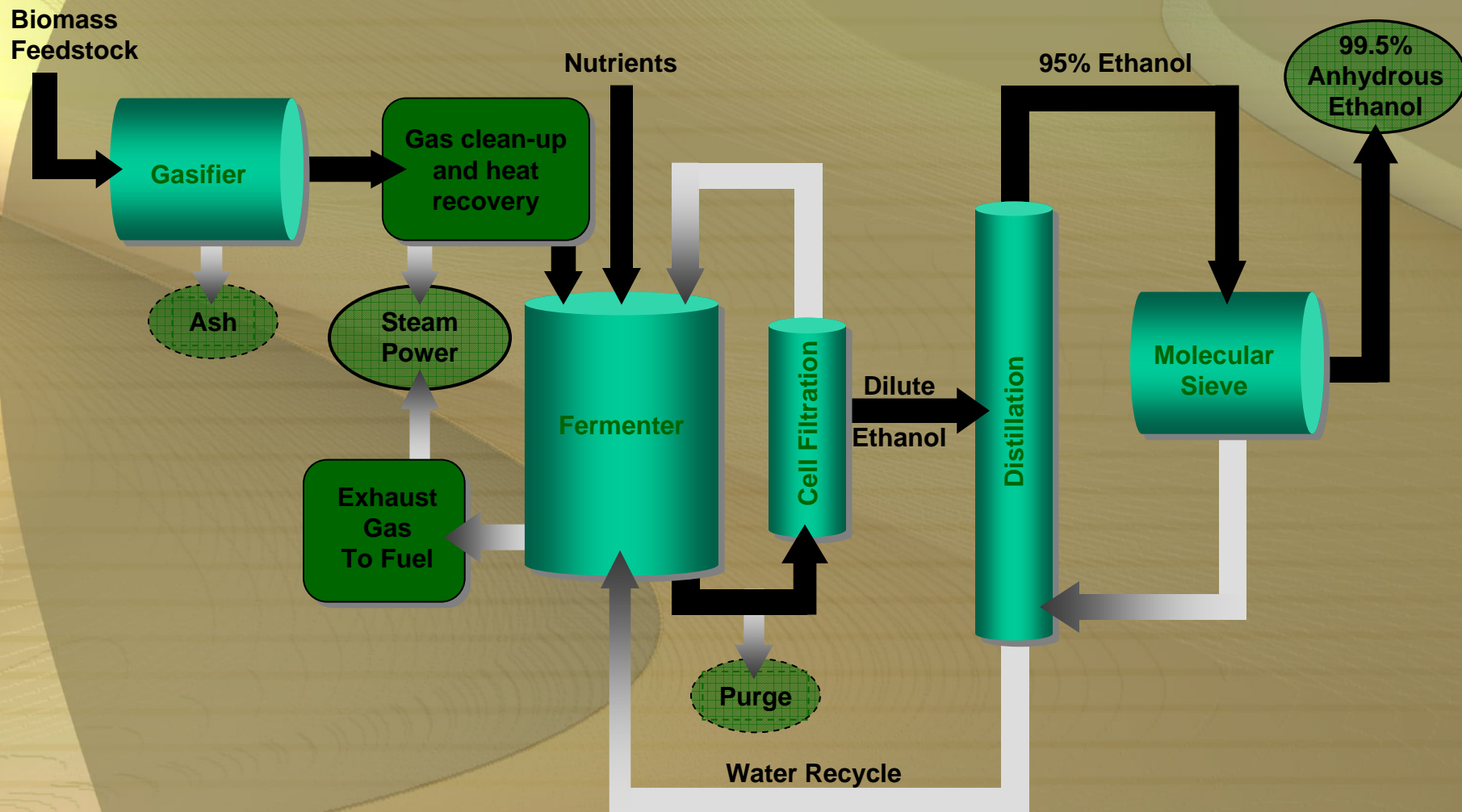
Combusted for
Energy

How Does It Work?



- The BRI technology uses a thermal gasification process to “crack” complex carbon molecules and reform them into simple carbon monoxide and carbon dioxide
- The reformed gases (syngas) is delivered to a bioreaction fermentation vessel where the gasses are ingested by the active cultures
- The result of this metabolic process is bioethanol, hydrogen and water
- A standard distillation process is used to separate the bioethanol from the water

BRI Process Schematic



What Is Unique About BRI's Technology?



- Different feedstocks can be blended
- Handles up to 30% moisture content
 - Dry feedstock (Tires & Plastics) can be blended with wet feedstock to achieve the 30% moisture limit
- The process is odorless
- Can alternatively produce hydrogen

Proven Equipment



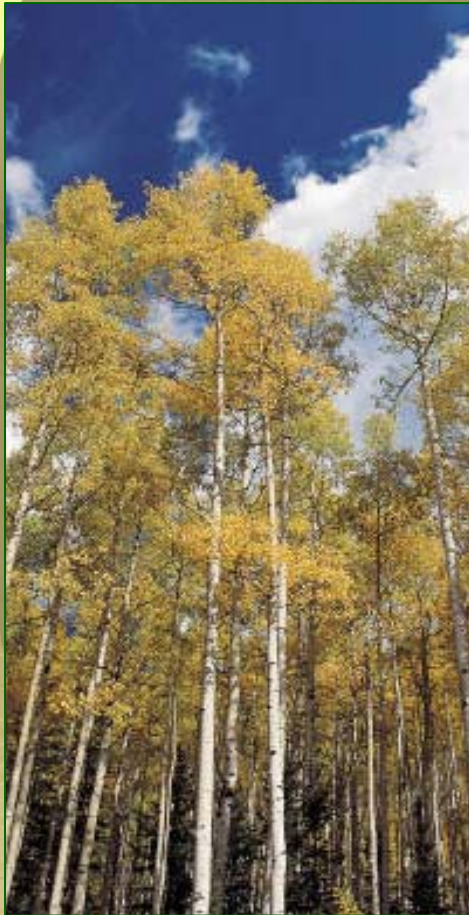
- Plant will use proven energy equipment that has been used for over 50 years in the energy industry
- The distillation and fermentation equipment is a standard in the global ethanol industry
- The equipment is provided by established companies and is fully guaranteed

Advantages of Gasification-Fermentation



- Flexible - raw materials may be blended
- High Yield - single product - simple separation
- Faster Fermentation - smaller reactors
- Complete disposal of organic wastes
- Accomplishes waste sterilization
- Available waste heat

Air Emissions



Gasification

There are no air emissions from the gasification step. The syngas is treated through “scrubbing” and activated carbon filtration and then fed directly to the fermentation vessels.

Electricity Generation

Waste heat from the cooling of the synthesis gases is used to create high temperature steam.

Syngas remaining after the fermentation stage has high concentrations of hydrogen that can be combusted to produce additional high temperature steam or the hydrogen can be reclaimed for external markets.

Are We Moving Too Slowly?

