

**Planktonix Corporation:
Cleantuesday Presentation
April 6th, 2010
Paris, France**

Planktonix Corporation:

Planktonix Corporation is a global leader in the development, deployment and commercialization of transformational bioenergy technologies that will help slow and ultimately reverse humankind's carbon footprint through clean, reliable, safe, sustainable and economically viable energy solutions.

The Planktonix (Px) Business Model:

- The Px business model utilizes highly collaborative, cross-disciplinary partnerships and innovative IP sharing arrangements with world renowned scientists, engineers, technologists, industrial managers and economists to promote, develop and commercialize novel and innovative bioenergy solutions.
- Planktonix's NPEIH coalition includes top talent from U.S. and international universities, national laboratories, and industry.

Economics

Planktonix Corporation will produce biobutanol from cellulosic feedstocks (switch grass, corn stover, etc.) competitive with \$60/gallon crude oil by 2013, algal biodiesel competitive at \$3.50/gallon by 2014, bioaviation turbine fuels, and valuable co-products.

Projected Revenues:

2013 – \$6,000,000

2015 – \$78,000,000

2017 – \$500,000,000

Development and Commercialization Coalition
Established by Planktonix Corporation (Px) in 2009/2010:
**The National PhytoFuels Energy Innovation Hub
(NPEIH)**

- **Bioengineering/Synthetic Biology:** Uppsala University/The Angstrom Laboratories (Sweden), The University of Alberta (Canada), DOE Brookhaven National Laboratory, Ohio State University.
- **Lignocellulosic Deconstruction and Fermentative Biobutanol Technology:** U.S. DOE Brookhaven National Laboratory, Ohio State University, University of Alberta (Canada)
- **Algal and Cyanobacterial Biomass-to-lipid Production of Biodiesel, Biocrude, and Bioaviation Turbine Fuels – Virginia Beach Pilot Test and Production Facility (2010-2013):**
 - **Biomass Growth Optimization/Photobioreactor (PBR) Testing:** South Dakota State University, Old Dominion University/VCERC, George Washington University

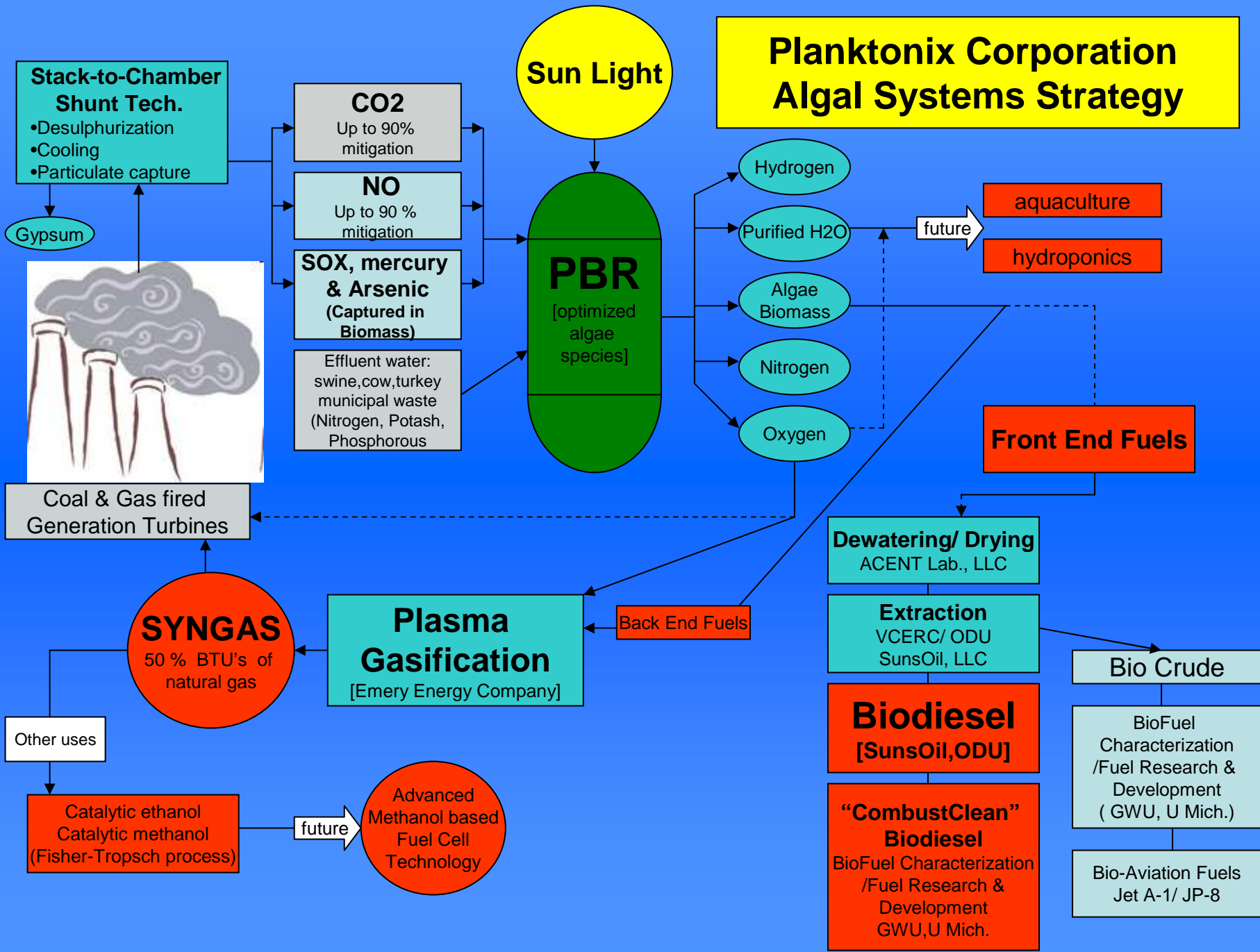
- **De-watering, Lipid Extraction and Processing:** ACENT Laboratories LLC, Old Dominion University/VCERC, SunsOil LLC

- **Realtime Gas and Optical Sensor Feedback & Control Technology and Fuel Chemistry:** George Washington University, University of Michigan at Ann Arbor

- **Biomass-to Syngas Gasification Technology:** Emery Energy Corporation

- **Other NPEIH VA Beach Pilot Project Partners:** Commonwealth of Virginia, Municipality of Virginia Beach (donated 27 acres of land for this facility), Virginia Clean Cities Initiative (non-profit)

Planktonix Corporation Algal Systems Strategy



Primary Planktonix Technical Development and Commercialization Initiatives:

- **Cost competitive lignocellulosic biomass deconstruction technologies:** Via enzymatic/catalytic and biological approaches. This is a key step for non-subsidized production of biobutanol and cellulosic ethanol.
- **Development of modified bacteria for cost-efficient fermentative conversion of waste lignocellulosic biomass into biobutanol:** Via selective breeding and bioengineering.
- **Algal Biomass optimization of lipid content and lipid quality:** Via selective breeding of target species.
- **Combined Bio-processing (CBP) Bacterial “Engines”:** Development of a modified target cyanobacterial species that has the capability to both breakdown cellulose into sugars and ferment the sugars to produce biobutanol.

- **Fuels From Sunlight**: Engineering the butanol production pathway into a photoautotrophic green sulfur bacterium to enable this variant to fix carbon dioxide into the complex carbohydrates required for butanol production without having to utilize feedstocks (ie. biomass-free fuel produced directly from carbon dioxide, brackish water and sunlight). Optimize growth and fuel production capabilities via the design of commercial scale “PhytoReactors”.
- **Light-free Biofuels Production**: Via Chemosynthetic bacteria (Advisor: Dr. Pamela Conrad, NASA Jet Propulsion Laboratory).
- **Biofiltration Technology**: All Px technical programs also focus on maximizing the green house gas mitigation capabilities to achieve carbon-negative biofuels production processes.

Biobutanol: A “Drop-in” Gasoline Replacement Fuel:

- Butanol is a four carbon, branched chain alcohol that can be used to run spark ignition engines such as gasoline powered automobiles.
- Unlike ethanol, butanol can directly replace gasoline as the energy content (Btu's) of the two fuels are nearly the same.
- Butanol has a higher energy content than ethanol at 110,000 Btu's/gallon vs. ethanol at 84,000 Btu's/gallon.
- Butanol can utilize existing national and global hydrocarbon fuel transportation and distribution infrastructure.
- Butanol requires no engine modifications and can be used as a 100% ‘drop-in’ replacement fuel for gasoline.
- Butanol is six times less evaporative than ethanol and 13.5 times less evaporative than gasoline resulting in a safer fuel to use as an oxygenate and therefore eliminating the need for special summer and winter blends.

Planktonix Corporation is seeking like-minded partners and investors:

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