## Renewable Energy, Byproduct Utilization and Bio-systems (REBUB)

Slogan: A unit energy saved is more valuable than a unit produced, as savings are perpetual!

## Renewable Energy

- •Biomass Gasification\*
- •Natural Gas Assisted Gasification\*
- •Hydrothermal Liquefaction\*
- Microalgal Biofuels\*
   Cost-effective Harvesting
   Contam./Species Control (PhD)
   Benign Lipid Extraction
   Light Optimization/
   Aerial Yield Intensification
   Screening & Kinetics
- •Cellulase Enzyme Recycling
- After-market Hybrid Technology
- •Continuous Flow Brown-grease Esterification System
- •Green Energy Demonstration Lab\*

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Byproduct Utilization (Agricultural)

- •Dairy Manure/Sand Separation\*
- •Solar Drying/Stills of Biomass & Animal Waste\*
- •Value-Added Products from Animal Wastes and Biomass\*

Bio-systems

- Aquaculture/ Wastewater
   Treatment
- Nutrient Removal
- Nitrification/Denitrificati on with bioplastic blended media
- Biodegradation of Bio-Plastics\*
- Oil Skimmer/Separation
- − BP Oil Spill \*
- CO<sub>2</sub> Sequestration with Algae & Duckweed
- Immuno-Based Biosensors
- Phytoremediation