

Strategic Energy Institute Projects

Presented To
House Study Committee
Atlanta, Georgia
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Strategic Energy Institute: Principles

- Innovation
- Identification of High-Impact Technologies
- Industry Engagement
- Interdisciplinary Collaboration
- Commercialization



Chevron/Georgia Tech Initial Research Portfolio*

1. Production of cellulosic biofuels
2. Understanding the characteristics of biofuel feedstocks
3. Developing regenerative sorbents
4. Improving sorbents used to produce high-purity hydrogen
5. Enhancement of Lab Capabilities

* <http://www.chevron.com/news/press/2006/2006-06-15.asp>



Pine to Ethanol Project

Sponsors:

C₂ Biofuels/Tifton Innovation Center



Strategic Energy Institute: Southern Pine to Ethanol

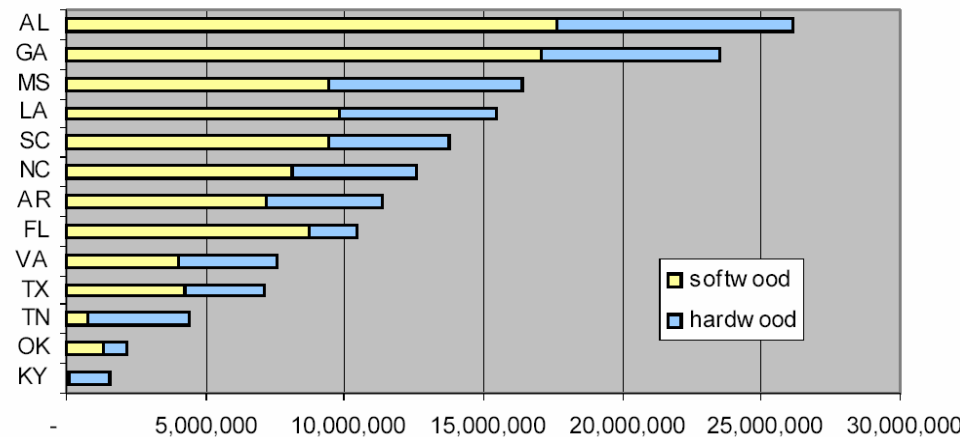
- Mitigates CO₂ emissions
- Costs \$1.50 per gallon to produce
- Used with gasoline in conventional vehicles
- Can sustain forest products industry



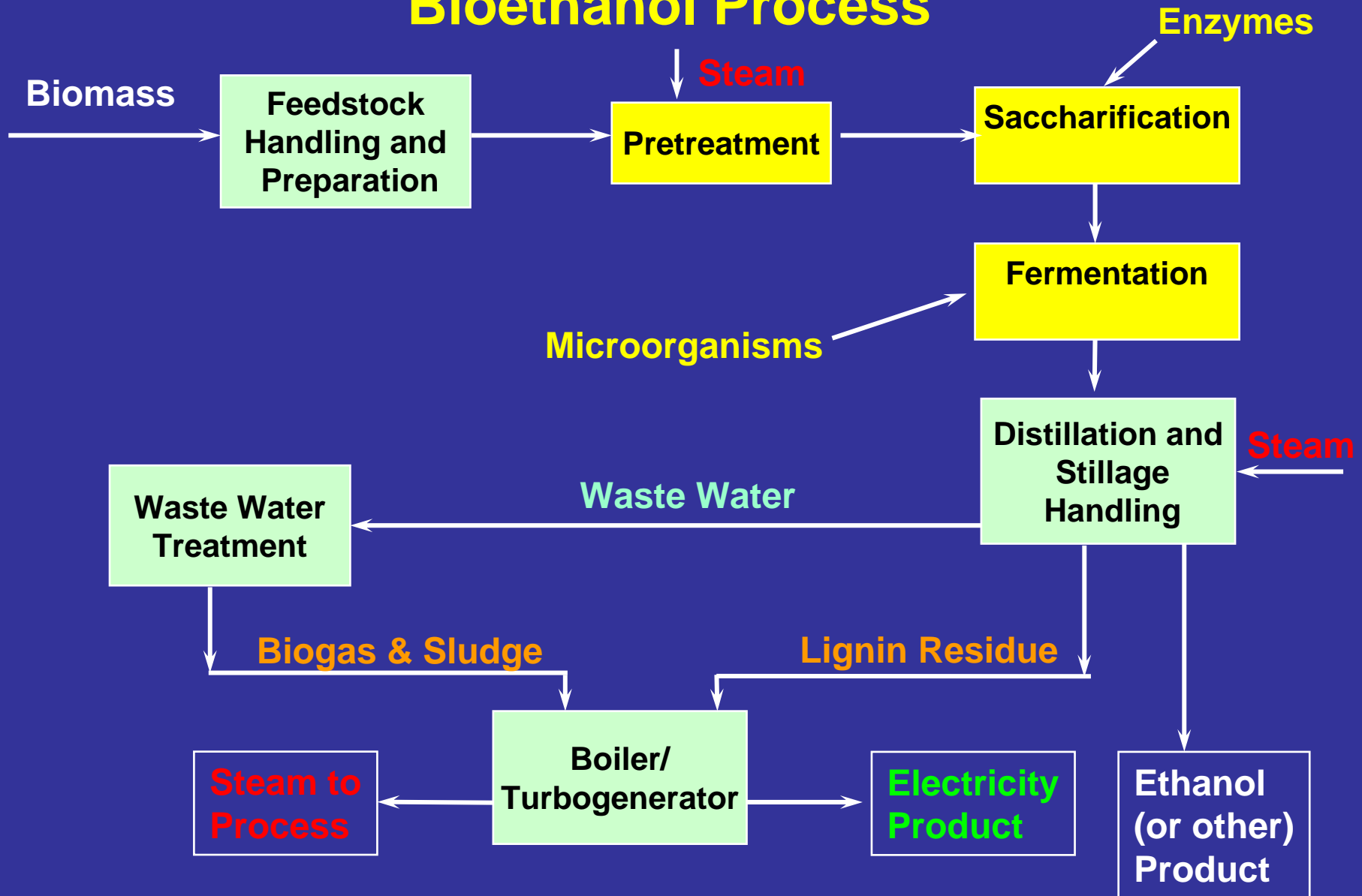
Southern Pine Resource

- Agricultural wood resource underutilized
- 18+ million green tons unused southern pine available per year (sustainable)
 - ~730 million gallons ethanol equivalent
 - ~20% of GA's gasoline use

Pulpwood Production in Green Tons 2002



Major Operations in an Enzymatic Bioethanol Process





Preliminary Results

- Lab Trials – Georgia Tech ChBE, UGA, and European University
- 80 gallons/dry ton of pine chips
- Results are repeatable
- Optimization continuing
- Plant Scaleup/Design underway



DOE Demonstration Plant

- Proposal Submitted 8/13/07
- Cost Share – DOE/C2 Biofuels
- Demonstration Plant – 2.6 mgy
- Researchers – GT and UGA
- Location – Central Georgia
- Construction – Late 2008



DOE Commercial Plants (Funded 2007)

- Abengoa – Ethanol (Corn Stover) – Kansas
- Alico – Ethanol (Citrus Peels)- Florida
- BlueFire – Ethanol (Landfill wood waste) – California
- POET – Ethanol (Corn Stover) – Iowa
- Iogen – Ethanol (Wheat Straw) – Idaho
- Range Fuels – Ethanol (Wood) - Georgia



GT Biofuel Research

- Current Impact – Small, but potential is large
- Primary Focus – Pine to Ethanol
- Fostering Industry Growth – Some funding available, but more needed
- Sector Needs – More grant funding and more investors
- Georgia Holdbacks – More grant funding would be helpful



GT Biofuel Research (Con't)

- Research Outlook – Optimization of processes and more funding support
- Investment required – Ultimately, several plants in \$250 – 300 MM range, with ongoing R&D
- National Ranking – Georgia could be #1
- Focus Sectors – Wood to ethanol, followed by other feedstocks and some biodiesel



Thanks

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