GEORGIA HAS THE BUSIEST AIRPORT IN THE WORLD !!!!!!
Visionary & Entrepreneur, 1867 - 1938

• President of Synthetic Organic Chemical Manufacturers Association
• President of American Chemical Society
• Played an influential role in establishing the National Institutes of Health
• Herty’s work catalyzed the pulp and paper industry in the South and helped revive the region’s economy during the Great Depression.
• Professor and football coach at UGA
Clients include global corporations, as well as numerous Fortune 500 companies, focused in a wide range of areas

120,000 square foot facility

Staff - 64 people

Our Capabilities Include:

- Composites for the automobile and aerospace industries
- Recycled fibers

And.....
**Laboratory Capabilities**
- Moisture
- Ash
- Elemental analysis of ash, ICP
- Heat value
- Particle size distribution
- Thermal analysis, TGA and DSC
- Extractives
- Bulk density
President Jimmy Carter, DOE founder, in his Paulownia tree field.
Georgia Wood Removals

- 1995 – 51.4 million green tons harvested
- 2009 – 39.2 million green tons harvested

12.2 million green tons to get back to where we were...
Chuck Leavell, Keyboardist for the Rolling Stones.
Forest Inventory

Million Green Tons

Inventory

Growth

Removals
Yesterday...
Giant Miscanthus

- Herbaceous, Deciduous, Perennial
- Rhizomes rather than seed
- 11 - 25 Dry tons/acre/year
- Height up to 15 feet
- Low environmental inputs
- Alternative non-food use for marginal Land
- Drought tolerant, crowds out weeds
- Carbon neutral
Sister Jill’s Crystal Ball

- Pellets
- Drop In Fuels
- Electricity
- Chemicals
- Ethanol
- Pharmaceutical
Some Facts About LanzaTech

• Owner of a Georgia facility – Freedom Pines Biorefinery
• Has a patented process using microbes to convert waste gas containing CO or CO2 or synthetic gas generated from any biomass resource into low carbon fuels and chemicals
• Winner of a 2013 Observer Ethical Award, Green Oscar, for their partnership with Virgin Atlantic to commercialize sustainable low carbon aviation biofuels.
• March 2013, Virgin Atlantic and and LanzaTech won the Sustainable Biofuels Award presented by World Biofuels Markets.
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FedEx and Alternative Fuels

• Has more than 650 aircraft, relying on about 1 to 1.25 billion gallons of petroleum-based jet fuel a year with no scalable solution yet for aviation and freight segments
• Wants to reduce aircraft emissions intensity 30% by 2020
• One goal is to obtain 30% of jet fuel from alternative fuels by 2030

What FedEx Looks For in Alternative Fuels:

• **Scalability** – Technologies exist to extract energy from everything, but work remains to produce enough fuel to power FedEx jets.
• **Logistics** – The ability to move the fuel from where it’s produced to airports all over the world.
• **Economics** – The alternative fuel has to be competitive with the petroleum products that are out there today.

CEO Fred Smith is very active on energy security and believes that new technologies and fuels offer a way out of dependence on oil in the transportation sector.
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Economics

• Cost of the end product must be competitive over the long-term with petroleum-based fuels.
• Reviewing business plans with potential suppliers to identify paths to stable pricing.
• Lack of capital investments has put a damper on growth and cost parity; investments from DOD, DOE and USDA have been making a difference as this market emerges from the laboratory and demonstration plants to production scale

Up Next for FedEx

• Recent agreement inked for alternative-blend aviation fuel
• FedEx and The Nature Conservancy developing long-haul biofuel roadmap
So What’s Next?

• Well, if you’re looking for biomass, we have it!
• If you’re looking for processing of feedstock, we can do it!
• If you need technical validation of your process, we got it covered!
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