

Bioenergy Logistics and Site Selection



About Strata-G


- Founded by UT Agricultural Engineering graduate
- Approximately 120 staff
- Offices in TN, MS, AL, and SC
- Senior Bioenergy Consulting Network
- People and Values Based

Education

Education Level	Percentage
BA/BS	31%
MASTERS	52%
PHD	17%

Experience (yrs)

Experience Range	Percentage
< 10	10%
10-20	30%
20-30	40%
30-40	20%



Stewardship

The careful and responsible management of something entrusted to one's care.

— Merriam-Webster





Bioenergy Logistics



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Feedstock Analysis


- Location
- Availability
- Impact on process economics
- Least-cost solutions for a biorefinery complex


Supply Chain Optimization




Supply Chain Optimization



- Transportation infrastructure
 - road, rail, barge (capacities and costs)
 - cost per gallon per mode mile
- Production, harvest, storage, and handling scenarios
- Best farm/forest to factory scenarios
- Product and byproduct distribution scenarios




Bioenergy Site Selection



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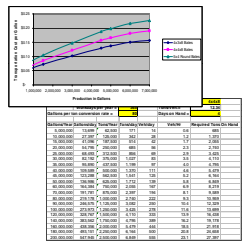

Site Selection

- Network models based on optimized cost and demand
- Refinery site ranking
- Consider state or local subsidies

Logistics Due Diligence

- Validation of logistics and fatal flaw analysis for a wood pellet plant in Alabama
- Assessment of production, storage, transportation, capacities
- Cost per ton for each stage in the supply chain

Logistics Assessment of the Delta Region




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Our Role

- Overview of the region's logistics infrastructure
- Assessment of the farm to factory supply chain
- Review of logistical strengths and challenges for the region




Roads and River Crossings




- Good system of primary, secondary, and connecting roads for material movement
- Both inter-county and intra-county mobility
- 10 Mississippi River road crossings

Ports, Rail, and Intermodal



- Memphis is significant, handling approximately 19M tons of freight annually, and 4th largest U.S. inland port
- 5 Class I railroads, 2 Class II railroads
- Over 75 intermodal facilities
- 17 public river ports

Creative Use of Rolling Stock



Crops, Truck Type, and Harvest Month


Crops	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Corn												Gravity Fed/Dump
Rice												Gravity Fed / Dump
Sorghum												Gravity Fed/Dump
Winter Wheat												Gravity Fed/Dump
Camelina												Gravity Fed / Dump
Castor												Gravity Fed/Dump
Flax												Gravity Fed / Dump
Soybean												Gravity Fed/Dump
Sunflower												Gravity Fed/Dump
Winter Canola												Gravity Fed/Dump
Sugarcane												Dump
Kenaf												Flatbed
Cotton												Flatbed (module trucks)
Crop Residues	Flatbed											Flatbed
Miscanthus												Flatbed
Switchgrass												Flatbed
SRWC												Pipe Frame / Dump Bed

Key Observations and Conclusions

- Transportation and logistics infrastructure is a significant strength:
 - Development of a regional bioprocessing industry
 - Adequate for decentralized economic development
 - Potential advantage for pipeline blending/export of compatible second generation liquid biofuels
- Lignocellulosic feedstocks likely processed within region
 - Low bulk density biomass processed close to production
 - Barge export of densified biomass products and high density products may be regional advantage

Issues for Consideration





Critical Logistics Issues

- Availability of biomass
- Density of biomass
- Inbound/outbound transportation options/strains
- Equipment not in use or manufactured
- Consolidated supply points
- Year-round processing
- State and regional decisions on logistics – farm truck vs commercial, plans for year-round use of trucks, DOT issues, etc.





How can the region help?

- Partner on innovative ideas for pre-processing, transporting, and storing biomass
- Address infrastructure needs
- Pursue state and federal funding in this area
- Partner with the private sector in developing a successful bioenergy roadmap for the Southeast



Thank You.



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