

Biopower: Our Southern Advantage

Environmental and Energy
Study Institute Briefing
Washington, DC March 4, 2009

Biopower: Our Southern Advantage



- Biomass Overview
- Potential in Southeast
- Policy
- Conclusions

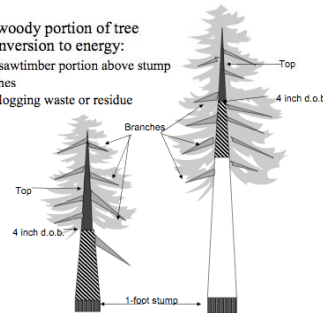
Biomass & Biopower

- Description
- Technology Types
- Legal Definition of Biomass
- Role in the South



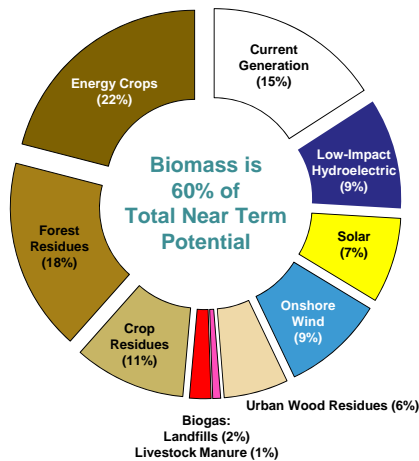
• Biomass is the woody portion of tree available for conversion to energy:

- non-pole, non-sawtimber portion above stump
- tops and branches
- also known as logging waste or residue



Biopower Potential in the South

Near Term Potential
Renewable Energy Resources

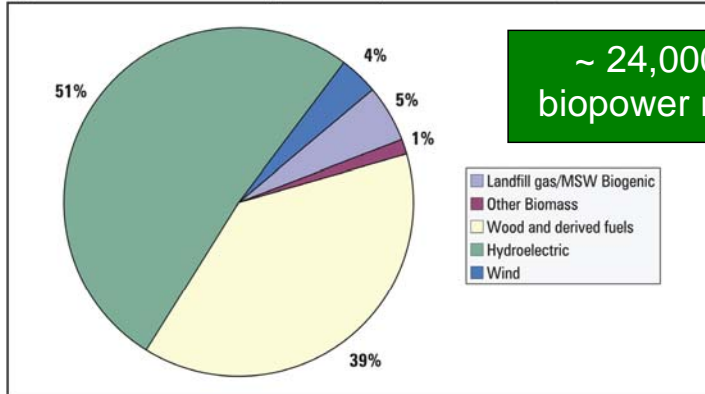


- An Important Part of Our Portfolio
- How Much?
- Impacts of New Demand?



Current Biopower: Quantified

Figure 26: Renewable electricity produced by source in the South, 2005



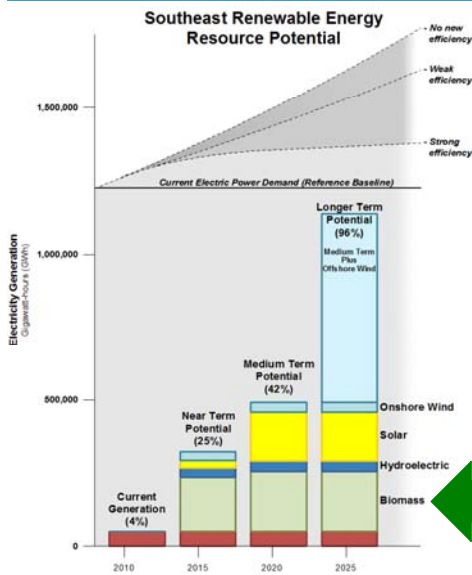
~ 24,000 GWh of biopower now on grid

Source: Energy Information Administration (EIA), 2008f. Renewable electric power sector net generation by energy source and state, 2005. Accessed on April 30, 2008. Link: http://www.eia.doe.gov/cneal/solar/renewables/page/rea_data/rea_sum.html.
*Geothermal and Solar were negligible.

Source: SAFER Alliance, "Southern Bioenergy Roadmap"



Biopower Potential: Quantified

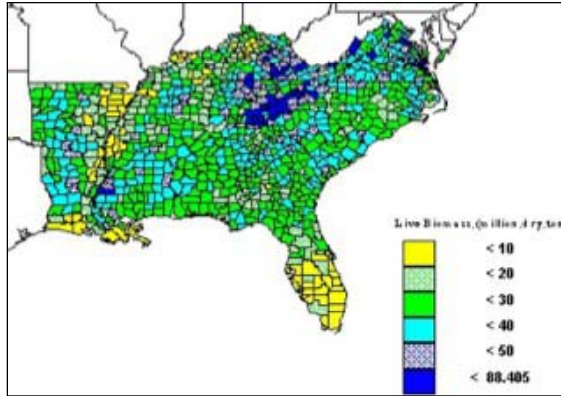


- Baseload = Reliable
- Rapidly Deployed
- >27,000 MW Projected Feasible Capacity
- 205,000 GWh Proj. Feasible Generation



Biopower Potential: Quantified

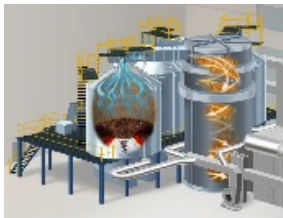
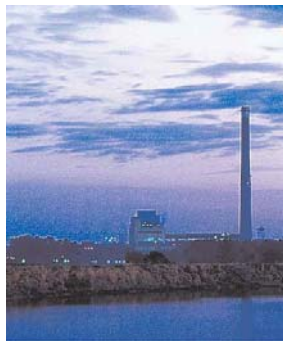
- Nearly 17 million tons per year of Forest Residues available
- Nearly 33 million tons per year, Energy Crops
- 10 million tons per year of Crop Residues
- >9,500 GWh of Feasible Generation from Landfills and Livestock Manure



Map Source: Miles, Patrick D. Feb-26-2009. Forest inventory mapmaker web-application version 3.0. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station



Biopower Potential: Examples



- Craven County Wood Energy (46MW)
- Plant Mitchell (conversion - coal to biomass, 96MW)
- University of South Carolina Biomass Gasifier (1.3MW)



Biopower Potential: Economics

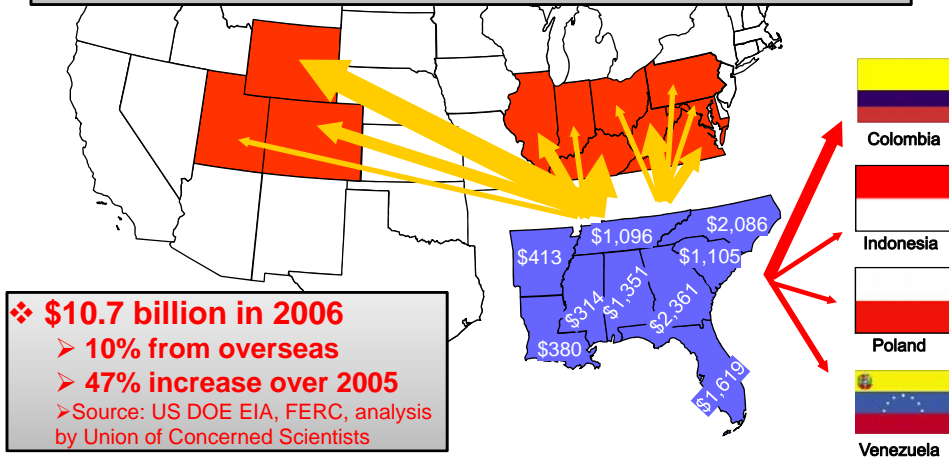


- 9 jobs projected per MW of biopower
- >24,000 new jobs in Southern states



Southern Economic Leakage from Coal Purchases

Annual Coal Import Expenditures, 2006 (million \$)



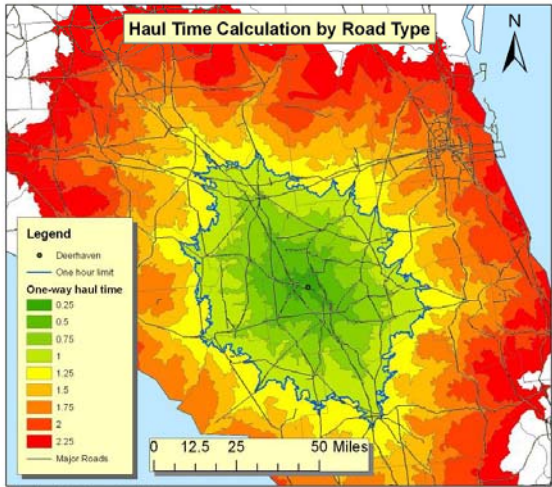
Sustainability



- Carbon Lifecycle
- Concentration of Demand
- Pollution Emissions
- Soil Productivity
- Water Quality & Quantity
- Biodiversity & Wildlife
- Indirect Effects
- Land Use



Sustainability



Matthew Langholtz, November 2006

- Soil & Water BMPs
- State Biomass Harvest Guidelines
- Enhanced Forest Management Plans
- Improved Forest Certif. Programs
- Look-Back Provisions?



Policies

- National Renewable Energy Standard (RES) 25% x '25
- Carbon Cap & Invest Law (100% Auction)
- Conducive State Level Policies

Conclusions

- Biomass is an abundant resource, significant renewable potential in the Southern region.
- RES and biopower are needed for climate and economic reasons.
- New definition needed – must be broad, inclusive, & sustainable.
- We can walk a balance between expanded utilization and sustainability.



Questions?

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