A Utility Perspective on Renewable Energy

USEA Seminar

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Renewable Resource Potential

Economic in GA Today

- Some landfill methane generation applications
- Some biomass generation applications

Not Currently Economic in GA

- Geothermal generation applications
- Most wind generation applications
- Most solar generation applications

**** Note that economic is relative to traditional forms of generation***

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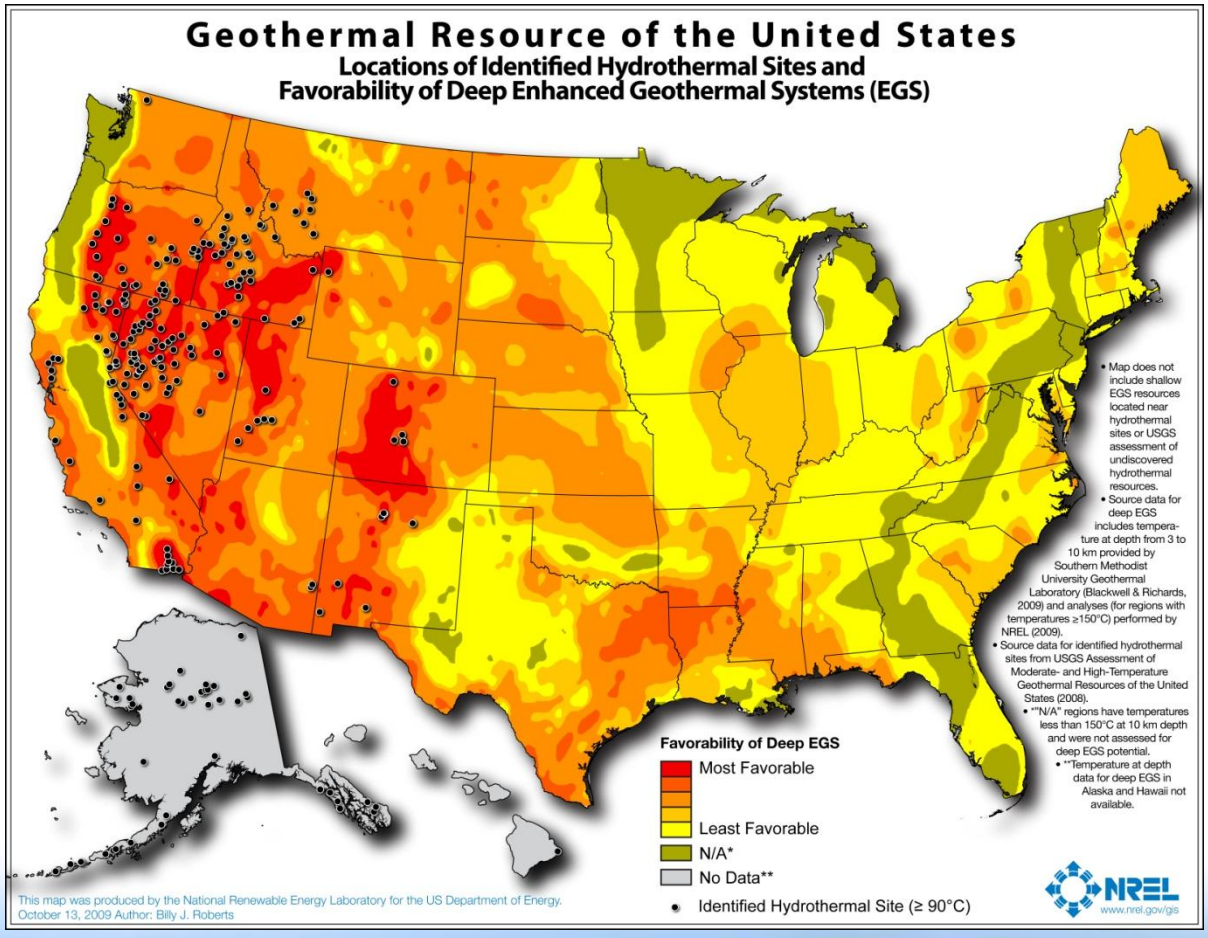
Renewable Resource Potential In the US
Geothermal

- Concentrated in West/Northwest region of the US
- Geothermal generation application not viable in GA



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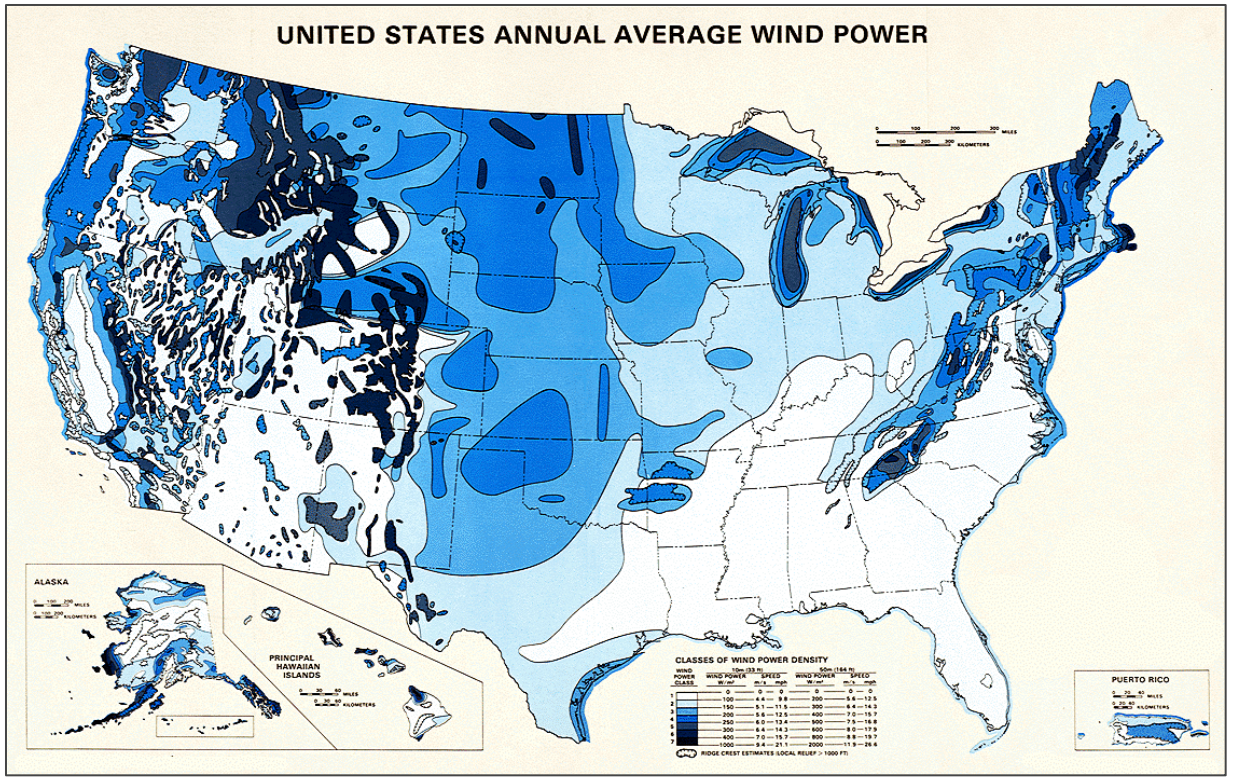
Renewable Resource Potential In the US

Wind

- Top Wind Power States in 2009
  1. Texas
  2. Iowa
  3. Minnesota
  4. California
  5. Washington

- Little to no economic viability in Southeast



* Source: U.S. EIA, *Renewable Energy Consumption and Electricity Preliminary 2009 Statistics* (August 2010).

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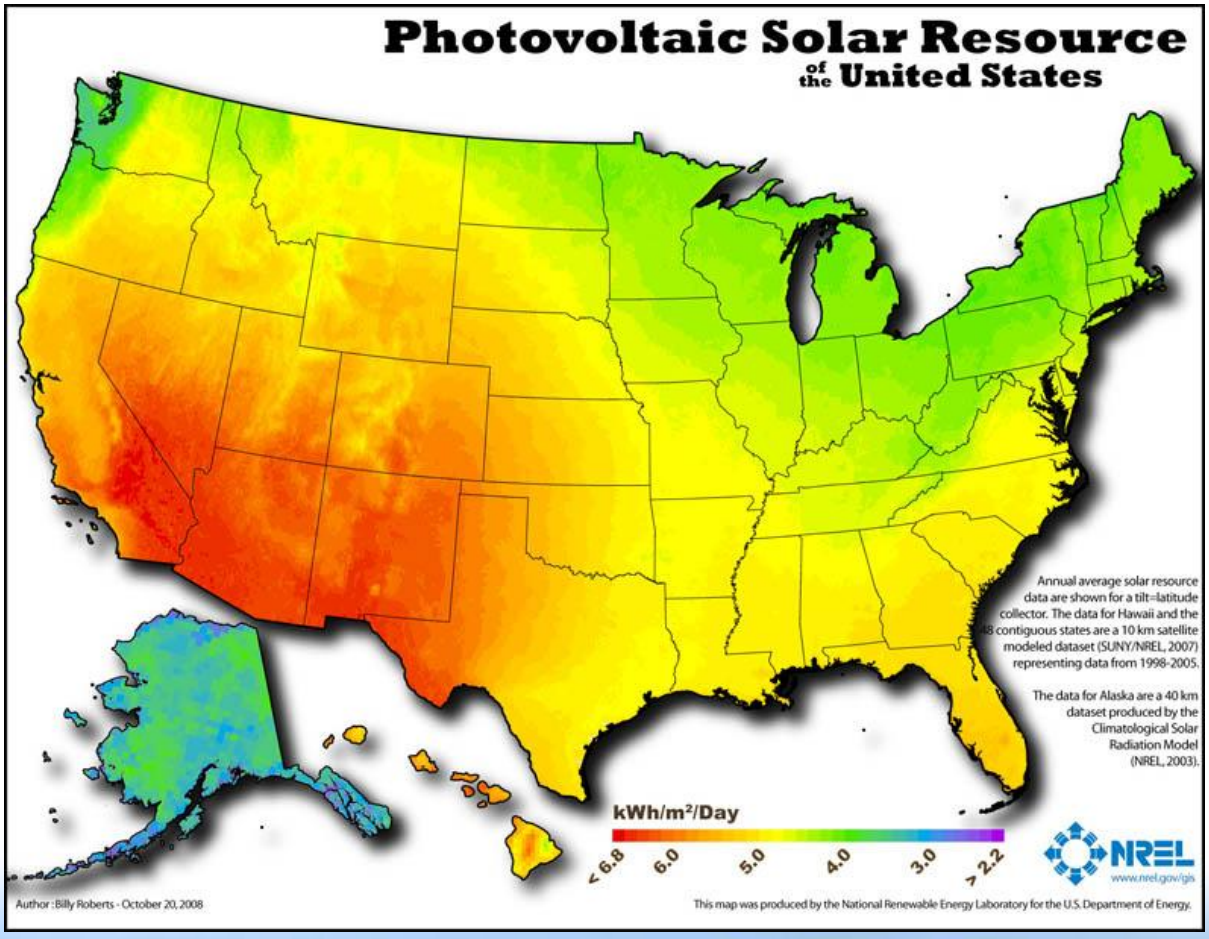
Renewable Resource Potential In the US
Solar

- Concentrated in West/Southwest region of the US
- Southeast Capacity factors 15-20 %
- Most applications not economic in GA



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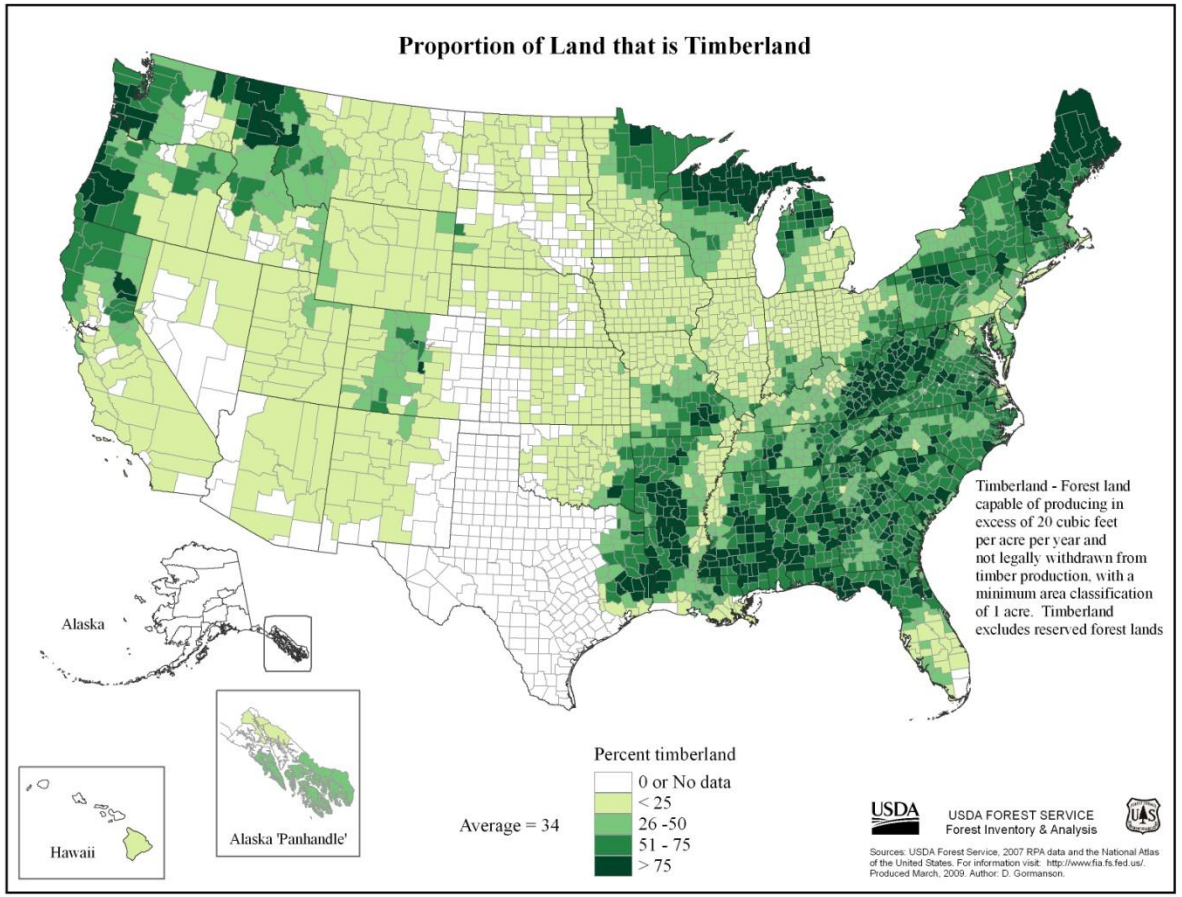
Renewable Resource Potential In the US
Biomass

- Abundant in the Southeast
- Georgia is #1 in commercial timberland
  - 24 million acres
  - 70 million tons per year of growth
- Many existing users of timber in GA



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Georgia Power Strategy for Meeting Growth over Next 10 Years

- Renewables
- Nuclear
- Energy Efficiency and Demand Response
- Natural Gas Fueled Generation

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Renewable Strategy

- Pursue all cost-effective renewable generation
  - Landfill gas generation
  - Repower coal plants with biomass
  - Power purchase contracts with independent developers
- Grow non-economic renewable generation through voluntary programs
- Research and Demonstration Projects
  - Understand current technical performance and economics
  - Track technology development and improvements in performance and economics

Result: Sound approach to renewables "today and tomorrow"

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Renewable Initiatives – Cost Effective Renewable Generation

Biomass

- Landfill gas to energy
  - Purchasing power from LFG facilities
    - DeKalb County GA – 3.5 MW
    - Effingham County GA – 6.4 MW
- Plant Mitchell Conversion
  - Fuel conversion from coal to biomass
  - Approx 100 MWs

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- On going conversion/co-firing studies

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Renewable Initiatives - Voluntary Programs

- Customer Purchase of Green Energy
  - Georgia Power Rate GE
    - 100 kWh blocks
    - Standard, Premium
    - Large Volume Option, Special Event Option

- Utility Purchase of Green Energy
  - Georgia Power Rate RNR
    - wind, geothermal, limited hydro, and biomass
  - Georgia Power Rate SP-1 – Solar Purchase
    - Up to 4.4 MW of solar energy purchases by company
  - Purchases through RFPs

Source: Green-e

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Renewable Initiatives– Research & Demonstration

Solar Demonstration Projects

Regional focus

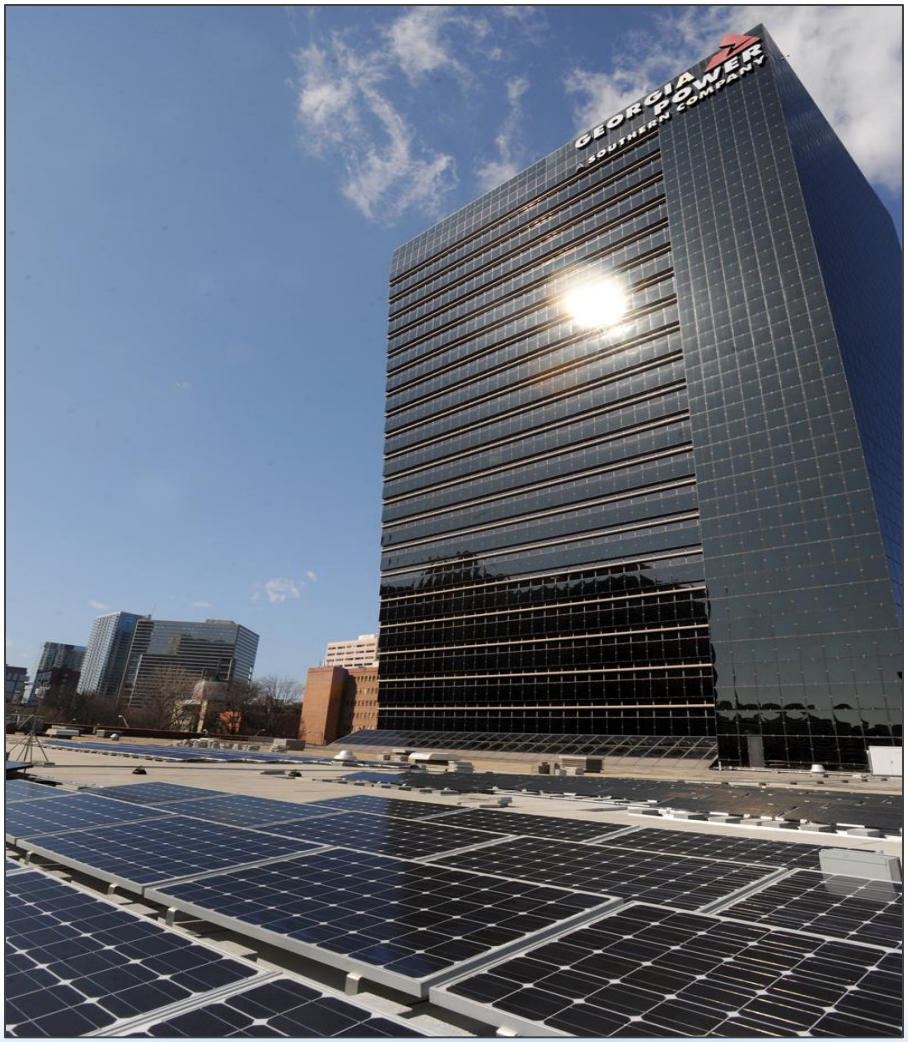
- Effects of regional conditions
- Necessary maintenance practices
- Technology and system responses

Georgia Power Operating Headquarters

- Reviewing different technologies
  - 3 thin film
  - 3 crystalline
  - 1 hybrid

Georgia Power Distribution System

- In conjunction with EPRI
  - 50 PV systems
  - 7 cities around the state



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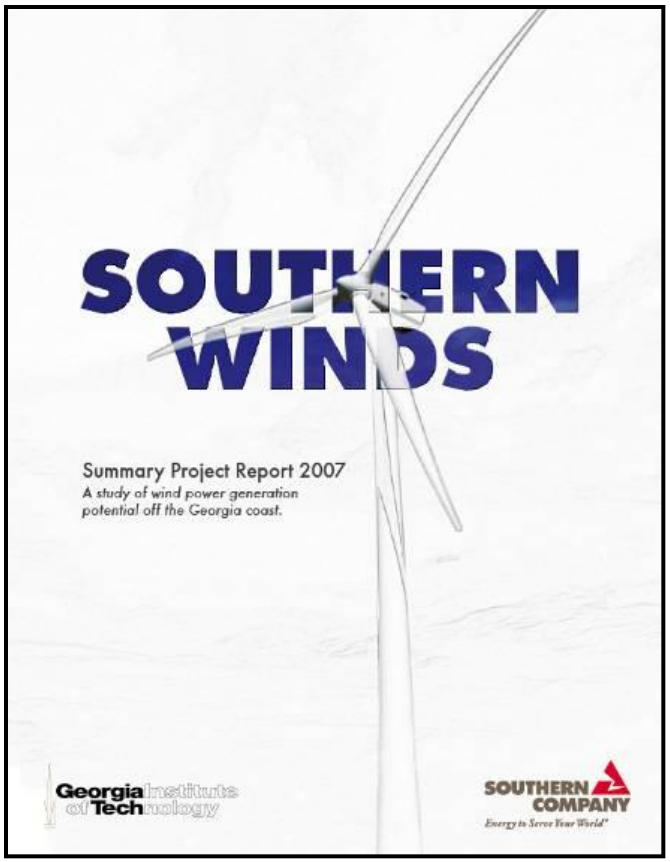
Renewable Initiatives – Research & Demonstration



- Conducted offshore feasibility study with Georgia Tech
- Challenges to offshore wind
  - Offshore transmission costs
  - Modest wind speeds
  - Weather Concerns - Durability against Hurricanes

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Challenges for Utilities

- Geographic Limitations
- Economics
- Operational Concerns
  - Intermittency
  - Logistics
- Environmental Regulations
  - Industrial Boiler MACT rulemaking
  - Biomass Greenhouse Gas determination

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Summary – A Utility Perspective

- Ensure a reliable and economic supply is available for customers
- Pursue a balanced and diverse portfolio to meet growth
  - Diversifying fuel options
  - Building renewable resources
  - Purchasing renewable energy
- Invest in Research & Demonstration
- Provide Green Energy Options to Customers
- Concerns about impact of future environmental regulations on renewable generation

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