



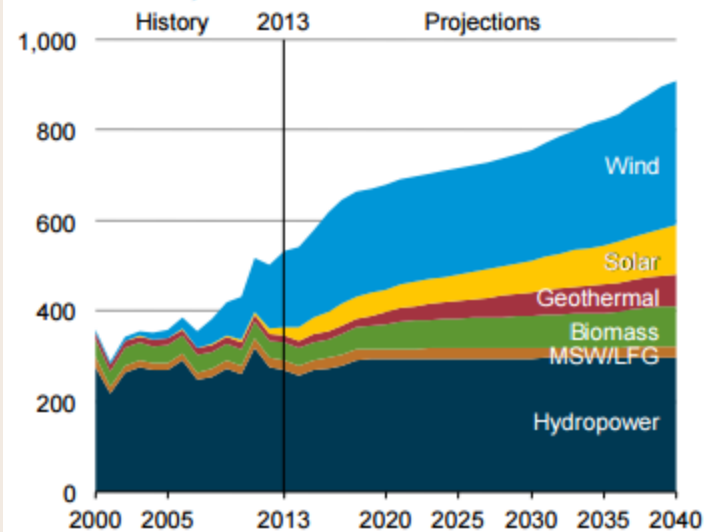
Permitting and Financing Your Bioenergy Project

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- According to the Energy Information Administration, biomass generation increases by an average of 3.1% each year, led by cofiring at existing coal plants until about 2030.
- After 2030, new dedicated biomass plants expected to account for most of the growth in generation from biomass energy sources.
- State renewable portfolio standards, federal GHG regulation, and international renewable energy requirements fueling growth

Figure 34. Renewable electricity generation by fuel type in the Reference case, 2000-2040 (billion kilowatthours)

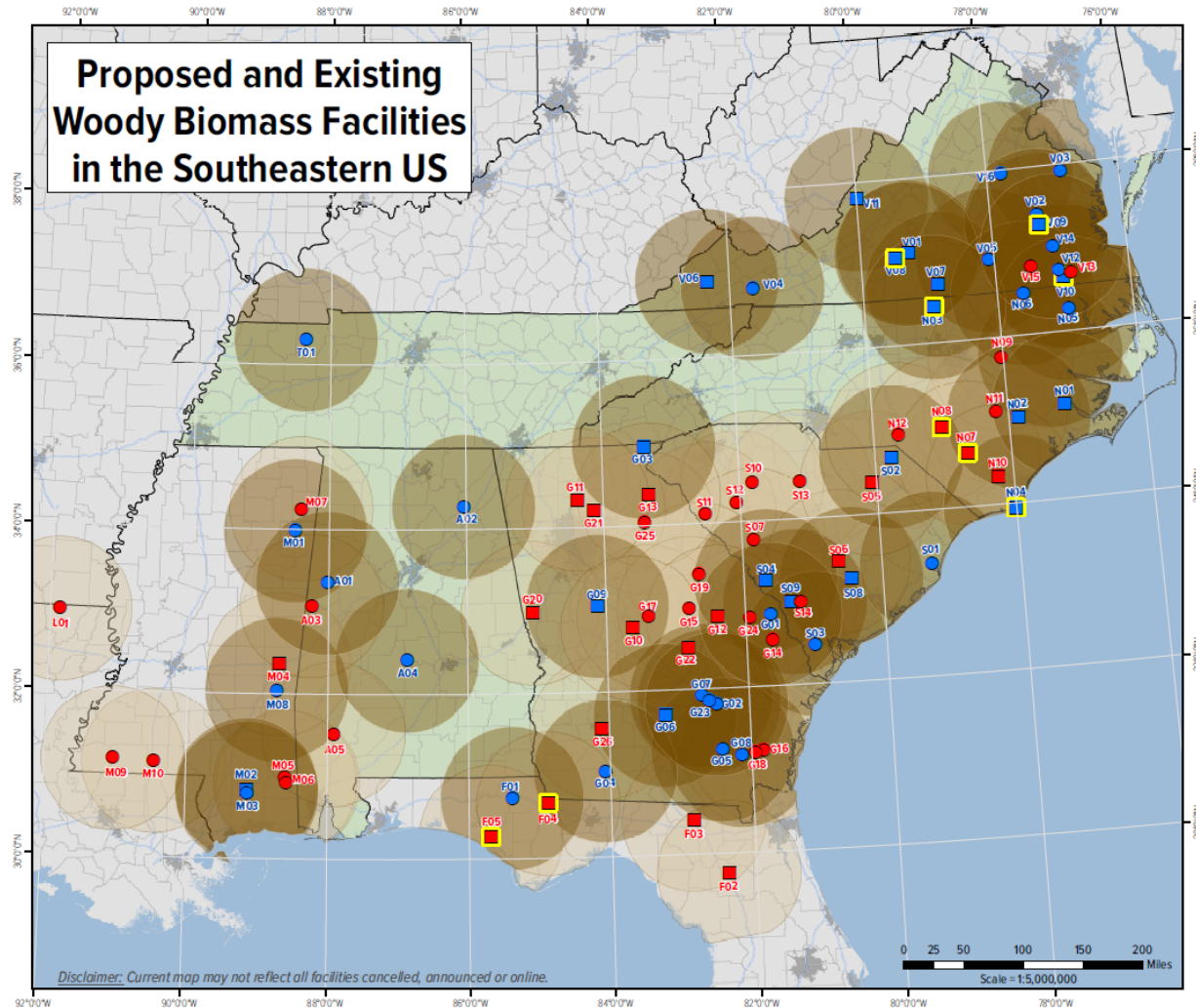


Why Georgia?

- Abundant fiber supply in close proximity to coast and Savannah Harbor
- Established rail corridor links forests to harbor
- 25 million acres of trees; 90%+ privately owned
- Biomass provides opportunity for growth after bust of pulp and paper industry



Proposed and Existing Woody Biomass Facilities in the Southeastern US



ABOUT THE MAP:

The Proposed and Existing Woody Biomass Facilities in the Southeast map was created based on third party data as a list of proposed and existing woody biomass facilities known to SELC. The list was primarily compiled through internet based research of the companies announcing woody biomass facility proposals, forestry agencies, biomass groups, and state environmental permitting divisions. The map is thought to be accurate, but may still contain errors since it is derived from varied sources. The brown circle surrounding each unit has a 60 mile radius, representative of the sourcing area where wood feedstock will be gathered for each facility. These circles are meant to be illustrative of the potential forestry impacts where many facilities are proposed close together. Some facilities propose a larger sourcing area, up to 200 miles. Actual sourcing areas would also be shaped based on road networks making them more irregular than the illustrative circles shown here, however a similar comprehensive image would emerge.

LEGEND

- Type of Wood Biomass Facility**
- Fuel Pellet Plant - Operating
 - Fuel Pellet Plant - Proposed
 - Electricity Generation - Operating
 - Electricity Generation (converted Coal EGU) - Operating
 - Electricity Generation - Proposed
 - Electricity Generation (converted Coal EGU) - Proposed
 - In Legend - Combined Heat & Power (color varies)
- Approximate Sourcing Area**
- Operating Facility
 - Proposed Facility

Primary Data Sources:
 Georgia Forestry Commission; Biomass Magazine and other industry press;
 Southern Alliance for Clean Energy (SACE); US Census Bureau (2010); Tele Atlas North America (2011)

Available for download at
<http://www.southernenvironment.org/cases-and-projects/biomass-energy-in-the-south/>

Map updated July 10, 2015
 Please direct map inquiries to:
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U.S. Regulation-EPA's GHG Tailoring Rule

- Regulates GHG emissions from stationary sources under PSD and Title V programs
- Biomass deferral vacated, but is biomass carbon neutral? The jury is still out.
- EPA's Science Advisory Board Panel expected to release recommendation very soon



U.S. Regulation -Clean Power Plan Rule

- Requires power plants to reduce CO₂ emissions by an average of 32%
- Allows states flexibility to develop plans to meet this goal

“We anticipate that states will likely consider biomass derived fuels in energy production as a way to mitigate the CO₂ emissions attributed to the energy sector and include them as part of their plans to meet the emission reduction requirements. . .” -EPA

International market

- European Union considers biomass to be carbon neutral
- Robust markets for biomass fuels in Europe



Permitting your Project

- No additional Georgia state permitting requirements
- Expedited permitting process available
- Clean Air Act Title V operating permit
- Clean Water Act

(NPDES construction permit;
NPDES industrial discharge
permit)

- RCRA hazardous waste
permit



Clean Air Act requirements

- CAM – potentially applicable if control devices used
- NSPS for steam generating units if heat source uses steam to heat dryer or if it creates steam for other process operations
- NESHAP
 - Boiler MACT or Boiler GACT – potentially applicable to heat source used to generate steam
- Engine NSPS/NESHAP for generators or emergency fire pumps

Air pollutant emissions concerns

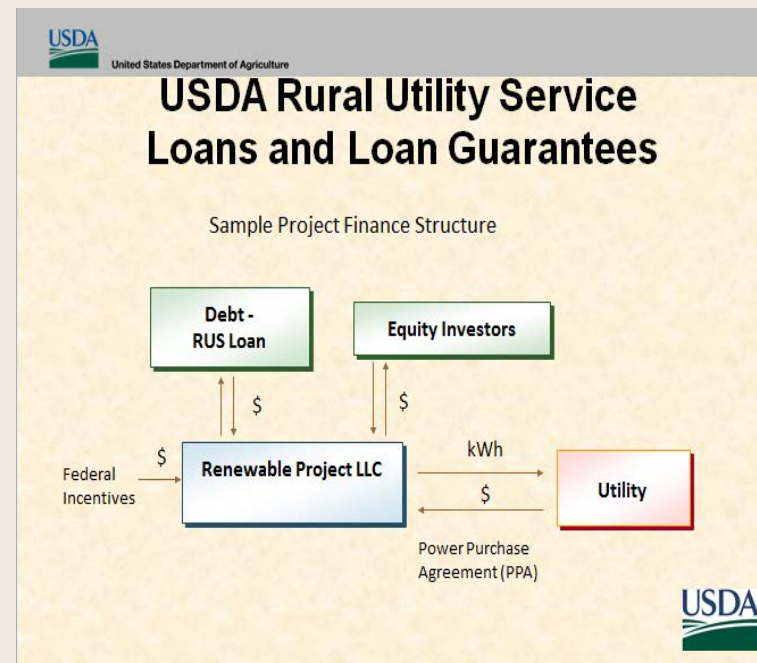
- Heat Energy Source/Dryer Stack
 - VOC
 - CO
 - NO_x
 - PM/Opacity
 - Formaldehyde
 - Methanol
 - Acetaldehyde
- Post-Dryer Sources Stacks
 - VOC



The dryers are the largest source of emissions. Georgia EPD has set default values for VOC emissions from pellet plants to be used in absence of site-specific data.

Financing Your Project

- Numerous options
- Can be used alone or in combination
 - Loans
 - Loan guarantees
 - Grants
 - Direct subsidies and payments



Federal Financing Programs

- Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance Program (*loan guarantees*)
- Biomass Crop Assistance Program (*direct subsidies*)
- Biorefinery Assistance Program (*grants and loan guarantees*)
- Bioenergy Program for Advanced Biofuels (*direct payments*)
- Biomass Research and Development Initiative (*grants*)
- USDA Business and Industry Loan Guarantees

Biomass Crop Assistance Program

BCAP provides funds to assist farmers and forester landowners with growing, maintaining, and harvesting biomass that can be used for energy or bio-based products.

1. **Establishment payments.** The program can cover up to 50 percent of the cost of establishing a new, perennial energy crop;
2. **Maintenance payments** (annual payments). To maintain the new biomass crop as it matures until harvest, BCAP can provide up to five years of assistance for an herbaceous crop, or up to 15 years for a woody crop;
3. **Retrieval payments** (matching payments). To collect existing biomass residues that are not economically retrievable, BCAP can help with the cost of sustainably harvesting and transporting agricultural or forest residues to an energy facility (biomass conversion facility).



USDA Rural-Business Cooperative Program- Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance Program

- Applies to biorefineries and biobased manufacturing facilities
- Provides guaranteed loans up to 80% of the total eligible project costs up to \$250 million.
- Two funding cycles: July 6, 2015 – October 1, 2015 and October 1, 2015 – April 1, 2016



Biorefinery Assistance Program

- Loan guarantees for the development, construction, and retrofitting of commercial-scale biorefineries and bio-based manufacturing facilities
- Provides grants for demonstration-scale facilities
- The maximum loan guarantee is \$250 million and the maximum grant funding is 50% of project costs.



wood pellet



wood chip



olive stone



straw



oat husk



almond shell

Bioenergy Program for Advanced Biofuels

- Provides payments to eligible producers of advanced biofuels, or fuels derived from renewable biomass to support expanded production of advanced biofuels.
- Payments depend on the quantity and duration of production; the net nonrenewable energy content of the advanced biofuel; the number of producers participating in the program; and the amount of funds available.



Biomass Research and Development Initiative

- USDA and DOE initiative that provides grant funding for projects addressing research, development, and demonstration of biofuels and bio-based products and the methods, practices, and technologies for their production
- Focuses on three primary areas: feedstock development; biofuels and bio-based products development; and biofuels development analysis.
- Non-federal share of the total project cost must be at least 20%.

USDA- Rural Business-Cooperative Service Business and Industry Loan Guarantees

- Business conversion, enlargement, repair, modernization, or development
- Purchase and development of land, easements, rights-of-way, buildings, or facilities
- Purchase of equipment, leasehold improvements, machinery, supplies, or inventory
- Debt refinancing when new jobs will be created



Federal New Markets Tax Credit Program

- Allows tax credits for individuals and corporations making Qualified Equity Investments (QEIs) in qualified community development entities (CDEs)
- Investments expected to result job creation
- Expected to materially improve lives of residents of low-income communities
- Example: \$5.3 million of federal and state New Markets Tax Credit equity awarded to Zilkha Biomass Energy to renovate a former Dixie Pellets facility in Selma, Alabama.
- Georgia New Markets Tax Credit bill vetoed

The Industrial Development Revenue Bond

- Often used by municipal, county and state economic development officials to attract businesses and industry
- Commonly used in rural areas of Georgia
- Can be used for a wide variety of projects
- The bonds are of two types: taxable and tax-exempt.

Federal Tax Credits for Renewable Energy

- The *American Recovery and Reinvestment Act of 2009*

allowed Closed-loop and Open-loop biomass energy producers to choose between:

- IRC Section 48 Investment Tax Credit or
- IRC Section 45 Production Tax Credit

- Credits only apply to energy generation projects



Renewable Energy Production Tax Credit

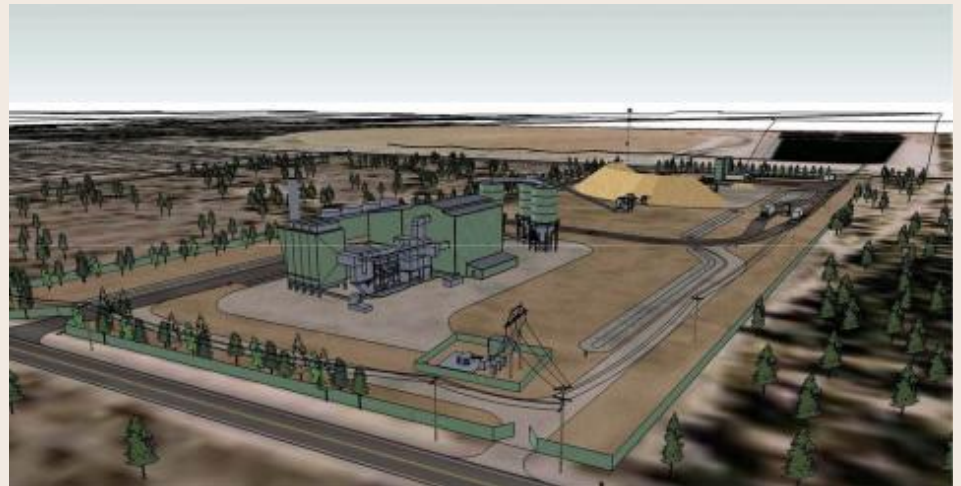
- IRC Section 45 establishes a production tax credit for renewable energy
- \$0.023/kWh for closed-loop biomass
- The *Tax Increase Prevention Act of 2014* extended both the PTC and permission for PTC-eligible facilities to claim the credit through end of 2014. Any qualifying project that commenced construction at any point in 2014 became eligible to claim the PTC.
- The *American Taxpayer Relief Act of 2012* revised the PTC by replacing "placed in service" deadlines with deadlines based on the beginning of construction to determine facility eligibility.

Business Energy Investment Tax Credit

- IRC Section 48 establishes an Investment Tax Credit for qualifying biomass energy property placed in service during the taxable year, which is equal to 30% of cost.
- **Qualified property** means property—
 - (i) which is—
 - (I) tangible personal property, or
 - (II) other tangible property (not including a building or its structural components), but only if such property is used as an integral part of the qualified investment credit facility,
 - (ii) with respect to which depreciation (or amortization in lieu of depreciation) is allowable,
 - (iii) which is constructed, reconstructed, erected, or acquired by the taxpayer, and
 - (iv) the original use of which commences with the taxpayer.

Qualified property for a biomass facility

- Includes property used for unloading, transfer, storage, reclaiming from storage, or preparation (shredding, chopping, pulverizing, or screening) of the material to be processed at the plant.
- Does NOT include equipment used to cultivate closed loop biomass, equipment used to collect biomass, and trucks, railroad cars, barges and pipelines that transport biomass to a qualified facility or between noncontiguous parts of a qualified facility are not an integral part of the facility



Questions?

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