

Southeastern Regional

Biomass and Bioenergy Overview

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GENERAL OVERVIEW

In 2003, the thirteen southeastern states consumed an estimated 40,007.3 trillion Btu (11.7 trillion kWh) of energy, consuming 40.6 percent of the total energy consumed in the United States that year.¹ On average, petroleum-based energy sources accounted for about 40.2 percent of total consumption, with natural gas providing another 24 percent. Other major energy sources were coal (20.8 percent) and nuclear (8 percent). Biomass, on average, supplied over 1,247.5 trillion Btu (365.6 billion kWh), or about 3 percent of the southeast’s total consumption.¹

FOREST-BASED RESOURCES

The states of the southeast have over 209.4 million acres of forestland. The area accounts for almost 28 percent of the total 749 million acres of forestland in the United States. This forestland can provide a variety of biomass types. Wood from operations such as harvesting or logging residues, intermediate thinning, and the processing of wood materials all provide a source of biomass for use in energy and products. Logging residues in the region can provide an estimated 25.8 million dry tons of biomass each

year. The processing of wood products also provides 15,977,110 dry tons of residues, such as bark, sawdust, and shavings each year. Urban wood wastes could also contribute 10.1 million dry tons of biomass each year.

AGRICULTURAL RESOURCES

The southeast has over 86.7 million acres of cropland that can produce traditional crop biomass, such as corn, soybeans, and wheat. This cropland and other farm lands has the potential to produce dedicated energy crops, such as switchgrass, as well. Farms in our region produce over 30 million tons of corn, 11 million tons of soybeans, and 6 million tons of wheat each year. In addition to the grain harvested from these crops, the crop residues, such as stalks, provide a large biomass resource. The management of Conservation Reserve Program land is also a consideration for producing biomass for energy. The region has 8.5 million acres of CRP land, some of which could possibly be utilized for energy production.

Manure and litter management for methane production, combustion, and other uses is also important. The southeast has 7.5 billion head of poultry and over 43 million head of livestock.

Table 1. Forest-related biomass sources of the southeast.

State	Forestland (mil acres) ²	Logging Residues (mil dry tons) ³	Processing Residues (mil dry tons) ³	Urban Wood Waste (mil dry tons) ⁴
Alabama	23	2.7	2.05	0.48
Florida	16.5	1.3	0.75	1.68
Georgia	24.7	3.5	2.10	0.92
Kentucky	12	1.2	0.46	0.45
Mississippi	19.8	3.6	1.98	0.31
North Carolina	18.7	2.3	1.57	0.83
South Carolina	12.4	1.6	0.84	0.46
Tennessee	14.4	0.76	0.62	0.61
Virginia	15.8	1.7	0.87	0.81
Arkansas	18.7	2.03	1.63	0.31
Louisiana	13.8	3.01	1.38	0.47
Oklahoma	7.7	0.66	0.25	0.37
Texas	11.9	1.4	1.46	2.31
Region Total	209.4	25.76	15.96	10.01

OTHER RESOURCES

Other resources that can provide biomass for energy and products are also abundant in the southeast. Municipal solid waste (MSW) is one of these sources. MSW produced annually in the region totals 151 million dry tons. One way of harnessing the energy production value of MSW is through the collection of methane at landfills. The region has 90 landfills actively involved in collecting methane.

SUMMARY

The southeastern United States has an abundance of biomass sources for use in bioenergy and bioproducts. This publication simply provides a snapshot of these resources. Please review each individual state's fact sheet for more detailed information. The potential for biomass is great and it is an opportunity for a more secure future.

Table 2. Other biomass resources of the southeast.

State	Municipal Solid Waste (mil. tons) ⁸	Landfill Methane Projects (#) ⁹
Alabama	7.0	3
Arkansas	29.2	11
Florida	8.1	7
Georgia	6.2	4
Kentucky	3.2	1
Louisiana	8.1	11
Mississippi	4.3	4
North Carolina	12.9	6
Oklahoma	12.0	16
South Carolina	2.8	2
Tennessee	6.3	3
Texas	5.3	3
Virginia	45.9	19
Region Total	151.3	90

Table 3. Agricultural biomass sources of the southeast.

State	Cropland (mil acres) ⁵	CRP Land (thous acres) ⁶	Corn (mil tons) ⁷	Soybeans (mil tons) ⁷	Wheat (thous tons) ⁷	Poultry (mil head) ⁷	Livestock (mil head) ⁷
Alabama	3.7	491.6	0.41	0.09	78.3	1121.6	1.5
Arkansas	9.6	84.3	0.78	3.20	558.1	1256.7	2.0
Florida	3.8	306.3	0.56	0.00	6.3	89.6	1.8
Georgia	4.7	354.1	1.40	0.11	176.4	1495.6	1.5
Kentucky	8.4	951.3	5.60	1.80	681.6	311.3	2.9
Louisiana	5.1	133.7	1.20	0.88	166.9	199.8	0.88
Mississippi	5.8	213.2	1.10	1.30	129.2	834.1	1.3
North Carolina	5.4	276.5	3.50	1.30	733.4	808.1	1.0
Oklahoma	14.8	66.7	1.20	0.11	2448.0	263.0	7.7
South Carolina	2.3	220.3	1.10	0.34	184.5	243.3	0.74
Tennessee	7	288.5	2.50	1.30	384.8	2.6	2.7
Texas	11.9	1056.0	7.30	0.11	1008.0	672.7	17.1
Virginia	4.2	4044.9	3.40	0.47	316.2	267.2	2.1
Region Total	86.7	8487.4	30.05	11.01	6871.7	7565.6	43.22

CITATIONS

- 1) U.S. Department of Energy, Energy Information Administration, "Table S3. Energy Consumption Estimates by Source, 2003." http://www.eia.doe.gov/emeu/states/sep_sum/html/pdf/sum_btutot.pdf
- 2) Forestland data derived from various state forestry agencies. See individual state fact sheets for citations.
- 3) U.S. Department of Agriculture Forest Service, Forest Inventory and Analysis Unit. Timber Product Output Data 2003. <http://srsfia1.fia.srs.fs.fed.us/php/tpo2/tpo.php>
- 4) Milbrandt, A. A Geographic Perspective on the Current Biomass Resource Availability in the United States. 2005. U.S. Department of Energy, National Renewable Energy Laboratory. <http://www.nrel.gov/docs/fy06osti/39181.pdf>

- 5) U.S. Department of Agriculture, National Agricultural Statistics Service. 2002 Census of Agriculture. <http://www.nass.usda.gov/>
- 6) U.S. Department of Agriculture, Farm Service Agency. Conservation Reserve Program Summary and Enrollment Statistics, FY 06. http://www.fsa.usda.gov/Internet/FSA_File/06rpt.pdf
- 7) U.S. Department of Agriculture, National Agricultural Statistics Service. 2006 Statistics by Commodity. Accessed May, 2007. <http://www.nass.usda.gov/>
- 8) Simmons, P., N. Goldstein, S. Kaufman, N. Themelis, and J. Thompson Jr. 2006. The State of Garbage in America. BioCycle. 47(3) April 2006. PP. 26-43. <http://www.jgpress.com/biocyclus.htm>
- 9) U.S. Environmental Protection Agency Landfill Methane Outreach Program Active Program Map (May 13, 2007). <http://www.epa.gov/lmop/docs/map.pdf>