

A publication by Forisk Consulting that tracks, screens, and analyzes the wood bioenergy sector in the United States.

Executive Summary

- **As of July/August 2014, there are 448 projects in the WBUS database.** All announced and operating projects could use a total of 135.6 million green tons of wood per year by 2023. Projects that pass viability screens could consume 88.0 million tons of wood per year. Projected wood use from all projects by 2023 is up from the May 2014 estimate by 14.6 million tons per year; part of this increase is due to revised wood consumption factors for pellet and electricity projects. *refer to "Project Development" on page 9 for more details*
- Since May 2014, 1 project was removed from the database, 12 projects were added, and 21 projects were updated. Of the 12 project additions this issue, three are CHP projects, three are electricity, one is a liquid fuel pilot plant, and the remaining six are wood pellet projects. *refer to "Project Development" on page 9 for more details*
- **Regionally, the US South had the most updates** this issue with the addition of 7 projects to the WBUS database, 1 removal, and 11 other updates. *refer to "Regional Updates" on pages 5-8 for more details*
- The feature article compares estimates of wood-to-energy conversions from industry and academic research across wood energy types: pellets, ethanol, and electricity. Findings on wood pellets and electricity production suggest 10% to 20% more green wood is needed per unit of output than often reported or assumed in previous projections. Revised conversion rates for pellets and electricity/CHP projects resulted in wood use projections that are 9% (10.7 million tons) higher by 2023 for total wood use from bioenergy and 9% (7.0 million tons) higher for volumes that pass screening criteria. Available research confirms the existing conversions applied to liquid fuel projects. *refer to "Feature" on pages 1-4 for more details*

Number and Wood Use of Announced and Operating Projects, 2023									
Number of Projects by Type						Total	Total that pass screens	Wood Use of All Projects gtons	Wood Use of Projects that Pass Screens gtons
Region	Electricity	CHP	Thermal	Liquid Fuel	Pellet				
North	58	23	9	11	88	189	137	40,734,229	29,098,154
South	34	23	10	21	78	166	95	77,663,524	46,573,018
West	29	17	2	5	40	93	61	17,239,957	12,364,322
Total	124	60	21	37	206	448	293	135,637,709	88,035,494

Feature: Revisiting Wood-Use Conversions and Projections For Bioenergy Projects

By Amanda Lang, Brooks Mendell, and Will Caldwell

Executive Summary

Press releases, public filings (such as 10-Ks), and company websites frequently report the energy-generating capacity of bioenergy plants. However, wood consumption requirements remain less commonly reported as they vary by feedstock type, moisture content, bark content, and production efficiency. This research compares estimates of wood-to-energy conversions from industry and academic research across energy types: pellets, ethanol, and electricity. Findings on wood pellets and electricity production suggest 10% to 20% more green wood is needed per unit of output than often reported or assumed in previous projections. Revised conversion rates for pellets and electricity/CHP projects resulted in wood use projections that are 9% (10.7 million tons) higher by 2023 for total wood use from bioenergy and are 9% (7.0 million tons) higher for volumes that pass screening criteria. The updated wood use conversions affect

Project Type	Previous Conversion	Current Conversion	% Change	Units
Pellet	2	2.2	10%	green short ton/ short ton pellets
Electricity	10,000	12,000	20%	green short ton/ MW
Liquid Fuels	40	40	0%	gallons/ green short ton

Note: Conversions assume roundwood equivalent (wood and bark) as feedstock

logging residues to a greater degree (11% increase), followed by hardwood pulpwood (10%) for projects that passed viability screens. These impacts affect projections in the North the most on a percentage basis (10.4% increase across feedstocks), and they affect the South the most in absolute terms (3.5 million ton increase across feedstocks). Available research confirms the existing conversions applied to liquid fuel projects.

Wood Use Conversion Research

White Pellets

Previous *Wood Bioenergy US (WBUS)* projections assumed 1 US short ton of pellets requires 2 green short tons of pulpwood roundwood (including bark). This 2-to-1 assumption is widely used for presentations, models, and back-of-the-envelope estimates; however, published and industry research indicates that the actual conversion rate is 2.2 green short tons per short ton of pellets. An LCA study by Katers et al. (2012)¹ used survey results from pellet manufacturers in Wisconsin. They estimated that plants using whole logs (including bark) require 2.205 green short tons of wood per 1 short ton of wood pellets.

Forisk surveyed pellet companies in the fall of 2013 regarding the conversion of their woody feedstock into wood pellets. Five firms provided results. Figure 1 includes standardized versions of the estimates from these firms. The average number of short tons of green wood with bark to produce one short ton of pellets was 2.26.

Figure 1. Conversions from Confidential Pellet Mill Survey

Reported Estimates					Green short tons in per 1 :	
Stated Estimate (Green->Pellets)	Units In	Units Out	Bark Included (%/Mass if stated)		Short Ton Out*	Metric Tonne Out*
Company 1	2.4	short	metric	Yes (15%)	2.18	2.4
Company 2	2.25	short	metric	No (12.5%)	2.33	2.57
Company 3	2.3	short	metric	No (N/A)	2.37	2.61
Company 4	2.25	N/A	N/A	No (N/A)	2.25	2.25
Company 5	2.15	short	short	Yes (N/A)	2.15	2.37
**Mean:					2.26	2.49

*Units are short tons of green wood required to produce 1 unit of their respective heading. All estimates include bark, and if converted, either use the % mass bark given in the survey, or a Forisk estimated percentage of 12

**Statistic excludes Pellet Company 4 since units were not stated.

Bark content critically affects the conversions for pellets. Bark content of delivered roundwood often accounts for anywhere between 10-13% (Forisk Survey, 2013; Clark et al., 2006²). Bark is often collected during the debarking process and used to fuel boilers in biofuel production if feedstock arrives as roundwood, but not often used in biofuel production due to chemical composition. For pellet projects, most newly announced pellet capacity in the US assumes roundwood pulpwood feedstock as a primary component, for which the 2.2-to-1 conversion applies.

Liquid Fuels

Forisk assumes 40 gallons of ethanol out for every 1 green short ton in, and industry research suggests similar conversion rates. The US Department of Energy (DoE) Theoretical Ethanol Yield Calculator estimates that hardwood sawdust and forest thinning feedstocks could produce 100.8 and 81.5 gallons per dry ton (50.4 gal, 40.75 gal/green short ton) respectively³. Laboratory studies produced 72% of the theoretical maximum yield: 72 gallons of ethanol from 1 ton of

¹ Katers, John F., Adam J. Snippen, and Maureen E. Puettmann. "Life-Cycle Inventory of Wood Pellet Manufacturing and Utilization in Wisconsin." *Forest Products Journal* 62.4 (2012).

² Clark, Alexander, III; Daniels, Richard F.; Borders, Bruce E. 2006. Effect of rotation age and physiographic region on weight per cubic foot of planted loblolly pine. Gen. Tech. Rep. SRS-92. Asheville; NC: US. Department of Agriculture, Forest Service, Southern Research Station. Pp 344-346

oven dry lodgepole pine barkless wood chips⁴.

On a green ton basis (36 gal/green short ton), lab results support yields reported by firms such as KiOR in publicly-filed 10-Ks. Catchlight Energy indicated that they can produce 90-120 gallons of ethanol per bone dry ton of clean pine chips with a maximum moisture content (MC) of 55%; this implies a production of 41.6 gallons of liquid fuel per green short ton of pine with bark included. An original 2011 study by Gonzalez et al. estimated 36.91 gallons of ethanol per green short ton of natural hardwood, and 35.98 gallons per green short ton of loblolly pine⁵.

Electricity

Forisk assumes 10,000 green short tons per 1 MW of electricity. Published and industry research suggests that actual conversions average 12,000 green short tons per 1 MW. Estimates from a Georgia Forestry Commission on biomass conversions cites 12,000 green short tons per MW based on findings from Bulpitt at Georgia Tech, and 12,102 green short tons per MW from McClure at the Georgia Forestry Commission. A study by Treasure et al. (2012) modeled that 500,000 bone dry tons of hog fuel (40% MC) would generate ~72 MW, or ~11,500 green short tons per MW⁶. Burlington Electric's 50 MW wood biomass power station reports burning 76 green short tons of per hour. At maximum capacity that would require 12,614 green short tons of wood per MW.

Moisture and bark content affect the electricity potential of green wood. These vary by species, age, location, time since harvested, and time of harvest. Moisture contents reported in the studies reviewed ranged from 40-55%. Higher moisture content raw material contains less combustible material and results in higher effective process and raw material costs.

Wood Conversion Research Conclusions

Findings on wood pellets and electricity production suggest more green wood is needed per unit of output than assumed previously (2.2 green short tons to 1 short ton pellets, and ~12,000 green short tons of wood to 1 MW). Findings on wood-based ethanol production generally align with previous assumptions, but may suggest lower rates (~36 gallons per green short ton). From this research, Forisk revised the conversion estimates for *WBUS* analysis to the following:

- 2.2 green short tons of wood/ short ton pellets
- 40 gallons of liquid fuel/ green short ton of wood [unchanged]
- 12,000 green short tons of wood/ MW electricity

Wood Use Projections

Changes in wood use estimates for pellets, electricity, and CHP projects increase *Wood Bioenergy US* projections of wood consumption from viable screened projects by 7.0 million green tons by 2023, or 8.6% (Figure 2). The new wood use conversions increase possible wood use from all announced and operating projects by 10.7 million green tons by 2023, or 8.5%.

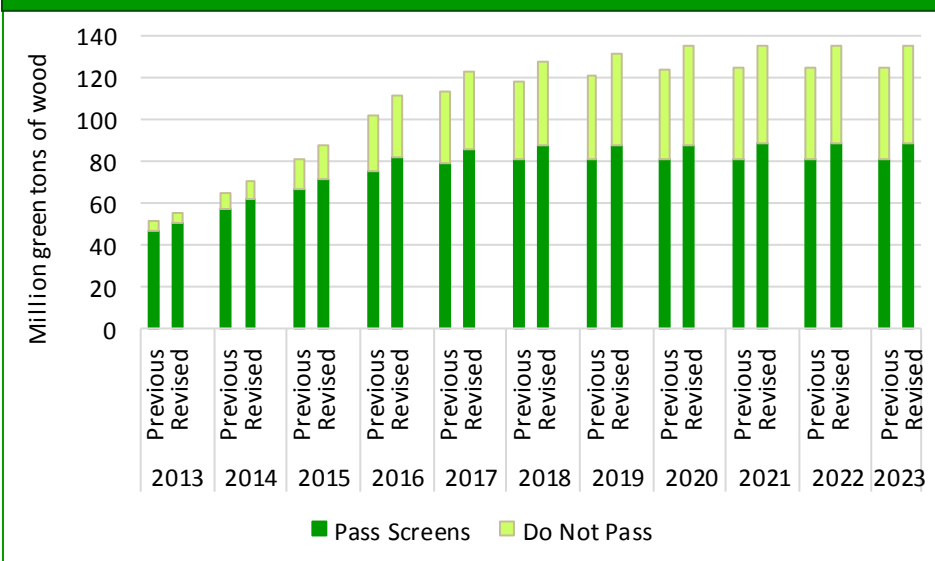
³ Nwakaire, J. N., Sunday L. Ezeoha, and B. O. Ugwuishiwu. "Production of cellulosic ethanol from wood sawdust." *Agricultural Engineering International: CIGR Journal* 15.3 (2013).

⁴ Zhu, J. Y., et al. "Ethanol production from SPORL-pretreated lodgepole pine: preliminary evaluation of mass balance and process energy efficiency." *Applied microbiology and biotechnology* 86.5 (2010): 1355-1365.

⁵ Gonzalez, R., Treasure, T., Phillips, R., Jameel, H., and Saloni, D (2011). "Economics of cellulosic ethanol production: Green liquor pretreatment for softwood and hardwood, greenfield and repurpose scenarios," *BioRes*, 6(3), 2551-2567.

⁶ Treasure, T., Gonzalez, R., Venditti, R., Pu, Y., Jameel, H., Kelley, S., & Prestemon, J. (2012). Co-production of electricity and ethanol, process economics of value prior combustion. *Energy Conversion and Management*, 62, 141-153.

Figure 2. Comparison of Wood Use Estimates with Previous and Revised Conversion Factors for Pellets and Electricity



Specific impacts of revised conversions varied by feedstock type. The changes in wood use conversions affected logging residues to the greatest extent (11% increase), followed by hardwood pulpwood (10%) for projects that passed viability screens (Figure 3). These impacts affected projections in the North the most on a percentage basis (10.4% increase across feedstocks), and they affected the South the most in absolute terms (3.5 million ton increase by 2023 across feedstocks).

Figure 3. Differences by Feedstock Type for Projects that Pass Screens (2023 Projection)

Feedstock Type	Previous tons	Revised tons	Difference	% Difference
Pine Pulpwood	18,392,691	19,805,760	1,413,069	7.7%
Hardwood Pulpwood	8,219,755	9,072,335	852,580	10.4%
Logging Residues/Dirty Chips	23,109,290	25,669,590	2,560,300	11.1%
Urban Wood	8,652,533	9,200,633	548,100	6.3%
Mill Residue	22,331,204	24,143,625	1,812,422	8.1%

Forisk Contact Information:

Amanda Lang
Managing Editor
ahlang@forisk.com

Brooks Mendell
Publisher
bmendell@forisk.com

Heather Clark
Customer Relations
hclark@forisk.com

Forisk Consulting
PO Box 5070
Athens, GA 30604
Phone: 770.725.8447
Fax: 770.725.8448

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Volume, million green tons, by 2023						
	Softwood PW	Hardwood PW	Logging Res.	Mill Residues	Urban Wood	Total
Operating	7.2	2.6	8.0	7.5	2.3	27.6
Announced (pass screens)	12.3	1.2	4.0	1.9	0.7	20.1
Announced (do not pass)	19.7	4.4	3.0	1.6	1.2	30.0
Total	39.2	8.2	15.1	11.0	4.2	77.7

Note: shut down plants are included in "announced (do not pass)". Pulpwood refers to roundwood or pulp-quality in-woods chips. Logging residues include limbs, tops, bark, and other residues produced during logging operations as well as whole-tree chips from precommercial thinning operations.

Discussion

Operating bioenergy projects in the South have the capacity to consume 27.6 million green tons of wood per year. Of this total, 7.2 million tons is in the form of softwood pulpwood, 2.6 million tons is hardwood pulpwood, and 8.0 million tons is logging residues. Pellet mills alone have the capacity to consume 6.5 million tons of pine pulpwood and 2.5 million tons of hardwood pulpwood annually. Electricity and CHP plants consume the remaining volume of roundwood and woods chips. Mill residues comprise 7.5 million tons, or 27%, of current consumption. Looking ahead, announced projects that pass viability screens could consume 20.1 million additional tons of wood per year by 2023, of which 67% is pulpwood. Pellet plants would lead new demand for pulpwood (12.6 million tons that pass viability screens).

Project Additions

- Protea Resources (#658) is planning a 330K metric ton pellet plant at a former Louisiana Pacific OSB site in Silsbee, TX.
- Dixie Energy (#657) is operating a 40K ton pellet facility in Cross City, FL.
- Albany Green Energy (#656) is a proposed 43 MW CHP plant at the P&G facility in Albany, GA.
- Drax Calhoun Falls (#654) is a proposed pellet plant in Abbeville, SC.
- Midland Biomass Energy Station (#652) is a proposed 2.5 MW biomass power plant in Midland, TX.
- Pike Bioenergy (#649) is a proposed 450K metric ton pellet facility being developed by Drax in Magnolia, MS.
- Weyerhaeuser Flint River Mill (#646) and Weyerhaeuser Port Wentworth (#647) pulp/paper mills in GA are developing 15 MW CHP plants.

Project Removals/Cancellations

- Greenway Renewable Power (#77), a proposed 50 MW biomass electricity plant in LaGrange, GA, was removed from the *WBUS* database as it sold its PPA to another renewable energy project.

News and Project Activity

- The Zilkha Biomass (#3) 275K metric ton pellet facility in Selma, AL is under construction; Zilkha plans to complete construction in 2014.
- The 50 MW Aspen Power (#51) plant is now owned by Inventiv Energy, and NRG Energy plans to restart the plant this summer in Lufkin, TX.
- Vega Biofuels (#637) has entered into an agreement with an Austrian company to sell 50,000 tons of Bio Coal for next five years; Vega is developing a bio coal plant in Allendale, SC.
- The Georgia Biomass 750K metric ton pellet facility in Waycross, GA (#143) is for sale; RWE Innogy initiated the sales process this summer.
- KiOR is considering financing options or a possible sale of the company after missing a loan payment of \$1.88 million on June 30. The state of MS is giving KiOR more time to raise money and resume repaying the \$69.4 million owed on the \$75 million loan it provided to KiOR. KiOR laid off additional employees at the idled Columbus, MS biofuel plant (#427); the company still has plans for an additional plant in Natchez, MS (#439), although the state could offer the property to another company.

News and Project Activity, continued

- The German Pellet Plant in Woodville, TX (#569) is now SFI certified.
- The State of SC approved an air permit for the E-pellets (former Enova Energy Group) 450K metric ton pellet project in Johnston, SC (#595).
- Biomass Power Louisiana LLC (#597) secured a lease on a pellet mill site at the Port of Natchitoches for a 1.02 million ton pellet facility. Formerly, the project was planned for the Port of Baton Rouge.
- Enviva Pellets Sampson LLC (#624) received an extension from Sampson, NC for incentive and land option agreements as construction of the 500K metric ton pellet plant has been delayed due to permitting issues.
- Enviva secured options on a site in Laurens County, SC for a pellet plant (#642).
- E-pellets Group LLC acquired the former Louisiana Pacific OSB mill in Athens, Georgia to build a 450K metric ton pellet facility (#645).

Volume, million green tons, by 2023						
	Softwood PW	Hardwood PW	Logging Res.	Mill Residues	Urban Wood	Total
Operating	0.9	0.6	3.2	4.2	2.5	11.4
Announced (pass screens)	0.0	0.0	0.5	0.8	0.3	1.5
Announced (do not pass)	1.3	0.0	2.2	0.3	0.4	4.3
Total	2.3	0.6	5.8	5.2	3.3	17.2

Note: shut down plants are included in "announced (do not pass)." Pulpwood refers to roundwood or pulp-quality in-woods chips. Logging residues include limbs, tops, bark, and other residues produced during logging operations as well as whole-tree chips from precommercial thinning operations.

Discussion

Operating bioenergy projects in the West have the capacity to consume 11.4 million green tons of wood per year. Of this total, 4.7 million tons (41%) is in the form of roundwood or woods chips (including logging residues and pulpwood chips), and is primarily consumed by electricity plants. Mill residues comprise 4.2 million tons, or 37%, of current consumption. Looking ahead, announced projects that pass viability screens could consume 1.5 million additional tons of wood per year by 2023, of which 53% is mill residues. Electricity and CHP plants would lead the new demand for woods chips.

Project Additions

- The Cool Planet pilot biofuel facility in Camarillo, CA (#648) is operating.

News and Project Activity

- Roseburg Forest Products (#194 and #239), Snowflake Power LLC (#234), Forest Energy Corp (#339), Eureka Pellet Mills (#345 and #346), Honey Lake Biomass Power Plant (#384), Covanta Mendota Power (#401), Covanta Delano Power (#402), Ochoco Lumber (#408), Collins Pine Company (#480), Mt. Taylor Machine, LLC (#529), Eagle Valley Clean Energy (#580), Biomass One (#594) and Seneca Sawmill (#237) were selected by USDA to accept biomass deliveries supported by the Biomass Crop Assistance Program.
- Deschutes County, OR granted a two-month extension for land and building permits to Biogreen Sustainable Energy (#217). The proposed 25 MW electricity plant has been delayed several times; project managers plan to meet with county officials soon to discuss the status of the project.
- Hu Honua Bioenergy (#218), a proposed 24 MW electricity plant in Hilo, HI, owes \$35 million in unpaid construction bills; the owner of the site, Maukaloa Farms LLC, asked to be dismissed from the lien.
- The Nippon Paper Industries 20 MW biomass plant in Port Angeles, WA is shut down (#362). The new biomass boiler has cracks in the mud drum and requires major repairs.

Volume, million green tons, by 2023						
	Softwood PW	Hardwood PW	Logging Res.	Mill Residues	Urban Wood	Total
Operating	0.1	3.4	7.9	8.4	3.5	23.2
Announced (pass screens)	0.0	1.9	1.7	2.1	0.2	5.9
Announced (do not pass)	0.0	6.4	4.4	0.9	0.0	11.6
Total	0.1	11.6	14.0	11.4	3.7	40.7

Note: shut down plants are included in "announced (do not pass)." Pulpwood refers to roundwood or pulp-quality in-woods chips. Logging residues include limbs, tops, bark, and other residues produced during logging operations as well as whole-tree chips from precommercial thinning operations.

Discussion

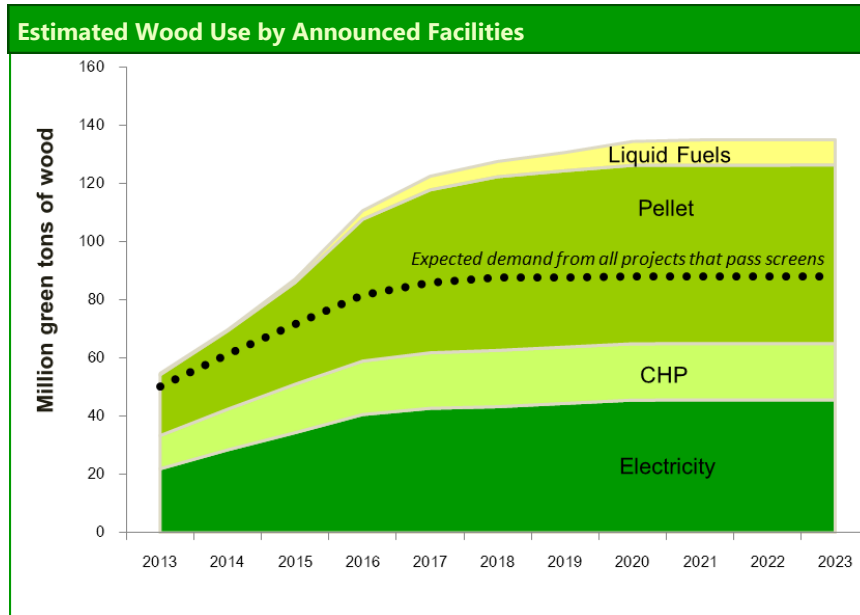
Operating bioenergy projects in the North have the capacity to consume 23.2 million green tons of wood per year. Of this total, 3.5 million tons (15%) is in the form of pulpwood, and is primarily consumed by electricity plants. Mill residues make up 8.4 million tons, or 36%, of current consumption. Looking ahead, announced projects that pass viability screens could consume 5.9 million additional tons of wood per year by 2023, of which 32% is pulpwood. Electricity and CHP plants would lead the new demand for pulpwood.

Project Additions

- Athens Energy LLC (#655) is an a proposed biomass electricity plant to be connected to Maine Wood Pellets Company in Athens, ME.
- A biomass power plant proposed by American Generation Partners LLC could generate power at the Vermont Yankee Site (#653), a soon to be closed nuclear power plant in Vernon, VT.
- Northeast Wood Products purchased Pennington Seed's pellet facility in Peebles, OH (#650) and is in the process of buying a facility in Ligonier, IN (#651).

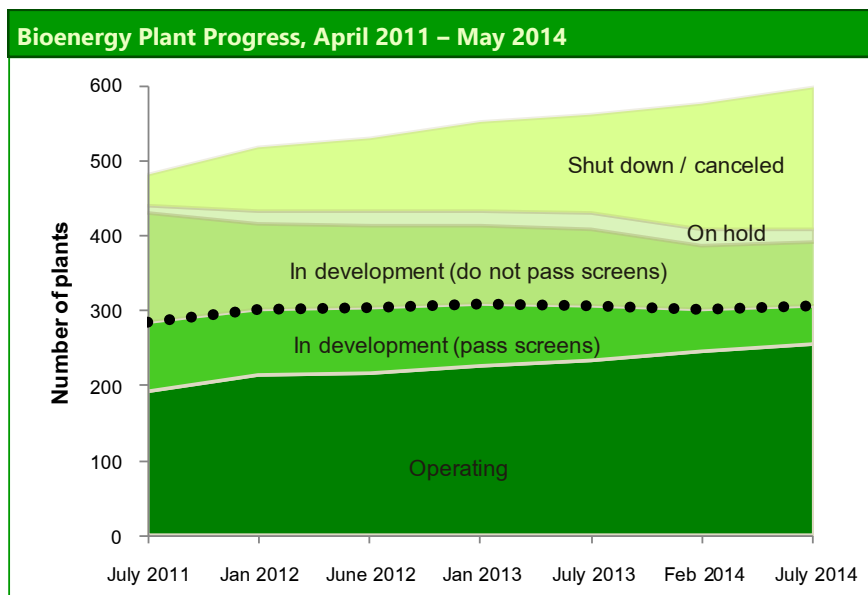
News and Project Activity

- Burgess Biopower (#199), an operational power plant in Berlin, NH received RPS certification in Connecticut; the plant is now certified to produce RECs in Connecticut, New Hampshire, Maine, and Rhode Island.
- Hibbard Energy Center Co-fire (#231), and North Rapids Energy Co-fire (#554) were selected by the USDA to accept biomass deliveries supported by the Biomass Crop Assistance Program.
- ReEnergy is collecting wood waste from cities to burn at the Black River plant (#524) in Fort Drum, NY at no charge.
- Two investors withdrew \$30 million in commitments to fund Thermogen Industries efforts to build a torrefied biomass plant in Millinocket, ME (#572). Both investors cited the technology change of the project in February from a microwave technology to Zilkha Biomass' black pellet technology as "not meeting underwriting requirements."
- Escanaba Green Energy is still in the process of finalizing financing to purchase the Escanaba, MI power plant to convert it to biomass (#590).
- Wood Fibers, a 90,000 ton pellet plant in Niagara, WI (#603), must pay \$50,000 in forfeitures, court costs and surcharges for violations of its air pollution permit.
- Athens Energy LLC (#655), a proposed electricity plant located in Athens, ME, will receive \$30 million in investment from CCG Community Partners in exchange for tax credits approved by the Financing Authority of Maine (FAME).



As of July/August 2014, there are 448 projects in the WBUS database. All announced and operating projects could use a total of 135.6 million green tons of wood per year by 2023. Projects that pass viability screens could consume 88.0 million tons of wood per year. Projected wood use from all projects by 2023 is up from the May 2014 estimate by 14.6 million tons per year; part of this increase is due to the revised wood consumption factors for pellet and electricity projects. Projected wood use from projects that pass viability screens is up from the May 2014 estimate by 8.0 million tons.

Since the May 2014 issue, 1 project was removed from the database, 12 projects were added, and 21 projects were updated. Of the 12 project additions this issue, three are CHP projects, three are electricity, one is a liquid fuel pilot plant, and the remaining six are wood pellet projects. The three CHP projects are to be co-located at pulp/paper mills in the South (GA). Two of the three electricity additions are located in the North (VT and ME) and one in the South (GA). Four of the pellet projects are located in the South (TX, FL, SC, MS) and two are located in the North (OH and IN). The pellet projects in the North are purchases of existing pellet facilities while three of the four announcements in the South are new projects.



Estimated Wood Use, 2023, green tons						
State	No. Projects Announced and Operating	100% Total Tons	Currently Available Technology Screen	Status Screen ⁽¹⁾	% That Pass Screens	% Change in Total Tons Since Last Year
AK	1	33,000	33,000	33,000	100%	10%
AL	6	1,810,072	1,143,472	1,143,472	63%	10%
AR	5	2,358,600	1,258,600	290,600	12%	106%
AZ	5	589,840	589,840	169,840	29%	-47%
CA	33	7,865,540	7,685,840	6,539,840	83%	-6%
CO	6	738,360	738,360	642,000	87%	-41%
CT	4	919,000	919,000	375,000	41%	19%
FL	25	13,346,516	13,071,016	7,775,016	58%	17%
GA	33	13,687,336	13,332,200	11,306,800	83%	-8%
HI	2	288,375	288,000	0	0%	20%
IA	2	1,000	1,000	1,000	0%	0%
ID	6	291,820	291,820	291,820	100%	7%
IL	2	20,100	5,500	5,500	27%	3%
IN	5	291,724	291,724	134,424	46%	-24%
KS	1	35,000	35,000	0	0%	0%
KY	9	2,130,366	2,130,366	1,170,366	55%	3%
LA	8	7,838,800	6,938,800	6,058,800	77%	0%
MA	6	1,034,160	1,034,160	744,160	72%	-39%
ME	31	8,839,301	5,864,901	4,634,901	52%	19%
MI	21	3,687,814	3,187,814	2,803,814	76%	-14%
MN	6	2,564,556	2,564,556	2,564,556	100%	226%
MO	5	334,953	334,953	334,953	100%	-45%
MS	20	13,382,000	6,437,000	2,796,000	21%	22%
MT	3	433,220	433,220	433,220	100%	14%
NC	15	7,664,800	7,664,800	4,359,600	57%	46%
NE	1	0	0	0	0%	-100%
NH	13	3,293,300	3,293,300	3,293,300	100%	-5%
NJ	1	176,000	176,000	176,000	100%	10%
NM	4	535,942	535,942	187,942	35%	5%
NV	0	0	0	0	0%	-100%
NY	21	3,265,200	3,260,200	2,431,800	74%	-2%
OH	9	6,170,230	6,165,855	3,845,855	62%	9%
OR	23	3,606,860	2,597,660	1,549,660	43%	-25%
PA	18	1,566,950	1,565,200	1,385,200	88%	2%
SC	16	6,177,230	5,927,230	3,615,030	59%	72%
SD	2	237,750	237,750	237,750	100%	4%
TN	5	154,000	154,000	154,000	100%	5%
TX	10	2,969,870	2,867,400	2,075,400	70%	3%
VA	23	8,274,300	8,274,300	6,998,300	85%	7%
VT	9	1,842,200	1,842,200	1,435,200	78%	-30%
WA	8	2,835,000	2,835,000	2,495,000	100%	-19%
WI	17	2,742,767	2,742,517	2,742,517	100%	-26%
WV	6	1,581,858	1,581,858	781,858	49%	3%
WY	2	22,000	22,000	22,000	100%	10%
Total	448	135,637,709	120,353,354	88,035,494	65%	5%

¹ The status screen is cumulative and is applied to projects that pass the technology screen.