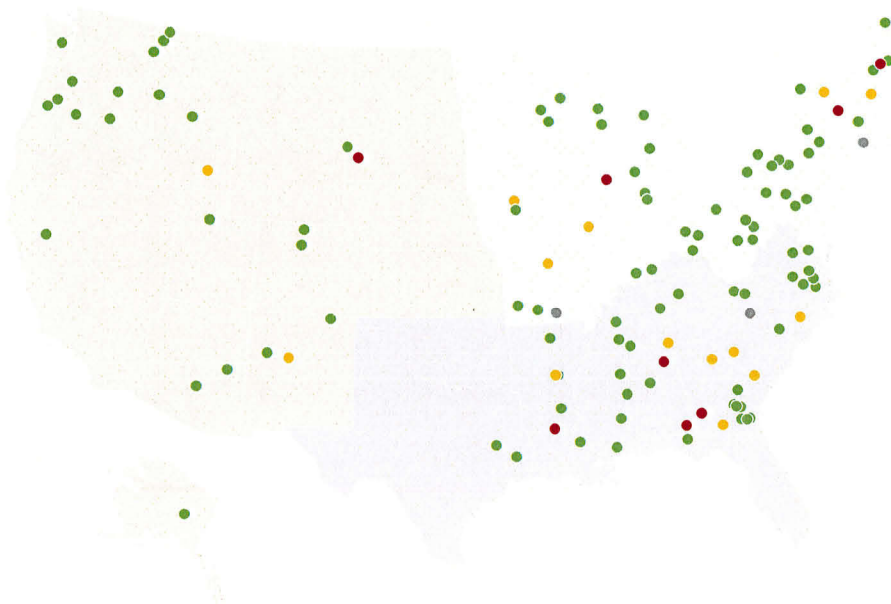


Monthly Densified Biomass Fuel Report

Release date: December 12, 2016 | Next release date: To be determined

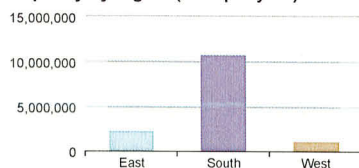
Manufacturing facilities with capacity and status, January 2016



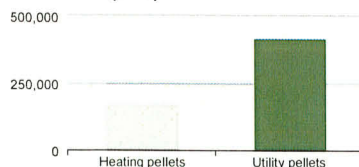
+
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Status indicator:
currently operating
under construction/planned
temporarily not in operation

Capacity by region (tons per year)



Production (tons)



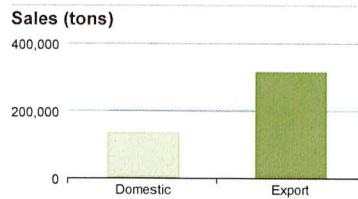


Table 1. Densified biomass fuel manufacturing facilities in the United States by state, region, and capacity, January 2016

download

Region	State	Name	Operational status	Annual capacity (tons per year)
+East				
East total				2,285,700
+South				
South total				10,821,897
+West				
West total				1,151,848
U.S. total				14,259,445
Currently operating/temporarily not in operation				11,523,006
Planned/under construction				2,736,439

Note: Planned/under construction facilities are expected to begin operations within the next year.

Source: U.S. Energy Information Administration Form EIA-63C, Densified Biomass Fuel Report.

January 2016 Highlights

In January 2016, EIA conducted the first survey of densified biomass fuel manufacturers. We collected data from 119 facilities that manufacture densified biomass fuel.

- Fourteen of these facilities are planned or under construction and expected to begin operating within one year.
- Seventeen of these facilities have capacity of less than 10,000 tons per year. These facilities are not required to complete EIA's monthly survey.
- The remaining facilities (either operating or temporarily not operating) reported their production and sales data for January 2016.

Facilities required to report monthly had a total capacity to produce 11.4 million tons of wood pellets annually and collectively had an equivalent of 2,252 full-time employees. For January 2016, they reported purchasing 1.3 million tons of raw biomass feedstock and producing 0.6 million tons of densified biomass fuel product (note: feedstock purchases do not directly relate to production in the same reporting period). In January, total sales were 0.5 million tons. Approximately 31% was sold to the domestic market and 69% was exported.

Utility-type pellets for industrial use (such as electric power generation) for export were produced almost exclusively in the South and exported almost exclusively to European markets. Historically, the domestic heating pellets market was concentrated in the East. However, in January 2016, the West had the largest share of the domestic market with 41% of total U.S. sales, followed by the East (28%) and the South (31%). The lower biomass sales to the heating market in the East were attributed to record-high winter temperatures (see <https://www.ncdc.noaa.gov/November2015throughJanuary2016climatesummary/>) as well as lower heating oil prices than in the past.

NOTE: The next release will contain several months of data, and in the months following, data will be released as collection and quality measures are completed.

Tables

Table 2. Number of operating densified biomass manufacturing facilities by U.S. region, full-time equivalent employees and capacity, 2016 download

Region	Month	Number of facilities	Capacity (tons per year)	Number of FTE employees
East				
	January	34	2,159,600	614
South				
	January	36	8,354,258	1,388
West				
	January	18	916,200	250
U.S. total				
	January	88	11,430,058	2,252

Note: Does not include facilities under construction and/or planned or small facilities, which report annually.

Source: U.S. Energy Information Administration Form EIA-63C, Densified Biomass Fuel Report.

Table 3. Feedstocks and average cost per ton for the manufacture of densified biomass products, 2016 download

month	Roundwood timber		Sawmill residue		Wood product manufacturing		Other residuals	
	quantity (tons)	cost (USD per ton)	quantity (tons)	cost (USD per ton)	quantity (tons)	cost (USD per ton)	quantity (tons)	cost (USD per ton)
January	152,775	\$27.04	280,632	\$36.16	127,887	\$42.31	746,574	\$31.72

Notes: The other residuals category includes bark, logging residues, wood chips, post consumer wood, unmerchantable wood, and other. Roundwood timber is generally logs harvested for industrial use from sustainably managed forests.

Source: U.S. Energy Information Administration Form EIA-63C, Densified Biomass Fuel Report.

Table 4. Production of densified biomass fuel, 2016 (tons) download

Region	Month	Wood pellets, PFI certified	Wood pellets, not certified	Wood pellets utility	Compressed bricks/logs
East	January	54,276	41,270	0	0
South	January	21,762	17,946	421,133	0
West	January	23,830	14,361	0	1,659
U.S. total	January	99,868	73,577	421,133	1,659

Notes: Wood pellets, PFI certified includes: Wood pellets premium (PFI certified) and Wood pellets standard (PFI certified); Wood pellets, not certified includes: Wood pellets premium (not certified), Wood pellets standard (not certified), Wood pellets ENplus A1, Wood pellets ENplus A2 and other; Wood pellets, utility includes: Wood pellets utility (not certified), Wood pellets utility (PFI certified) and Wood pellets ENplus B; Compressed bricks/logs includes: Compressed bricks, Compressed logs, and briquettes.

For information on the PFI (Pellet Fuel Institute) Certification Standards, see <http://www.pelletheat.org/pfi-standards>

Source: U.S. Energy Information Administration Form EIA-63C, Densified Biomass Fuel Report.

Table 5. Characteristics of densified biomass products, 2016

Table 5 will not be available for January and February because of insufficient data. Table 5 will be available beginning with March data.

Table 6. Inventories of densified biomass fuel, 2016 (tons) download

Region	Month	Wood pellets, premium/standard	Wood pellets, utility	Compressed bricks/logs
East	January	210,248	0	0
South	January	82,027	264,249	0
West	January	51,600	0	3,720
U.S. total	January	343,875	264,249	3,720

Notes: Wood pellets premium/standard includes: Premium bagged, Premium bulk, Standard bagged, Standard bulk, and other; Wood pellets, utility includes: Utility bulk; Compressed bricks/logs includes: Bricks and logs.

Source: U.S. Energy Information Administration Form EIA-63C, Densified Biomass Fuel Report.

Table 7. Domestic sales and average price of densified biomass fuel, 2016 download

Region	Month	Quantity (tons)	Average price (USD per ton)
East	January	39,325	\$185.70
South	January	43,264	\$130.51
West	January	57,337	\$171.19
U.S. total	January	139,926	\$162.69

Note: Includes all product types sold in the United States, both retail and wholesale sales.

Source: U.S. Energy Information Administration Form EIA-63C, Densified Biomass Fuel Report.

Table 8. Export sales and average price of densified biomass fuel, 2016 download

Month	Quantity (tons)	Average price (USD per ton)
January	318,480	\$151.07

Note: Includes all product types exported, both retail and wholesale sales.

Source: U.S. Energy Information Administration Form EIA-63C, Densified Biomass Fuel Report.

About the Densified Biomass Fuel Report

Form EIA-63C, Densified Biomass Fuel Report, a new EIA survey launched in January 2016, gathers information on wood pellet and other densified biomass fuel production, sales, and inventory levels from approximately 90 operating pellet fuel manufacturing facilities in the United States. Facilities with an annual capacity of 10,000 tons or more per year are required to report monthly. Smaller facilities (those with a capacity of less than 10,000 tons per year) report their production capacity annually.

EIA proposed this survey in early 2014, and got feedback from the industry on how to best collect the data. EIA received approval from the Office of Management and Budget to conduct the new survey on August 28, 2015.

Densified biomass fuel, a growing energy source in the United States, consists primarily of compressed wood pellets, briquettes, and logs. These fuels are easy and economical to store and transport. The manufacture of wood pellets utilizes wood residues from sustainably managed forests as well as high-quality wood waste from a variety of industrial

activities such as construction and logging. Wood pellet combustion has a high efficiency level, averaging about 80%, and extremely low particulate emissions. Additionally, wood pellets are a renewable energy source.

Densified biomass fuel is used for heating in wood pellet stoves or furnaces in residential settings and in large-scale boilers in commercial buildings. Industry uses utility-grade wood pellet in processes that require thermal energy, such as generating electricity.

Table descriptions and definitions

Individually identifiable data on production, inventories, and sales are protected from public disclosure.

Table 1: Densified biomass fuel manufacturing facilities in the United States by state, region, and capacity

Lists the respondents to the survey, the state the facility is located in, the operating status, and annual production capacity of the facility.

Table 2: Number of operating densified biomass manufacturing facilities, full-time equivalent employees and annual capacity by region (excludes planned and small facilities)

Summarizes the number of reporting entities and the number of full-time-equivalent employees (FTEs), and the total annual capacity by region.

Table 3: Feedstocks and average cost per ton for the manufacture of densified biomass products received at densified biomass fuel facilities

Displays the feedstock purchases (tons) and average weighted cost (USD per ton) for four categories of raw materials: roundwood timber (generally, logs harvested for industrial use from sustainably managed forests), sawmill residue, wood product manufacturing residue, and other residuals. Other residuals is an aggregated category to protect individual data from disclosure and includes bark, logging residues, wood chips, post-consumer wood, unmerchantable wood (wood products that are too poor in quality or too small to convert to industrial use), and other. Details by region are not provided to protect confidentiality.

Table 4: Production of densified biomass fuel by U.S. region and densified biomass product type.

Displays the tons of wood fuel products manufactured in each region during the reporting month for four categories: wood pellets, PFI certified; wood pellets, not certified; wood pellets, utility; and compressed bricks/logs. Non-certified pellets are those as of the reporting month that did not have the official PFI certification. Included in wood pellets: PFI certified and not certified categories are premium, super-premium, and standard pellets. These pellet types are primarily used for heating residences, schools, and other buildings. Utility-type pellets are generally used for electric power generation and include both those with and without certifications, such as PFI or ENplus (a European certification program). Compressed bricks/logs are a small part of the industry, generally used in residential heating applications.

Table 5: Characteristics of densified biomass

Displays the average heat values (Btu per pound) and moisture and ash contents (percentage by weight) of the manufactured products reported in Table 4. The first report that will include these data will be published in the report containing March data.

Table 6: Inventories of densified biomass fuel by U.S. region and densified biomass product type

Displays end-of-month inventories (tons) for three broad categories (wood pellets, premium and standard; wood pellets, utility; and compressed bricks/logs) of densified biomass fuel products by region for the reporting month.

Table 7: Domestic sales and average price of densified biomass fuel by U.S. region.

Displays sales (tons) and average price (revenue per ton) of primarily wood pellets in the domestic heating market for the reporting month. Sales and average revenue per ton include both retail and wholesale sales.

Table 8: Export sales and average price of densified biomass fuel.

Displays U.S. export sales and average price (revenue per ton) of primarily utility-grade pellets to global markets. Protection of data precludes display of destination countries and ports.

The Pellet Fuel Institute (PFI)

The Pellet Fuel Institute is a non-profit organization made up of about 100 member companies. PFI establishes and maintains densified biomass fuel standards, among other industry-specific tasks.

PFI certification

Wood pellets that are PFI certified meet certain standards that are set by PFI and regulated by third-party inspections. PFI graded fuel is manufactured to ensure optimal performance of pellet burning stoves.

Contacts:

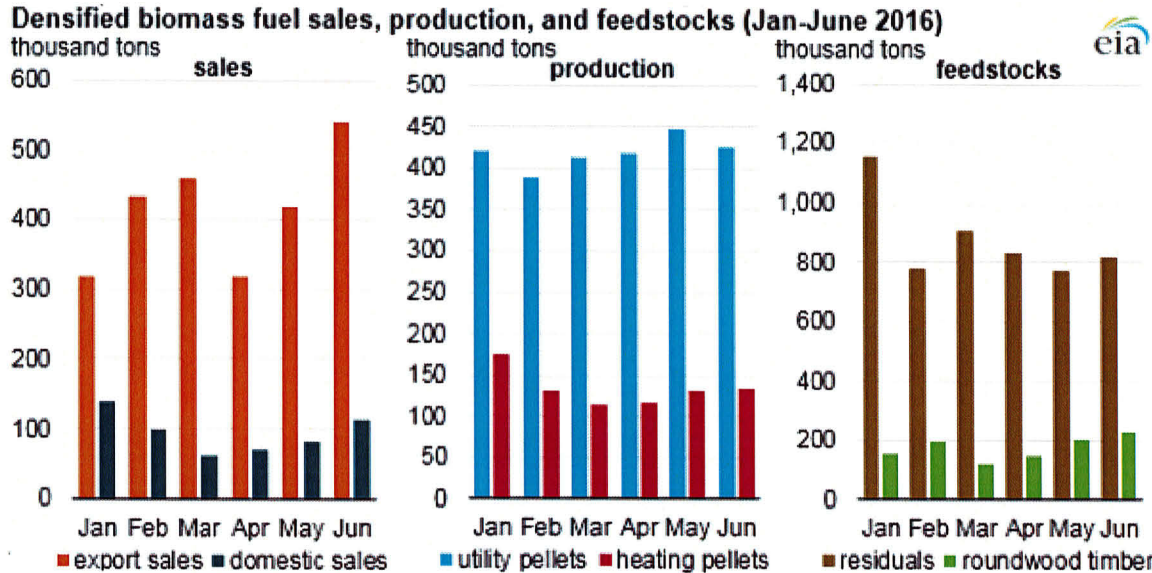
- Channele Wirman (channele.wirman@eia.gov)
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Today in Energy

December 14, 2016

New EIA survey collects data on production and sales of wood pellets



Source: U.S. Energy Information Administration, [Densified Biomass Fuel Report](#)

Note: Data for February through June are preliminary.

Republished December 14, 2016, 10:30 a.m. to correct units on graph.

During the first half of 2016, U.S. manufacturers produced approximately 3.3 million tons of wood pellets and sold 3.1 million tons, mostly to foreign markets, according to data from EIA’s newly released [Densified Biomass Fuel Report](#).

Wood pellet fuel, also known as densified biomass fuel, is used for electric power generation and for domestic heating needs. About 85% of raw materials for biomass pellets come from wood waste streams such as logging residues, sawmill residues, and wood product manufacturing residue. Roundwood timber—generally logs harvested for industrial use—account for about 15% of raw materials.

EIA’s new survey collects data from manufacturers of densified biomass fuels, primarily wood pellets. The new survey began collection in January 2016 with data from about 120 planned and operational densified biomass manufacturing facilities in the United States. These

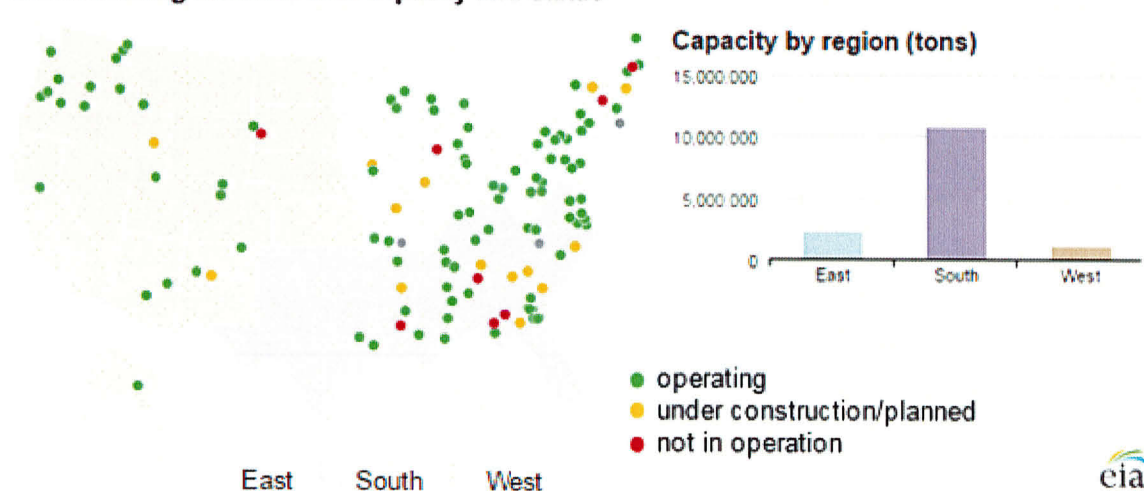
facilities have the capacity to produce a total of 11.4 million tons of densified biomass annually.

Utility-grade wood pellets used by electric utilities account for more than 75% of total wood pellet production. The remainder is mostly premium-grade pellets used for heating in the residential and commercial sectors. Utility-grade pellets generally have higher ash content than premium pellets. Premium pellets with lower ash content and higher heating values are better suited to heating applications where use of pellets with high ash content might have adverse impacts on wood pellet stoves and air quality.

During the first half of 2016, about 82% of pellet sales were utility pellets in the export market, of which more than 85% were sold to the [United Kingdom's Drax power plant](#).

The remaining 18% of pellet sales were sold in the United States. Domestic sales of heating pellets are driven by winter heating demand and wood's price competitiveness with fossil fuels. During winter 2015-16, prices for heating oil, propane, and natural gas were relatively low, reducing wood's price competitiveness. State policies also play a role in wood pellet sales. Some northeastern states have promoted switching from heating oil to biomass to improve local economies and to address growing concerns related to greenhouse gas emissions.

Manufacturing facilities with capacity and status



Source: U.S. Energy Information Administration, [Densified Biomass Fuel Report](#)

From January through June 2016, the South produced and sold virtually all of the utility-grade wood pellets. During the same period, the East produced most of the heating pellets, 61%, but sold only 43%. The South produced 17% and sold 33% while the West produced 22% and sold 24% of the heating pellets.

Principal contributors: Channele Wirman, Connor Murphy