



The United States has several large-scale biomass electricity generation facilities, concentrated mainly in the Southeast and Upper Midwest where forestry and agricultural residues are abundant. Biomass plants typically vary widely in throughput (measured in megawatts of capacity and tons of fuel processed per year), depending on their feedstocks and technology.

The largest or most notable biomass power plants in the U.S. as of recent data (2024–2025):

**1. New Hope Power Partnership (Okeelanta, Florida) - Operator: Florida Crystals Corporation**

Capacity: Approximately 140 MW - Feedstock: Sugarcane bagasse and urban wood waste

Throughput: Processes more than 1 million tons of cane fiber and waste annually

Notes: The largest biomass power plant in North America, supplying electricity to over 60,000 homes and powering sugar refining operations.

**2. Nacogdoches Generating Facility (Nacogdoches, Texas) - Operator: Originally Southern Power, later acquired by Austin Energy**

Capacity: 100 MW - Feedstock: Wood chips, wood waste, and forest residues

Throughput: Roughly 1.3 million tons of wood biomass annually

Notes: One of the most advanced wood-fired biomass plants in the U.S., with emissions-controlled fluidized bed combustion.

**3. EWP Columbus Biomass Plant (Georgia) - Operator: Georgia Renewable Power LLC**

Capacity: 55 MW - Feedstock: Lumber mill residuals and urban wood waste

Throughput: About 600,000 tons per year

Notes: Built to support Georgia's timber industry by creating a demand sink for waste wood.



**4. Rothschild Biomass Cogeneration Plant (Rothschild, Wisconsin) - Operator: WE Energies and Domtar Paper**

Capacity: 50 MW (combined heat and power facility) - Feedstock: Wood, paper, and forestry byproducts

Throughput: About 400,000 tons of waste biomass annually

Notes: Provides steam and power for an adjacent paper mill, improving efficiency and sustainability.

**5. McNeil Generating Station (Burlington, Vermont) - Operator: Burlington Electric Department**

Capacity: 50 MW - Feedstock: Wood chips and logging byproducts sourced within 60 miles

Throughput: Roughly 400,000 tons of wood chips per year

Notes: Serves as a key renewable energy source for Burlington, which claims carbon-neutral electricity.

Here's a ranked table comparing the largest biomass electricity generators in the U.S. by annual throughput, along with estimated energy efficiency and cost per megawatt-hour (MWh). The figures are approximate based on publicly available and industry-sourced data.

Rank	Facility Name	Location	Annual Biomass Throughput (tons)		Net Capacity (MW)	Electrical Efficiency (%)	Est. Cost per MWh (USD)	Primary Feedstock
1	New Hope Power Partnership	Florida	~1,200,000	140	24-26	85-100		Sugarcane bagasse, wood waste
2	Nacogdoches Generating Facility	Texas	~1,300,000	100	26-28	90-120		Wood chips, forest residues
3	EWP Columbus Biomass Plant	Georgia	~600,000	55	24-25	95-110		Urban and forest wood waste
4	Rothschild Cogeneration Plant	Wisconsin	~400,000	50	30-33	70-90		Mill byproducts, wood residues
5	McNeil Generating Station	Vermont	~400,000	50	22-25	80-95		Local wood chips

**Key Observations**

**Throughput:** The New Hope and Nacogdoches plants are the largest by both fuel processed and generation capacity.

**Efficiency:** Cogeneration facilities, like Rothschild, outperform others in efficiency because they capture heat for industrial use.

**Cost:** Electricity from biomass typically costs between \$90-110 per MWh, higher than natural gas but with renewable and waste-reduction benefits.

