

Protecting the environment and community

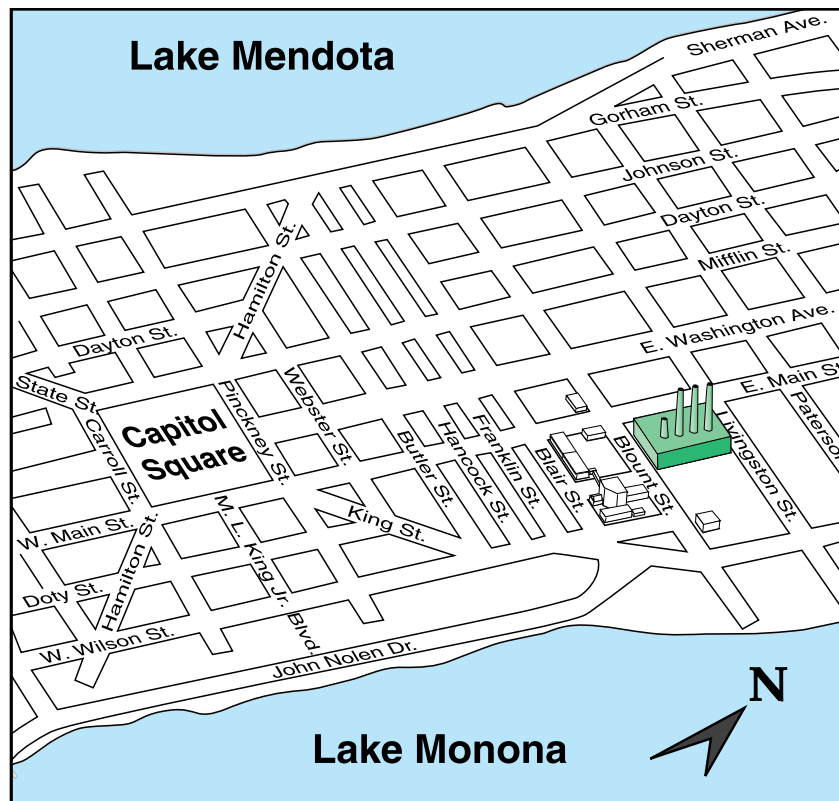
MGE is committed to environmental protection in all aspects of its operation. Blount's unique location in the central city represents many operational challenges that are closely monitored by a team of skilled professionals. MGE and the Wisconsin Department of Natural Resources have entered into an Environmental Cooperative Agreement (ECA) that enables MGE and DNR staff to work together on environmental issues and solve problems more effectively. Under the ECA, MGE has agreed to reduce waste, improve air emissions and work toward mutually agreed-upon environmental goals.

Blount meets or exceeds air quality, water quality, recycling and waste disposal standards set by state, local and federal regulations. A continuous emissions monitoring program allows us to monitor sulfur dioxide, nitrogen oxide, carbon dioxide and opacity (a measure of how clear emissions are from the stacks). Blount is the first power plant in Wisconsin to be ISO 14001 certified, an internationally recognized environmental certification program.

Blount operating facts


- During periods of maximum electricity production at Blount, up to 125,000 gallons of water per minute are circulated through the plant's condensers and back out to Lake Monona.
- Blount operates with six boilers and five steam turbine generators.
- Blount produces about 10% to 15% of the electricity our customers use.
- The original Blount Station went into commercial operation in 1902.
- Blount was one of the first electric generating stations in the United States to retrofit its existing steam boilers to successfully burn refuse-derived fuel and other alternate fuels including wastepaper, wood, switch-grass and pre-consumer paper products.

Blount Station



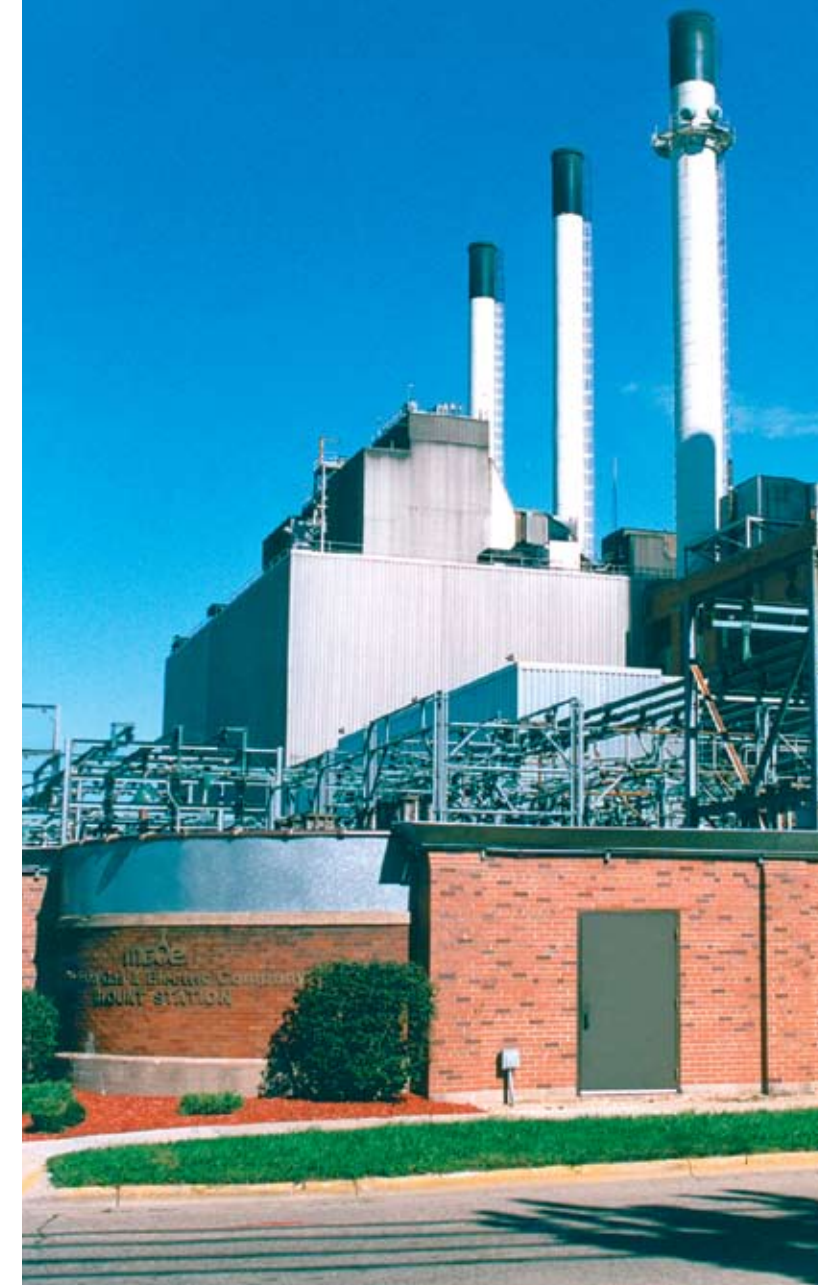
Get more information at:

- 252-7117
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Madison Gas and Electric Company

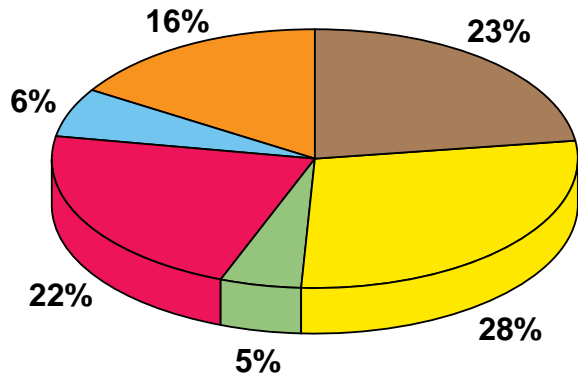


Energy for you

Madison Gas and Electric (MGE) owns and operates Blount Station located in central Madison. This station typically produces electricity daily throughout the year. MGE serves 130,000 customers in Dane County.

At maximum output, Blount can generate 190 megawatts (one megawatt can provide the power needs for about 200 homes). Electricity is sold to the Midwest ISO regional energy market.

MGE energy sources Installed capability



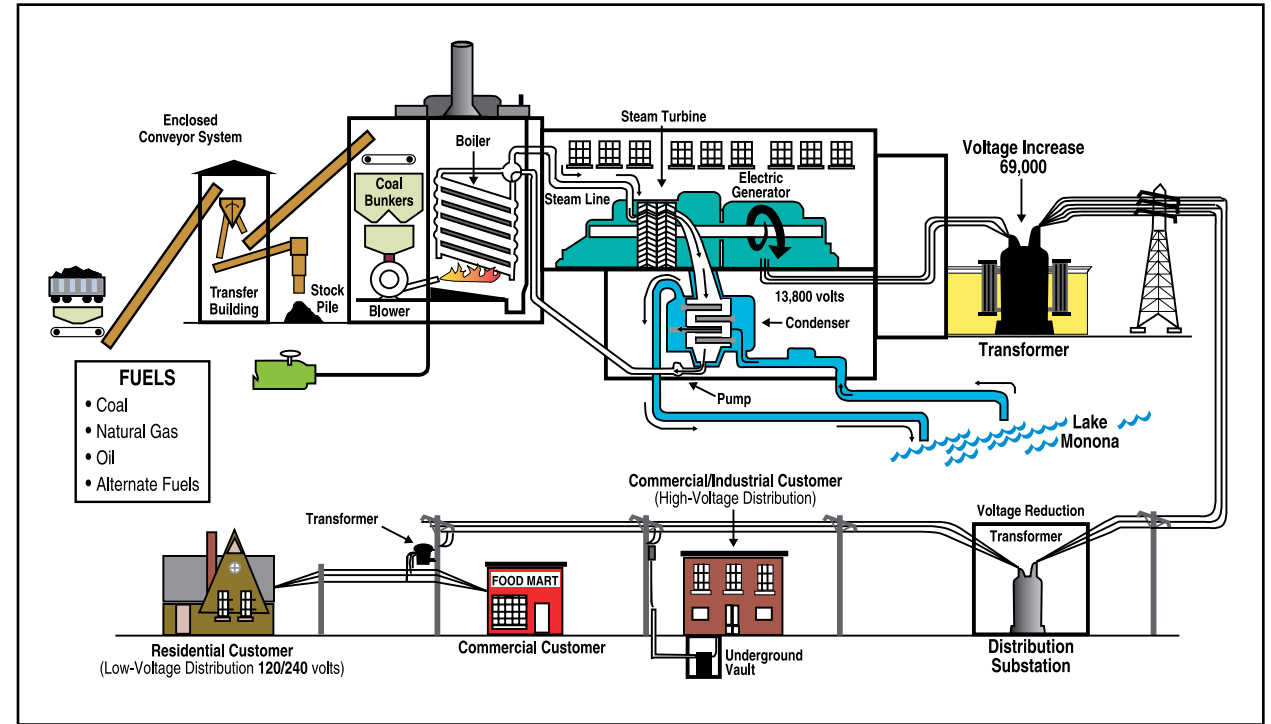
- Blount
- Columbia
- Renewable Power (includes wind, solar electric)
- Combustion Turbines
- Backup Generators
- West Campus Cogeneration Facility

How electricity is generated and distributed

Coal-generated steam

Coal is the primary energy source at Blount. Natural gas and pre-consumer paper products also contribute to the fuel mix. Coal arrives by railcar. It is pulverized into powder and mixed with air then piped inside boilers where it is burned. Miles of tubing inside the boilers circulate water which absorbs heat and is converted into steam.

Six boilers produce high-pressure steam for five turbine generators. The two largest boilers produce 400,000 pounds of steam per hour at 950 degrees Fahrenheit and at 1,250 pounds per square inch of pressure. By comparison, water in a residential water heater is warmed to approximately 125 degrees Fahrenheit at 85 to 95 pounds per square inch of pressure.



Turbine generator

Once high-pressure steam is produced, it passes through a turbine. A turbine consists of rows of blades that radiate from a center shaft similar to spokes on a bicycle wheel.



The shaft rotates the generator, which has two parts: stationary coils of copper wire (stator) and a rotating magnet (rotor) within the stationary stator coils. As the magnetic field of the rotor whirls past the stationary copper coils, electricity is generated at high voltage.

Condensation and the steam cycle

After steam passes through the turbine, it passes through the condenser where it is cooled and changed back into water. The condensed water then returns to the boiler to be converted into steam again.

Water used to condense the steam is pumped into condenser tubes from Lake Monona and then returned to the lake after it is used. Lake water never comes into direct contact with the steam produced in the boilers.

From the power plant to you



The electricity leaves the generator at 13,800 volts. At this point, a transformer increases it to 69,000 volts or higher. For commercial, residential and industrial use, electricity travels along transmission wires to a substation where voltages are decreased to either 4,160 or 13,800 volts. Overhead and underground distribution lines carry the electricity to smaller transformers for reduction to the 120/240 volts used for household electric service.