

**MU Power Plant**

**75  
Years**

**1923-1998**

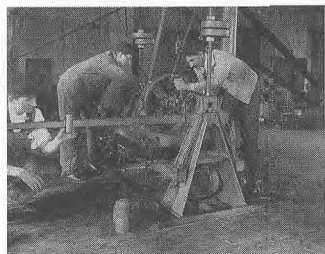


# The MU Power Plant - a history of energy innovation

**T**he Power Plant's legacy of innovation began with Thomas Edison's influence on MU. The MU campus, Jan. 10, 1883, was the site of the first display west of the Mississippi of Edison's invention, the incandescent light.

The display was powered by a 20,000-watt Edison Dynamo that Edison himself provided Professor Benjamin Franklin Thomas. Thomas' early experiments with the dynamo sparked the 1885 establishment of MU's Department of Electrical Engineering, the second such academic department in the nation.

Soon afterward, according to an 1888 journal entry, Academic Hall was "lighted by electric light, and warmed by steam with the Heine boilers and Bundy radiators."



By 1892, the university had a "new power house," located on the Quad where Hill Hall now stands, and had contracted for equipment with Edison's General Electric Company in Chicago. This forerunner of today's Power Plant, at the turn of the century provided heat and light to Academic Hall, the main administrative and classroom building on campus, and served as a laboratory for engineering students.

The early years of the 20th century saw the construction of the Dairy Power House in 1901, the complete wiring in 1902 of five campus buildings -- the Dairy, Medical and Horticulture Buildings, the Engineering Laboratory and Read Hall - and the 1903 construction of a water plant.

In 1904, Arthur M. Green Jr., a professor of mechanical engineering, was placed in charge of the power house's Light and Heat Station. Green brought electricity to the whole campus, while increasing the size and capability of the power plant.

Over years spanning the Wright Brothers accomplishments at Kitty Hawk, the maiden voyage of the Titanic, and WWI, the Power Plant stayed on target on its power-supply course. And at the beginning of the "Roaring 20s," a new era began for the campus when the Board of Curators in 1921 approved a budget of \$150,000 for a larger and up-to-date power plant to be built on Maple Street, now known as Stewart Road. This new power plant began producing steam and electricity on January 4, 1923, starting a 75-year period of service to the MU campus.

# 1920s

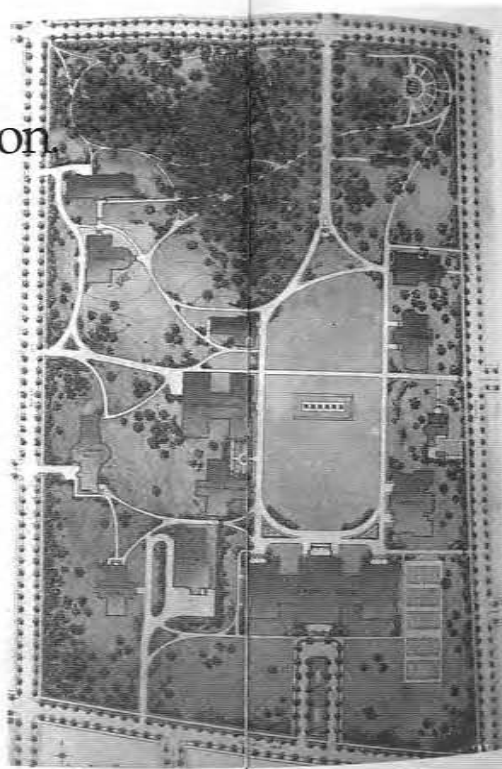
The power plant is opened in 1923 at its present location.  
**Campus Population: 3,260**



**1921:** The foundation is laid for the new power plant at the corner of Fifth Street and Stewart Road.



**1923:** When opened, the power plant had four boilers and two steam turbines. The plant began producing power Jan. 4, 1923.



Aerial map of campus - 1925

**1938:** Two deep wells, each rated at 500 gallons/minute with a 375,000 gallon reservoir, are placed in service:

The East Well, near the College of Agriculture ...

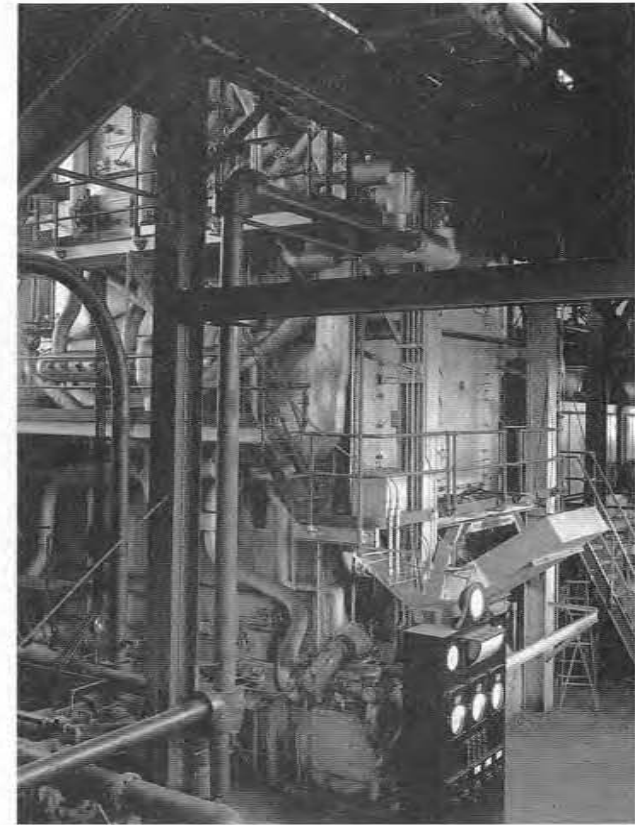


... and the West Well, at the Power Plant.

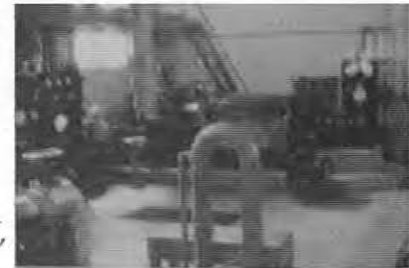


# 1930s

**Campus Population: 3,986**



**1938:** Boiler #5, rated at 300 psi and 50,000 pph, and Steam Turbine Generator #3, rated at 750 KW, are installed.



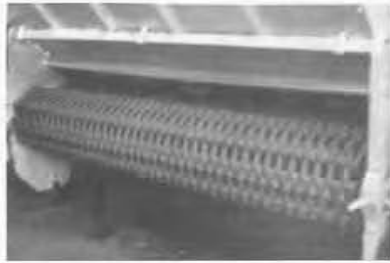
With the surge in growth...

# 1940s...Boiler #6 was installed.

Campus Population (1943): 1,938



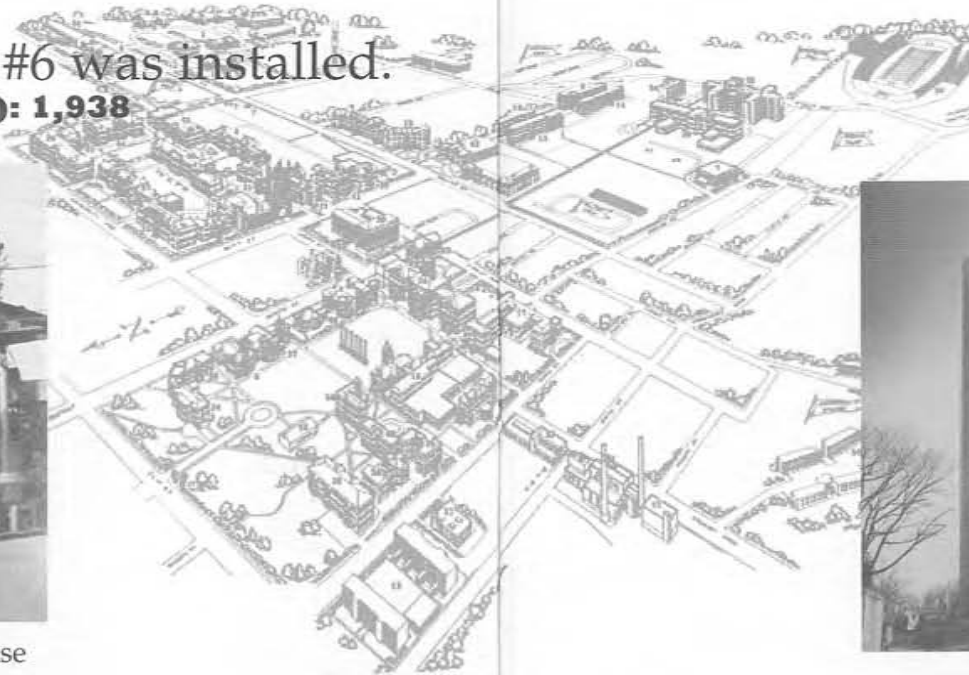
**1940:** Diesel building added to house two 500 KW diesel generators.



**1947:** Grate for Boiler #6, rated at 300 psi and 75,000 pph.



**1952:** Exterior of power plant showing the chimneys of Boilers #5 and #6.



Aerial map of campus - 1956



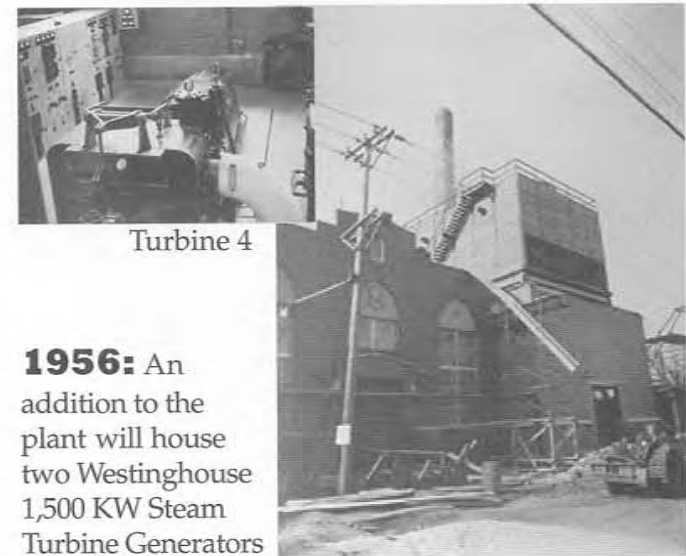
**1953:** Aerial view of the Power Plant. Providence Road, a dirt road located at the top of the photo is today a major avenue in Columbia.

# 1950s

Campus Population: 8,756



**1956:** Power Plant is expanded for two chain-grate stoker boilers, Boilers #7 and #8, each rated at 300 psi and 75,000 pph.



Turbine 4

**1956:** An addition to the plant will house two Westinghouse 1,500 KW Steam Turbine Generators #4 and #5, purchased used from the Missouri State Penitentiary.

Following World War II ...

# 1960s...Boilers #9 and #10 are added...

**Campus Population: 11,216**



**1960:** South Well, rated at 1,000 gpm with a 750,000 gallon reservoir, is placed in service near the General Services Building.



**1961:** New 5,000 KW Westinghouse Steam Turbine Generator #6 is installed. This same year, Turbine Generators #1 and #2 are removed.



**Aerial map of campus - 1977**



**1965:** The Power Plant is enlarged for Boiler #9, a Riley

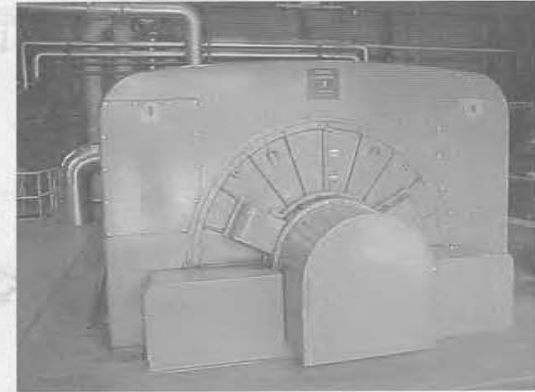
spreader-stoker boiler rated at 420 psi and 125,000 pph.



**1969:** Southwest Well, rated at 1,200 gpm with a 1,200,000 gallon reservoir, is placed in service at the Research Park.

# 1970s

**Campus Population: 21,687**



**1974:** Dresser-Rand Turbodyne Steam Turbine-Generator #7, rated at 12,500 KW, is installed.



**1974:** Riley stoker Boiler #10, rated at 420 psi and 200,000 pph, is installed.

...and Turbine #7.

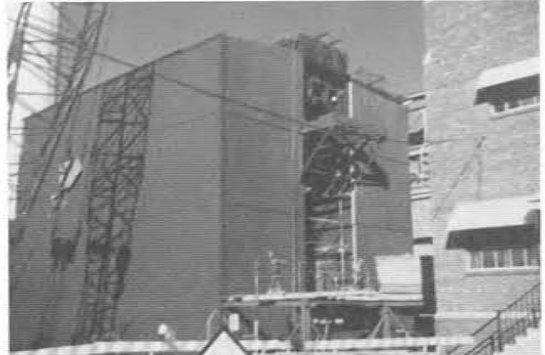
# 1980s...Two baghouses, two tall chimneys...

**Campus Population: 24,297**

**1980-81:** Two 325-foot concrete smoke stacks and two baghouses are erected for Boilers #7, #8, #9, and #10.



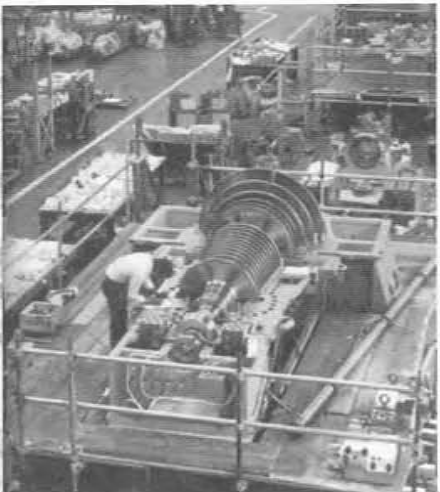
South stack built - 1980.



**1981:** South Baghouse is under construction for Boiler #10.



Aerial map of the central MU campus - 1986

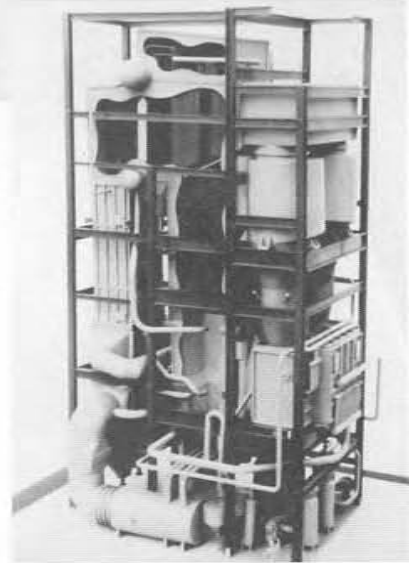


**1986:** General Electric Turbine Generator #8 is put into service.



**1985:** The Central control room is built. The pneumatic instrument and control system is replaced with digital electronics.

**1987-88:** MU was the first university in the nation to install a circulating, fluidized bed boiler, Boiler #11, which reduces sulphur dioxide emissions.



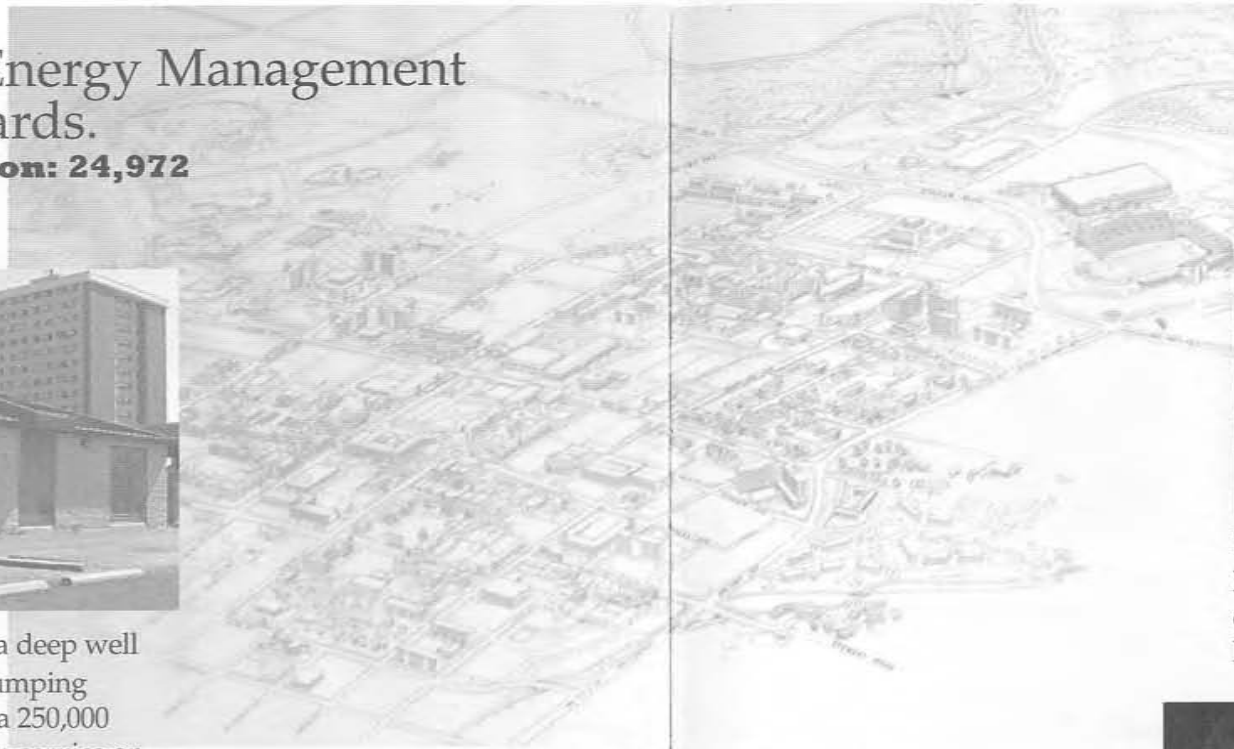
... and Turbines #8 & #9, and Boiler #11, are added.

# 1990s Energy Management wins state awards.

**Campus Population: 24,972**



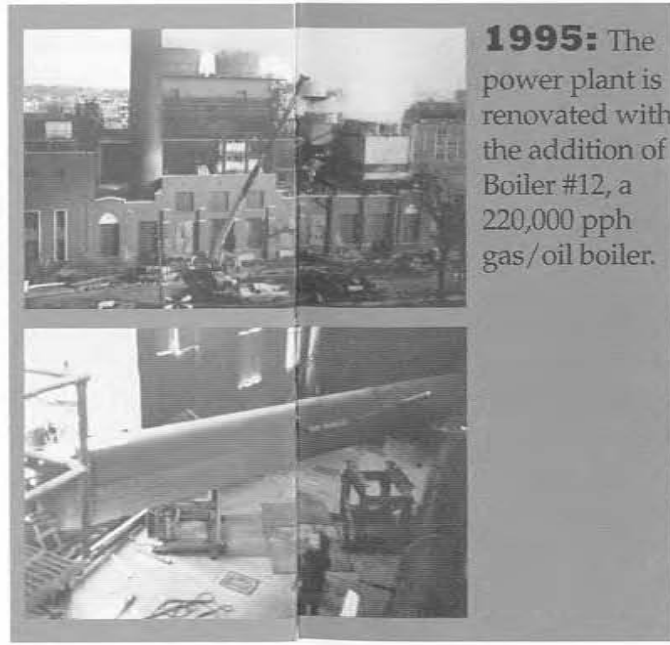
**1991:** The North Well, a deep well for potable water with a pumping capacity of 1,000 gpm and a 250,000 gallon reservoir, is placed in service on the north side of the MU campus.



**Aerial map of the campus - 1995**



**1995:** Tire-derived fuel successfully burned in Boilers #7 and #8. Shown above, a front-end loader moves the tire-derived-fuel mixture to the Power Plant.



**1995:** The power plant is renovated with the addition of Boiler #12, a 220,000 pph gas/oil boiler.



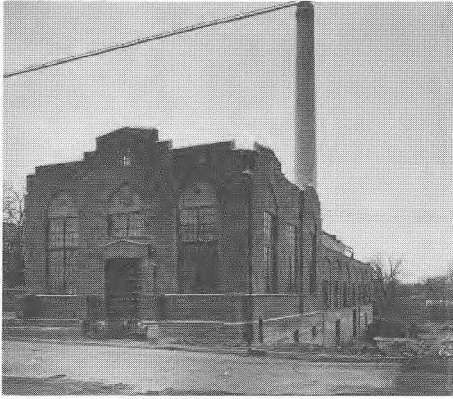
**1996:** A new, full-capacity (40 MW) 69 kv inter-tie is installed, connecting the power plant's utility lines with the City of Columbia.



**1998:** MU Energy Management receives two Governor's Awards -- the State of Missouri's Governor's Pollution Prevention Award, and the 1998 Governor's Award for Quality and Productivity. (From left to right: Paul Hoemann, director of Energy Management; Alan Warden, vice chancellor, Facilities; and Mel Carnahan, governor of Missouri.)



## The Power Plant: Yesterday and Today



Serving a student population of over 3,500, the 1923 MU Power Plant had...

...a steam-production capacity of 100,000 lbs of steam per hour from four coal-fired boilers, each rated at 25,000 lbs of steam per hour of 150 psig steam.

...an electric production capacity of 900 KW from two steam turbine generators, one rated at 300 KW, the other at 600 KW.

...water supplied from an existing water well and reservoir system installed in 1903 near the 1892 power house.



The MU Power Plant today serves over 35,000 students, faculty, and staff with...

... a steam production capacity of 845,000 lbs of steam per hour from six boilers ranging from 300 to 900 psig.

... a rated electric production capacity of over 52,000 KW from four auto extraction steam turbine generators.

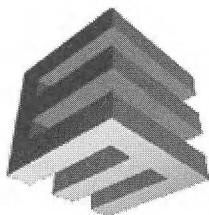
... a water production capacity of 5.5 million gallons per day with a storage capacity of over 2.5 million gallons of water.

The smallest boiler is rated at 75,000 lbs of steam per hour with a pressure of 300 psig. The plant's largest boiler is rated at 220,000 lbs of steam per hour with a pressure of 900 psig.

The boilers burn a variety of fuels including coal, tire-derived fuel, natural gas, and fuel oil.



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Photos courtesy of University of Missouri Archives.



**MU** *Energy Management*  
*Campus Facilities*