Facilities Management
University of Colorado at Boulder

UTILITY SERVICES

Power House University of Colorado Boulder 2009

Our objective as part of the Facilities Management team is to operate and maintain a safe, reliable and energy efficient utility system. It is our goal to operate and maintain the utilities in a manner that assures the reliability of service and longevity of the campus utilities, while balancing the need for environmental responsibility. We strive to work as a team to promote honesty, professionalism and accountability. Our vision for the future is to be a progressive, customer-focused organization that is recognized as a national leader in service and the stewardship of resources for the 21st century.

University History

After Boulder was selected as the site of the State University in 1872, Boulder citizens rallied to raise $15,000 in matching funds to construct CU's first building, now known as Old Main; completed in 1876.

Eight years later, smaller buildings were added nearby housing men, women, and the university president. In the next 30 years, the university grew around a large cruciform-shaped open space that became Norlin Quadrangle. Significant buildings added during this time include Buckingham Library (now the University Theatre), Guggenheim Law (now Guggenheim Geography), Macky Auditorium, additions to Hale Science, and **a Power House for steam generation.**

Power House Circa 1910

First Utility Services to Main Campus

The Power House at the University of Colorado was constructed in 1909 and utilized coal fired boilers to distribute steam at 125 psig, 60 KW of DC and 225 kW of AC power. Since AC commercial power use was still in its infancy period at this time, this choice of electrical generation was quite extraordinary.

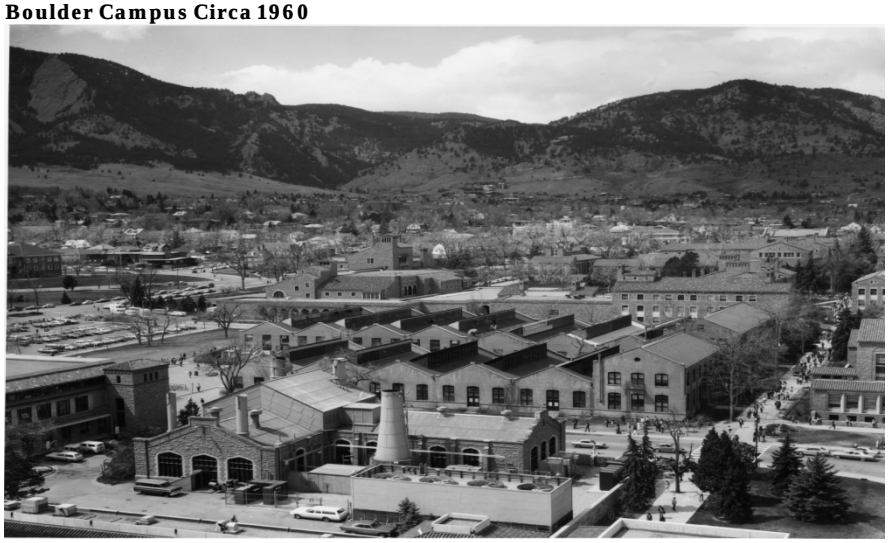
June of 1939, the Public Service of Colorado first ran a 2,400 volt electric powerline to the campus and the plant became strictly a steam producer.

Boulder Campus Circa 1920-30

1950-1960's

In 1950 the plant was converted to clean burning natural gas and in 1960 a #6 fuel oil system was added to provide a back-up fuel source to the plant. In 1965 the University upgraded its electrical system to 13,800 volt electric powerline.

Boulder Campus Circa 1960



Post World War II

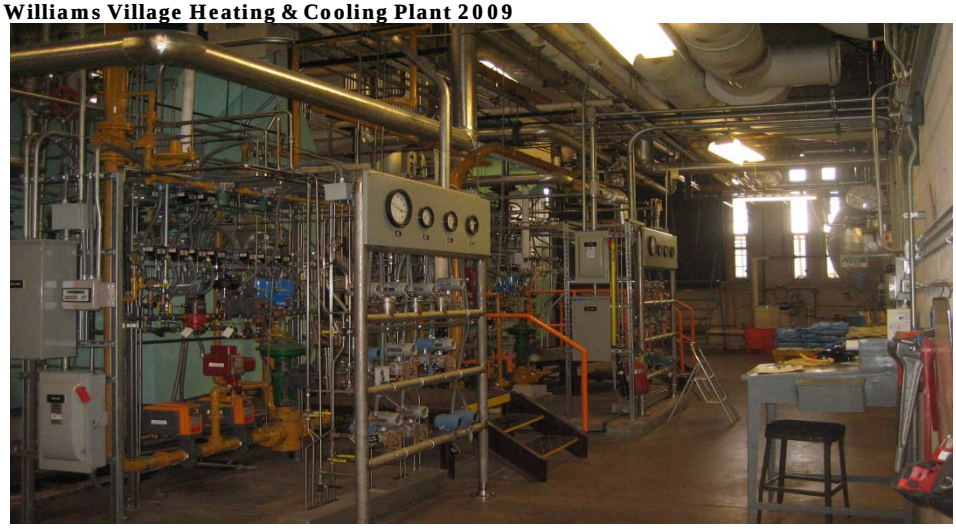
CU grew rapidly after World War II. In addition to the flood of students funded by the GI Bill came families and older students. In the 1950's and 1960's, the university embarked on a more expansive land acquisition program. It purchased 220 acres of farmland, now known as the East Campus and the University Research Park. It also accepted, with fiscal obligations, the Williams Village property as a location for housing students. The University of Colorado at Boulder became three campus areas - the Main Campus, the East Campus, and Williams Village - within the city of Boulder.

In order to support the student population, The Williams Village Heating and Cooling plant was constructed.

1965 - Williams Village Heating and Cooling Plant

The Williams Village Heating Plant was built in 1965 and provides steam and chilled water to the Williams Village Complex which includes Darley Towers, Stearns Towers, Darley Commons, and the Bear Creek Apartments. Major equipment consists of 2-30,000 lb/hr boilers, 1-250 ton centrifugal chiller, 1-350 ton centrifugal chiller, and 1-800 ton absorption chiller. The main fuel supply is natural gas backed up by #2 fuel oil.

Williams Village Heating & Cooling Plant 2009



1980-1990's

In the 1980's and 1990's, attention turned to older buildings needing rehabilitation, such as Old Main, Macky, Hale, **the Power House**, and the Women's Cottage, all of which have benefited from appropriate renovations, giving the oldest buildings new life while preserving their heritage.

1990-2009

With the campus constituency of over 32,000, the University of Colorado at Boulder is, in essence, a "city within a city" and the electrical system service from the utility became less and less reliable. Fall of 1992 the University issued $41 million dollars in Certificates of Participation to finance a 33 megawatt dual fuel cogeneration (CHP) facility. It was in the early 1990's that a combined heat and power system was installed and was designed to provide self-generation of all campus electrical power needs. It was at this time, in 1992 that the power plant switched to using #2 fuel oil and in 1999 removed the remainder of the #6 fuel oil system.

This CHP system utilizes two conventional boilers, 130,000 lb/hr and 100,000 lbs/hr, as well as two 16 MW gas combustion turbines coupled to two 80,000 lb/hr heat recovery steam generators. A 1 MW steam turbine is used to provide 10 PSIG steam. Also, two additional steam absorption chillers were added bringing the total plant cooling capacity to 3,300 tons. Currently, the University is served by three 13.2 kV distribution system branch feeders from Xcel energy.

Most recently, the challenge again is to accommodate an increase in enrollment and at the same time, preserve its reputation as one of the most beautiful higher education campuses in the nation. To meet this challenge and to serve our campus clients, the University of Colorado at Boulder is served by a variety of utilities that are essential to campus operations.