Folsom Powerhouse

State Historic Park

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Folsom Powerhouse
State Historic Park
9980 Greenback Lane
Folsom, CA 95630
(916) 985-4843 • 988-0205

The 1895 plant, one of the oldest hydroelectric facilities in the world, was one of the nation's first power systems to transmit high-voltage alternating current over long distances.

Your visit to Folsom Powerhouse State Historic Park, on a scenic bluff overlooking the west bank of Lake Natoma, will take you back in time to a pivotal and colorful period in California's history. The 1895 plant, one of the oldest hydroelectric facilities in the world, was one of the nation's first power systems to provide high-voltage alternating current over long-distance transmission lines for major municipal and industrial use. Its significance has earned it a place on the National Register of Historic Places. You will see how electricity was generated

Insulating marble switchboard

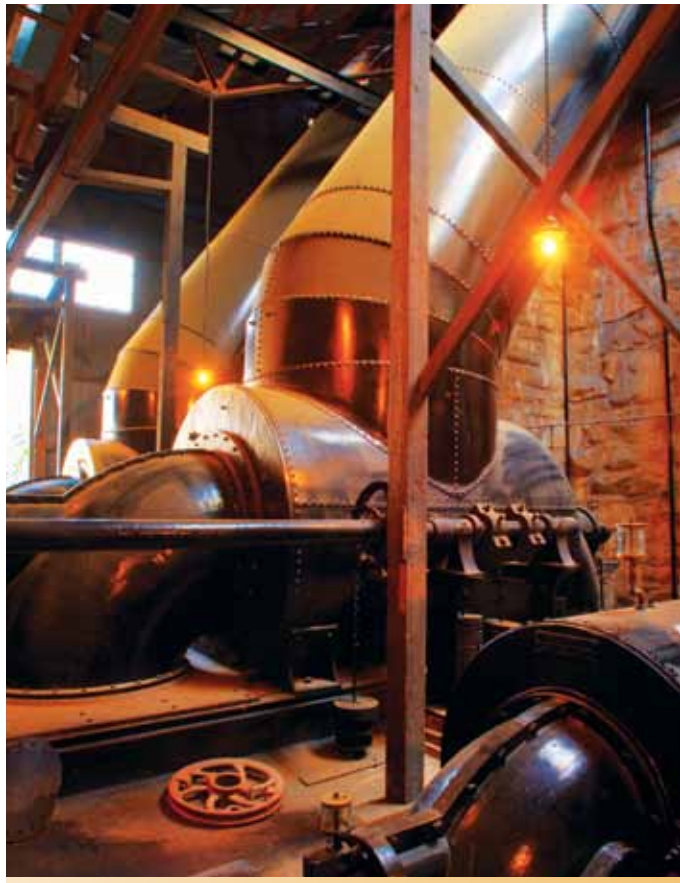
by falling water and transmitted 22 miles to Sacramento to power the city's streetcars and factories. This pioneering feat became the prototype for today's electrical transmission systems.

THE POWERHOUSE STORY

Horatio G. Livermore came to California in 1850 seeking gold. By 1861, realizing that he could make his fortune more easily by securing water rights on the American River, he and his sons obtained control of the Natoma Water and Mining Company. Livermore's vision of a Folsom sawmill would require construction of a dam and canal to float the logs to the mill. At the same time, California was looking for a site to build a prison. In exchange for convict labor on the dam and canal, Livermore gave the state land for what is now Folsom Prison. H. G. Livermore died in 1879, and the company business continued to operate under the leadership of his son, Horatio Putnam Livermore. H. P. Livermore completed the dam and canal project in 1893. The logging operation proved to be unprofitable, but Livermore soon realized an opportunity to use the elevated dam water to power a hydroelectric plant that could send electricity to Sacramento.

Thompson-Houston and Capital Gas companies provided electricity to Sacramento starting in 1884. They used small, coal-burning steam engines to produce limited amounts of costly electricity. During this time, J. P. Morgan bought all the stock of Edison General Electric and Thompson-Houston; he then merged them into one alternating current company with the new name General Electric. H. P. Livermore received power systems designs from Westinghouse and General Electric to build his Folsom Powerhouse. Livermore chose General Electric for its willingness to fund construction bonds. Elihu Thompson then reworked four Edison direct-current generators to create three-phase, 60-cycle alternating current generators for Folsom. Unlike direct current, alternating current could be run through transformers to decrease resistance by raising it to 11,000 volts, making possible a 22-mile transmission to Sacramento.

H. P. Livermore, his brother Charles, and Albert Gallatin of Huntington-Hopkins Hardware created the Sacramento Electric Power and Light Company in 1892 to explore electricity markets for streetcars, streetlights, and factories. The arrival of three megawatts of Folsom Powerhouse



Penstock room

electricity in Sacramento expanded streetcar lines from four to 40 miles, gave outdoor electric lighting to many streets, provided power to the Southern Pacific Yards, and brought refrigeration to Sacramento breweries. Home use of electricity was limited at that time; later, bare light bulbs hung from the ceilings of most buildings.

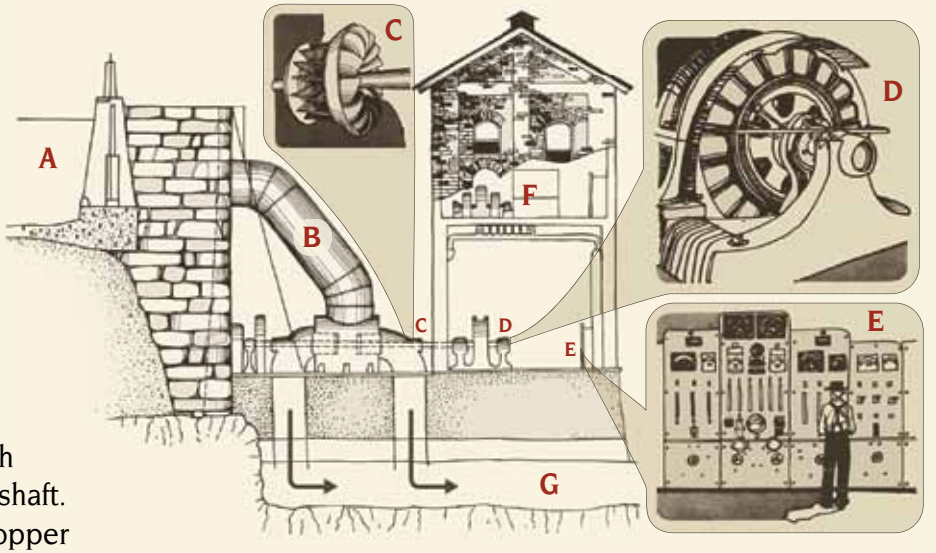
A TIME TO CELEBRATE

The arrival of electric power at Station A in Sacramento on the morning of July 13, 1895, was a major event that called for a major celebration. September 9—California's Admission Day—was set for a "Grand Electric Carnival." People poured into Sacramento from throughout Northern California—30,000 from San Francisco alone. As darkness fell, the people of Sacramento and many visitors lined the brilliantly lighted streets in eager anticipation of the oncoming parade. The State Capitol building glowed with electric lights outlining the façade and the ribs of the dome, where a cluster of arc lights illuminated a dazzling display that could be seen for nearly fifty miles. Much-awaited floats delighted the crowds with their ingenious arrangements of lights or mechanical equipment, drawn by electric trolley cars powered by the new electricity relayed from Folsom.

YEARS OF CONTINUOUS SERVICE

In 1903 the Livermore firm sold out to the California Gas and Electric Corporation (immediate predecessor of Pacific Gas and Electric Company), which operated the Powerhouse until November of 1952. That year, the old dam was destroyed during construction of the new Folsom Dam, and the Powerhouse was shut down after 57 years of continuous service. In 1958, PG&E donated the Powerhouse to California State Parks to preserve and interpret its historic values. To schedule tour reservations, call (916) 985-4843.

HOW DID THE POWERHOUSE GENERATE ELECTRICITY?



The basics of hydroelectric power generation have not changed since 1895: rushing water turns a turbine or water wheel, which turns a generator shaft. The spinning of copper coils past magnets in the generator creates electricity. At Folsom Powerhouse, water was diverted from a dam on the American River, flowing down two-mile East Canal to the Powerhouse's forebay (**A**). In the forebay, sand, gravel, and other debris settled to the bottom, and the water entered the large pipes called penstocks (**B**), picking up tremendous speed and energy on its 55-foot drop to the turbines (**C**). The rapidly flowing water passed through the turbines, spinning the shafts of the generators (**D**). Governors kept the generator shaft speed steady. The 800 volts of generated electricity flowed through wires connected to the control panel (**E**). The operator closed a switch, flowing electricity to the transformers (**F**), where power was boosted from 800 to 11,000 volts for long-distance transmission to Sacramento. The water exiting from the turbine returned to the American River through the afterbay or tailrace (**G**).

THE HISTORIC BUILDINGS

The two-story brick and granite Powerhouse looks much as it did in 1895. Its magnificent generators, wooden flumes and the Tennessee marble-faced control switchboard stand as imposingly as they did more than a hundred years ago. Historic photos and interpretive exhibits explain how the Powerhouse worked.

Native People

Below the Powerhouse at the edge of Lake Natoma, you'll also see an ancient grinding rock used by the Maidu to prepare their acorn meal. Long before the arrival of Europeans, the area surrounding the Folsom Powerhouse was home to the Southern Maidu. Situated on a river and with a moderate climate, the area provided the local inhabitants with a variety of fish, birds, deer, roots, fruits and nuts.

ACCESSIBLE FEATURES

The visitor center and restrooms are accessible. The picnic area's drinking fountain and tables are accessible. Call (916) 988-0205 during park hours for staff to open the gate to accessible parking.

Accessibility is continually improving. For updates, visit http://access.parks.ca.gov.

NEARBY STATE PARKS

- Folsom Lake State Recreation Area
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  (916) 988-0205
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