Pacific Gas & Electric Co.'s Piedmont Substation E (1925-2014)

PG&E Substation E in 1926 (from *Pacific Service Monthly*)

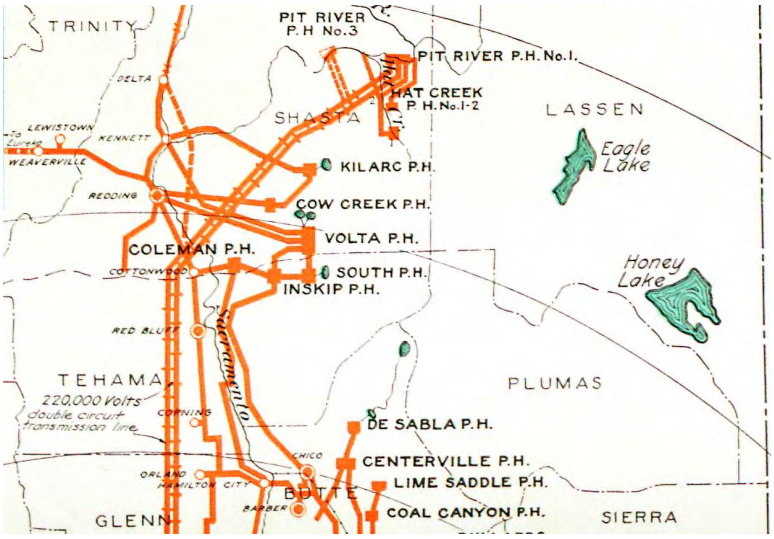
The Pacific Gas & Electric Company's (PG&E) Substation E, located at 408 Linda Avenue in Piedmont, was constructed during the mid-1920s to distribute power directly to local users. Prior to then, the electrical station serving Piedmont and local transit was located at the foot of Oakland Avenue (subsequently and currently Harrison Ave.) at 24th Street in Oakland, which was operated by the successor of the Oakland Transit Company – the Key System Transit Company.

The Linda Avenue site was purchased by PG&E in 1924. The design and construction of Substation E was authorized by PG&E in March of 1925, and the start date of construction work on the structure followed in June of that same year. The new station was designed to provide power to local electric trains for the Key System and to distribute electricity to local industrial, commercial and residential uses and users, as well as street lighting. Substation E was up and running for the provision of transit power by the end of January 1926. The station was fully operational by the following July.

PG&E Substation E in 1926 (from *Pacific Service Monthly*)

Substation E provided power to the electric streetcar service operated by the Key System until the demise of local streetcar service in the late-1940s. Thereafter, the building's power was solely for the purposes of local distribution to consumers.

In the 1920s, in order to meet the exponentially growing demand for power by California industry, transportation, public, industrial, commercial and residential consumers, PG&E expanded its generating and distributing capabilities with the construction of new hydroelectric power houses, distribution facilities, and substations. Substation E was planned, designed and constructed during that period.



PG&E Hydroelectric Map in 1925 (from *Pacific Service Monthly*)

California's hydroelectric power generation and transmission system, what PG&E coined the "Pacific Service" and its "service chain," extends from points of hydroelectric power generation – dams at principal rivers – to, at the other end of the chain, local substations and power lines distributing directly to users. Substation E was a final component of a service chain that was powered by the Pit River dam and its power houses, the first of which was put into service in 1922.

In San Francisco and the East Bay, as part of that sys-

tem, six new local substations were constructed in 1925-26 alone. At the same time, new high tension distribution facilities were added and expanded, all enabled by additional power generating stations at the Pit River, the latest of which was the Pit River Power House No. 3, and which came on line in July of 1925.

From those power houses on the Pit River, high voltage (220,000V) electricity was transmitted southward via high tension lines to the first of two high-tension, high-voltage receiving substations – the Shasta Substation in Tehama County; then onwards south to the second in Sacramento County – the Vaca-Dixon Substation. The Shasta Substation was added in the mid-1920s while the Vaca-Dixon was part of the original transmission system constructed earlier that decade.

PG&E Substation E – Aoril 2014 (Frank Deras Photography)

PG&E Substation E – April 2014 (Frank Deras Photography)

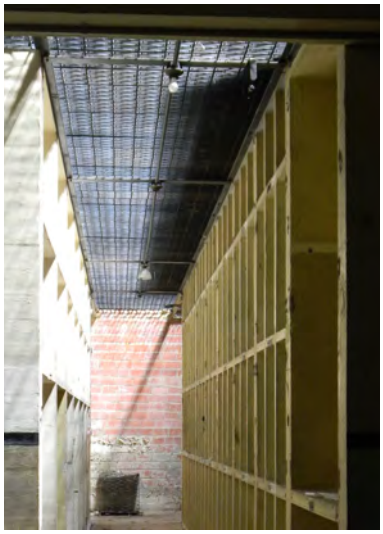
From Vaca-Dixon, electrical power at reduced voltage (110,000V) was distributed further south via transmission lines into the San Francisco Bay Area. One leg of that power was distributed to the Claremont Substation and, from there, further transmitted to local substations, including Piedmont's Substation E.

Substation E had the need to provide two types of power, direct and alternating current (DC and AC). DC power was required for the Key System trains and AC to all other customers, which in that case were largely residential. Substation E thus was specifically equipped to transform power from AC to DC for the transit system. For the duration of the existence of electric rail transit, Substation E was equipped to supply both types of power.

PG&E's Ivan C. Frickstad was the architect of Substation E. The building was of reinforced concrete and concrete block construction with steel roof framing, and was a cement-plastered, Mission-style building.

Substation E was built in a "high value" residential area so was designed – in PG&E's words – with "unusual consideration given to the architectural design and the planting of the lawn and shrubs." It was also built directly alongside a then-existing and still-standing bridge carrying Oakland Avenue, that spans Linda Avenue, and that markedly influenced the plan of the site and its substation.

Substation E was phased out of operation in 1991 then stood vacant until 2014 when it was removed to make way for new residential development.



PG&E Substation E interiors – April 2014 (Mark Hulbert Preservation Arch.)

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