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<td><strong>Docket Number:</strong></td>
<td>16-AFC-01</td>
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<td><strong>Project Title:</strong></td>
<td>Stanton Energy Reliability Center</td>
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<td><strong>TN #:</strong></td>
<td>221769</td>
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<tr>
<td><strong>Document Title:</strong></td>
<td>Barre Substation Form DPR523 dated 11.14.2017 for Cultrual Resources</td>
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<tr>
<td><strong>Description:</strong></td>
<td>N/A</td>
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<td><strong>Filer:</strong></td>
<td>M. Finn</td>
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<td><strong>Organization:</strong></td>
<td>CH2M</td>
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<td><strong>Submitter Role:</strong></td>
<td>Applicant Consultant</td>
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The Barre Substation, constructed in 1939 by Southern California Edison (SCE), is located on two large parcels within a suburban and industrial setting in the City of Stanton, Orange County. The substation is bounded by Dale Avenue to the west, W. Cerritos Avenue to the north, residential tract to the east (along Sherill Street), and the Southern Pacific Railroad Los Alamitos Branch to the south. The substation property contains other related power transmission and generation uses (e.g., transmission lines, Barre Peaker power plant), a radio and telecommunication tower, and open spaces. The substation is concentrated towards the northern end of the parcels, and is enclosed by an interior 12-foot tall concrete masonry unit (CMU) perimeter wall arranged in a running bond topped with a coping ledge. Behind the CMU wall is a chain-link security fence. The main access to the substation has historically been from W. Cerritos Avenue in the northeast part of the property. Due to safety and security concerns, access within the substation was not available; therefore, investigators used information collected from public vantage points, current aerial photographs, and background historical information to complete the architectural description.

SEE CONTINUATION SHEET

P3b. Resource Attributes: HP9, Public Utility
P4. Resources Present: Building, Structure, Object, Site, District, Element of District

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)

P5b. Description of Photo: Entry, looking south

*P6. Date Constructed/Age and Source: Historic - Both - 1939 (Santa Ana Register)

*P7. Owner and Address: Southern California Edison (SCE) P.O. Box 800 Rosemead, CA 91770

*P8. Recorded by: Aimee Ross Angel and Jeremy Hollins, CH2M, 402 West Broadway, Suite 1450, San Diego, CA 92101

*P9. Date Recorded: 10/18/2017

*P10. Survey Type: (Describe) Reconnaissance

*P11. Report Citation: None

*Attachments: Location Map, Continuation Sheet, Building, Structure, and Object Record

*Required information
<table>
<thead>
<tr>
<th>Resource Name or #</th>
<th>Barre Substation</th>
<th>NRHP Status Code</th>
<th>6Z</th>
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</table>

B1. Historic Name: Barre Substation  
B2. Common Name: Barre or Stanton Substation  
B3. Original Use: Electrical Substation  
B4. Present Use: Electrical Substation  

*B5. Architectural Style: N/A Engineering Structure (Control Building – Art Moderne Influences)  

*B6. Construction History: (Construction date, alterations, and date of alterations): Constructed in 1939. Based on a review of aerials photographs and USGS topographic maps, substation equipment was expanded several times within the initial boundary, based on different footprints visible in a 1963 aerial photograph, 1967 USGS topographic map, and aerial photographs from 1972, 1993, and 2004. Equipment consisting of insulators, circuit breakers, switches have been replaced or added within the past 25 years, based on a review of current photograph imagery, and SCE Drawings.

*B7. Moved?  ☒ No  ☐ Yes  ☐ Unknown  Date: N/A  
Original Location: N/A  

*B8. Related Features: Barre-Chino Transmission Line  
B9a. Architect: N/A  
B9b. Builder: Stone & Webster Engineering, Corp.  

*B10. Significance:  
Theme: N/A  
Area: Southern California  
Period of Significance: N/A  
Property Type: Substation  
Applicable Criteria: N/A. The significance of the Barre Substation was determined by applying the procedures and criteria for National Register of Historic Places (NRHP) eligibility, California Register of Historical Resources (CRHR) eligibility, and the definition of a historical resource for purposes of CEQA. Based on historic research and the results of this analysis, the Barre Substation is ineligible for listing in the NRHP and CRHR and as a historical resource for purposes of CEQA.

See Continuation Sheet

B11. Additional Resource Attributes: (List attributes and codes)  

*B12. References:  
See Continuation Sheet

B13. Remarks:  

*B14. Evaluator: Aimee Ross Angel and Jeremy Hollins, CH2M  

Date of Evaluation: 10/13/2017  

(Sketch Map with north arrow required.)  

See Continuation Sheet

(This space reserved for official comments.)
P3a. Description

The Barre Substation was constructed as a 220kV-66kV bulk power station on SCE’s transmission system. The 220kV-66kV SCE stations also serve as switching centers, and the initial installation consists of two 220kV lines and one or two banks, a 3-circuit or 4-circuit ring bus connection, and control house.

Within the substation, the 220kV switch rack is situated in a west-east alignment to the west of the control building. The 66kV switch rack is situated in a north-south alignment to the east of the control building. The switch racks have large bases that taper inwards, with the electrical equipment fastened to large steel beams running the width of the yard and house large transformers. The 220kV transmission lines enter the substation from the southwest, southeast, and northern portions of the property. The 66kV subtransmission lines enter the property from the north, south, west and east sides of the property. The transmission lines are constructed on lattice steel towers. On the edges of the substation are large spherical circuit breakers, disconnect switches, and a lightning arrester. Along the east end of the property are several building clusters consisting primarily of a stucco-over-concrete control house, storage sheds, and a maintenance building, surrounded by open surface parking areas.

The control house, constructed in 1939, is one story in height and features modest Art Moderne detailing, including a beltcourse below the cornice, a flat roof with parapet, and has multi-pane warehouse windows (several with inset lights), stucco cladding, and unadorned single- and double-leaved doors along the exterior. In 1959, a 5-car garage, shop, storage, and conference room building complex was added (SCE Drawing No. 556246). In 2007, SCE constructed the Barre Peaker on the southern portion of the substation property outside of the interior fence line for the substation.

Based on a review of historic topographic and aerial photographs available at NETROnline, the substation has been continuously expanded and modified since it was constructed. The substation first appears on the 1950 USGS 7.5-minute topographic map (it is not visible on the 1947 map) and is depicted with a smaller footprint then it currently possesses. Within thirteen years, the substation expanded to the west and south, as seen in a 1963 USDA aerial photograph and the 1967 USGS 7.5-minute topographic map. Additional aerial photographs from 1972, 1993, and 2004 show the substation expanded further to the south, as well as possible upgrades to existing equipment (replaced insulators, circuit breakers, and switches), and new landscaping.

B10. Significance

Historic Context

Overview of SCE

SCE can trace its origins to 1886 when the partnership of Hot and Knupp, which later became the Visalia Light and Gas Company, used a steam engine and wood fuel to power arc lights. That same year, the Santa Barbara Electric Light Company was formed and installed arc lighting in downtown Santa Barbara. By the turn of the century, there were numerous electric companies operating in southern California, including the San Bernardino Electric Company, the Pasadena Electric Light and Power Company, Ventura Land and Power Company, the Westside Lighting Company, and the Edison Electric Company (DeBiase and Becker, 2015). By 1909, these companies had merged or been acquired to form SCE (DeBiase and Becker, 2015).

During this time, SCE constructed substations in popular architectural styles including Mission Revival, Classical Revival, Beaux Arts and Spanish Revival. These buildings were often one story and contained all the electrical equipment within the interior. Ancillary buildings often included a caretaker’s cottage, an auto garage, and a storage structure on smaller properties, while larger properties often included multiple caretaker cottages, garages, machine shops and a gatehouse. The caretaker’s cottage was often constructed as a bungalow with Craftsman details during the early 20th century (Becker et al, 2015).
In the first two decades of the 20th century, SCE expanded its footprint throughout southern California through the addition of plants in new territories, and the development of a new 66kV steel tower network to replace the previous 33kV wood pole lines. SCE also grew through acquisitions of competing power companies, allowing the company to enter new geographies through acquiring providers like the Ventura County Power Company, Mt. Whitney Power Company, and the Pacific Light and Power Company.

In 1930, SCE contracted with the United States Department of the Interior (DOI) to generate electricity for itself and other investor-owned electric utility companies, and to distribute that power to its service territory in southern California (Becker et al, 2015). The DOI also needed power for construction of the Hoover (Boulder) Dam, and SCE’s contract (along with other contracts placed between the U.S. government and other utility companies and agencies, including Southern Sierras Power Company and City of Los Angeles) assured the amortization of the project expenses (Becker et al, 2015). The Southern Sierra Power Company’s Boulder Dam-to-San Bernardino transmission line was energized in 1931 to initially convey power to the dam for construction purposes. The flow of power was later reversed to carry electricity to San Bernardino after the dam was completed and its generators were in operation (DeBiase and Becker, 2015). Once the Boulder Dam was in operation, SCE built transmission lines to convey its power to southern California:

SCE built three single-circuit 220kV transmission lines commonly referred to as the First, Second, and Third Boulder Lines. Put in-service in 1938, the First Boulder Line is historically identified as the Boulder-Chino 220kV Transmission Line. Put in-service in November of 1941, the Second Boulder Line is historically identified as the 2nd Boulder-Chino 220kV Transmission Line. The third Boulder Line is historically identified as Chino-Hayfield 220kV Transmission Line (Becker et al, 2015).

After the power reached Chino, it could be distributed throughout southern California once additional lines and substations were constructed.

With new technologies and increased capital, SCE embarked on major facilities upgrades and continued expanding throughout the first half of the 20th century. New plants and infrastructure constructed during this period included major projects like the Big Creek Hydroelectric system (1929) and the expansion of the Long Beach Plant Nos. 1, 2, and 3 (1928), as well as the 220kV Boulder-Chino lines described above. These were projects that made SCE known throughout the country as a utility leader, facilitating the development of a 220kV system to serve Southern California’s growing population with a greater power capacity than any other server in West (Becker et al, 2015).

Additionally, these efforts led to new engineering developments, such as the longest water tunnel (at Big Creek) and the largest lattice transmission system (Boulder-Chino line) in the western United States. Additionally, projects like the expansion of the Long Beach Steam Plant demonstrated SCE was looking towards future development through building scalable generating plants that could be updated as technology further developed (Becker et al, 2015).

Prior to 1950, SCE and its predecessor companies had installed approximately 138 substation facilities within its service territory. Many of these substation designs transcended their primary function to store equipment, and oftentimes used embellished or ornate features to convey themes of reliability, connectedness, and trust and to demonstrate the utility company’s role in the community and ability to transmit power over great distances for the public good (Becker et al, 2015).

Following World War II, SCE projects were undertaken to make improvements to existing powerhouses including the addition of new generators and construction of new dams and powerhouses, leading to SCE acquiring or placing into service approximately 402 additional substation facilities. Many of these facilities lacked the design aesthetics of the earlier substations. A historic property survey report for the Repetto and San Gabriel substations completed in 2015 stated:

Post WWII-era construction of bulk power stations no longer incorporated stylistic elements or a clear architectural aesthetic into its substation properties. The company promoted a more efficient program with less architectural intervention at the utilitarian electrical engineering complexes. In most instances,
monumental substation buildings were no longer erected; rather, the properties were improved with just the basic electrical engineering structures including transformer racks, cable trenches, and water towers. The structures built to house traditional uses including switching room, oil house, and other functions, were of utilitarian design constructed of corrugated aluminum or transite siding, and void of stylistic details and ornamentation” (DeBiase and Becker, 2015).

Today, SCE maintains an electrical infrastructure comprised of individually constructed substations, transmission lines, and other electrical generation and distribution equipment supporting fourteen million customers over approximately 50,000 square-miles (DeBiase and Becker, 2015).

**Historic Context - Overview of Stanton, Orange County, California**

The City of Stanton is in the western part of Orange County, southwest of Anaheim and northwest of Garden Grove. It was named after Philip Ackley Stanton of Los Angeles, who had large holdings of land in the area (Gudde, 1998). Stanton was incorporated on March 20, 1911. The purpose of the incorporation was to prevent Anaheim's sewer farm from being sited in the area. Stanton disincorporated 13 years later. The town of Stanton included the area occupied by the former town of Clair and an area called Benedict (Gudde, 1998).

The Southern Pacific Railroad, running from Anaheim to Los Alamitos, intersected the Pacific Electric Railway (the Red Car), running from Los Angeles to Santa Ana in Stanton (City of Stanton, 2016). By 1907, the Southern Pacific Railroad had extended the Smeltzer Branch through Wintersburg to Stanton. These lines serviced the celery farming and sugar beet industry in the area.

The city of Stanton first received electricity in 1925 (Becker, et al, 2015). However, the 1930s were a particularly difficult decade for the town of Stanton and the surrounding area. Not only were the economic cataclysm of the Great Depression and the natural cataclysm of the 1933 Long Beach-Orange earthquake (Campbell 2012) major factors that affected the community’s agricultural market, but in 1938 a series of storms caused massive flooding of Santa Ana River (Gold, 1999). This led to widespread damage of structures and agricultural crops.

Following World War II, servicemen stationed at various military bases and air stations decided to settle in the area. This greatly increased the population of the county. The Pacific Electric Railway tracks were removed after passenger service was discontinued in 1950 (Kao, 2008). In 1956, the City of Stanton incorporated again.

**Historic Context - Barre Substation at Stanton**

The Barre Substation was constructed in 1939 by the Stone & Webster Engineering Corporation. SCE Drawings, photographs taken during construction show a control house; auxiliary (oil filter) house building with a front gable roof; a hoist tower, garage, shop, storage, conference room building complex; and a220kV and 66kV switch rack (SCE Photograph and Negatives Collection, 1939, SCE Drawing Nos. 428499, 556246, 522080, and Barre Plot Plan). Additionally, a spur railroad line entered the substation from the south to enable the handling of heavy equipment and facilitate the delivery of material during construction.

On September 15, 1939, Stanton received power from the Boulder Dam generators when the Barre Substation was placed into operation along with a 27-mile, 220-kv transmission line that extended from the receiving station at Chino Substation to the Barre Substation. The Santa Ana Register quoted R.E. Bacon, a Santa Ana division manager for SCE at the time, saying:

> Expenditure of approximately $2,500,000 was made by the Edison company in building the new substation and transmission line to bring Boulder dam power to Orange county’s highly developed farming and municipal areas. Power generated by the Edison company’s second 110,000 horsepower unit at Boulder dam will be tied in with the new service facilities. The company’s first 110,000 horsepower generator at the dam was placed in service in July (Santa Ana Register, 1939a).
The Santa Ana Register also reported that:

The substation building is of steel and concrete. Much of its equipment is of the outdoor type. The capacity of the station is 100,000 horsepower and it supplies eight 66,000-volt circuits from the station to distribution substations in Orange county. These are Katella, Fairview, Fullerton, La Habra, Atwood, Ocean View, Irvine and Los Alamitos substations... The availability of a large supply of low-cost electricity long has been one of the important backgrounds for Orange county’s progress, and this new source of Edison service definitely provides for the continuation of this important unit in modern business and civic growth (Santa Ana Register, 1939b).

The actual substation construction cost was 1.5 million dollars and the 27-mile transmission line accounted for an additional 1 million dollars of the budget. The project was formally announced to the public on May 5, 1939 by Fred B. Lewis, SCE vice president, with construction ultimately lasting less than a year (San Bernardino Sun, 1939).

The substation and line were constructed by the engineering firm Stone & Webster, founded by early electrical engineers and Massachusetts Institute of Technology alumni Charles A. Stone and Edwin S. Webster. Stone & Webster was based out of Massachusetts and was well-known for constructing various types of power plants and infrastructure throughout the United States, completing major projects for utilities (such as SCE and Nashville Electric and Power) and private industries (Pacific Coast Architect Database, 2017). Oftentimes, they would be paid in utility stock, allowing the firm to yield major influence over energy policies in communities. Throughout the 1920s through the 1940s, Stone & Webster was very active in most power-related undertakings in the Los Angeles basin and surrounding area, and their role grew during World War II as a major contractor within the Port of Los Angeles and during the development of the Manhattan Project.

Evaluation

In 2015, SCE published a report titled Historic Era Electrical Infrastructure Management Program: A Program for the Identification, Review, Exemption, and Treatment of Generating Facilities, Transmission Lines, Subtransmission Lines, Distribution Lines, and Substations within the Southern California Edison Company’s Service Territory. The purpose of this report is “to establish a consistent protocol for identifying, reviewing, exempting, and treating SCE’s historic-era electrical infrastructure throughout its 50,000 square-mile service territory” (Becker et al, 2015). As such, it identifies three themes under which to consider SCE historical resources: history of the SCE, development of electric power conveyance systems, and architectural programming and aesthetic ideology, and establishes periods of significance for the company’s 66kV, 220kV, and 500kV systems (Becker et al, 2015). Additionally, the report identifies architectural types used in SCE’s architectural programming and aesthetic ideology and the associated design qualities and characteristics of significant designs (Becker et al, 2015). Information from this management guide has been used accordingly in the NRHP and CRHR evaluation, below. The Barre Substation was not specifically described in this management guide.

NRHP Criterion A / CRHR Criterion 1

Under NRHP Criterion A and CRHR Criterion 1, the Barre Substation has no significant association with the broad patterns of local or regional history, or the cultural heritage of California or the United States. The substation was constructed during a period when SCE was greatly expanding its footprint, acquiring new systems, and instituting new technologies to provide southern California with reliable energy. During this period, the Big Creek Hydroelectric system (1929), the expansion of the Long Beach Plant Nos. 1, 2, and 3 (1928), and the 220kV Boulder-Chino lines that connected to the Hoover Dam (1939) better reflect these trends and demonstrate major achievements in power generation and transmission, leading to major population growth in the region. While the Barre Substation was designed to tie into the Chino 220kV, it was not directly part of the Hoover Dam or Boulder-Chino lines and was built after this milestone event was completed and the dam was generating power. Though the Barre Substation benefits from the power generated by the dam and carried along the Boulder-Chino transmission lines, it only has an ancillary association with this event since it only connects to the terminus of the Boulder-Chino lines at the Chino Substation (and not part of the original line), and therefore does not illustrate or
convey the importance of this achievement. As a result, the Barre Substation lacks a significant association with important events, and is like other substations and facilities constructed at this time that were ancillary to other larger major projects that defined SCE’s impact to southern California. Therefore, the Barre Substation is not eligible under NRHP Criterion A or CRHR Criterion 1.

**NRHP Criterion B / CRHR Criterion 2**

Under NRHP Criterion B and CRHR Criterion 2, the Barre Substation has no significant association with the lives of persons important to local, California, or national history. The project was announced to the public by SCE vice president Fred B. Lewis; however, there is no information available describing his exact role in the establishment of the substation. As a result, the Barre Substation does not illustrate important achievements associated with him, or with any other person important to the past. Therefore, the Barre Substation is not eligible under NRHP Criterion B or CRHR Criterion 2.

**NRHP Criterion C / CRHR Criterion 3**

Under NRHP Criterion C and CRHR Criterion 3, the Barre Substation does not embody the distinctive characteristics of a type, period, region, or method or construction, or represents the work of a master, or possesses high artistic values. This facility was constructed as a substation using a standard and common design for the period and built for expansion. The Barre Substation was not included in the Historic Era Electrical Infrastructure Management Program: A Program for the identification, Review, Exemption, and Treatment of Generating Facilities, Transmission Lines, Subtransmission Lines, Distribution Lines, and Substations within the Southern California Edison Company’s Service Territory developed by SCE, though the study sought to evaluate facilities constructed before 1950. Using information from the study, the Barre Substation is a modest example of an “Astylistic” substation, which typically features minimal or stripped stylistic details. The Barre Substation’s parapet roof and beltcourse are modest Art Moderne features that follow the design features of this property type, and generally lacks the more stylized character-defining features seen in other elaborate substations from that era that have monumental scales, extensive detailing, or resemble major civic buildings. As a result, the study notes that Astylistic substations are rarely eligible for their architectural design or style. Additionally, the use of the parapet and beltcourse could also be considered features common to the “Monumental” substation type; however, the substation lacks other key distinguishing characteristics of this substation style, such as multiple-stories, a monumental scale, overhanging features, and some stylistic detailing (e.g., pediment, piers). As a result, it is better classified as an Astylistic substation, devoid of significant architectural character or a distinctive design.

Overall, the Barre Substation is representative of the cost-efficient work required for a substation and was built economically by minimizing the structural material and building a modest control house and other facilities devoid of ornamentation, evidenced by the substation’s “Astylistic” design. Nothing about the design or construction of the substation was unique, or required groundbreaking or innovative features to surmount engineering or design challenges. The other buildings on the property are generally common, utilitarian types built of concrete or prefabricated metal. They exhibit priority of function over style and lack architectural distinction. Additionally, while the substation was designed and constructed by Stone & Webster, it is not considered one of their landmark works. Compared to other projects completed by the firm in California and the West, it is lacks distinction and or importance as a work associated with the firm, when considering the firm’s role in 20th century power generation. Since the Barre Substation does not embody the distinctive characteristics of a type, period, region, or method or construction, or represents the work of a master, or possesses high artistic values, it is therefore not eligible for the NRHP under Criterion C or the CRHR under Criterion 3.

**NRHP Criterion D / CRHR Criterion 4**

Under NRHP Criterion D and CRHR Criterion 4, the Barre Substation has not yielded nor appears to possess the potential to yield information important to the prehistory or history of the local area, California, or the nation. Research has indicated that no known events of importance occurred in relation to the substation. The resource is not likely to yield information important to the prehistory or history of the local area, California, or the nation.

Since the substation has not yielded nor appears to have the potential to yield information important to the prehistory or history of the local area, California, or the nation it is therefore not eligible for the NRHP under Criterion D or CRHR under Criterion 4.

**Integrity Analysis**

In addition, for a property to be eligible for listing in the NRHP or CRHR, besides meeting one of the above criteria, a property must also retain its historic integrity. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. The Barre Substation has retained nearly all aspects of its integrity. While there have been changes to the property over time that has affected its design and materials, it still conveys the appearance of an early 20th century substation through its integrity of feeling, setting, workmanship, location, and association.

In conclusion, while the Barre Substation retains its historic integrity, it does not meet any of the criteria for eligibility for listing in the NRHP and CRHR, and is not considered a historical resource for purposes of CEQA.

**B12. References**


Santa Ana Register. 1939a, May 5.

Santa Ana Register. 1939b, May 5.

Sketch Map

Legend
1. Main Substation Building
2. Warehouse
3. Barre Peaker Power Plant

- Interior fence/wall
- Exterior/fence

Photographs

View east from Dale Avenue

View to South from West Cerritos Avenue
View south to main entry area and control house from West Cerritos Avenue

Barre Substation, under construction, September 13, 1939; Copyright: Southern California Edison Photographs and Negatives collection of The Huntington Library (Call No. 2-22765 / Image No. SCE_2_22765).

Barre Substation control house, September 27, 1940; Copyright: Southern California Edison Photographs and Negatives collection of The Huntington Library (Call No. 2-23179 / Image No. SCE_2_23179).

Barre Substation overview, October 29, 1941; Copyright: Southern California Edison Photographs and Negatives collection of The Huntington Library (Call No. 2-23599 / Image No. SCE_2_23599).
*Resource Name or # (Assigned by recorder) Barre Substation

*Map Name: USGS 7.5’ Topographic Map: Anaheim  *Scale: 1:24000  *Date of map: 1981