

DOCKETED

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**STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION**

In the Matter of:)
MOUNTAINVIEW GENERATING)
STATION) **Docket No. 00-AFC-02C**
) **Order No. 16-0309-3**
SOUTHERN CALIFORNIA EDISON) **ORDER APPROVING**
COMPANY) **Petition to Amend**
) **to Replace Hot Gas Path Components**

On January 11, 2016, Southern California Edison Company (SCE) filed a Petition to Amend (Petition) with the California Energy Commission (Energy Commission) requesting approval for the replacement and upgrade of internal components in the gas turbine hot gas path at the Mountainview Generating Station (Mountainview).

The modifications proposed in the petition would replace certain combustion section components (turbine blades, nozzles and associated structural elements) with Advanced Gas Path (AGP) components on the four combustion turbines at Mountainview. The proposed upgrade to the combustion burners would result in changes to the licensed units. The modification would increase the efficiency of the combustion turbines by improving the heat rate and increasing the generating capacity by a total of 48 megawatts. The modification would also result in faster ramping rates, reduce the generator minimum-load operating point and extend major maintenance intervals. The project would continue to meet all existing emission limits. Implementation of staff's proposed Condition of Certification **TRANS-8** (pilot notification and awareness), would ensure any impacts to aviation safety from the increased thermal plumes would continue to be less than significant.

The South Coast Air Quality Management District (SCAQMD) reviewed the requested modifications and determined the changes would comply with their regulations. The upgrade to the combustion burners is being incorporated in the Title V permit renewal process.

STAFF RECOMMENDATION

Energy Commission staff reviewed the petition, finds that it complies with the requirements of Title 20, section 1769 (a) of the California Code of Regulations, and recommends approval of SCE's petition to amend the Mountainview Project.

ENERGY COMMISSION FINDINGS

Based on staff's analysis, the Energy Commission concludes that the proposed modifications will not result in any significant impacts to public health and safety, or to the environment. The Energy Commission finds that:

- The petition meets all the filing criteria of Title 20, section 1769 (a), of the California Code of Regulations, concerning post-certification project modifications;
- The modification will not change the findings in the Energy Commission's Final Decision, pursuant to Title 20, section 1755, of the California Code of Regulations;
- The project will remain in compliance with all applicable laws, ordinances, regulations, and standards, subject to the provisions of Public Resources Code, section 25525;
- The modification proposed in the petition would increase the combined generating capability of all four turbines by approximately 48 MW and improve the heat rate of the entire plant;
- The proposed modifications would be beneficial to the public because the generating capability would increase by 48 MW, and Mountainview would continue to meet all existing heat input requirements and emission limits; and
- The proposed modification is justified because the AGP technology was not available at the time of the March 2001 Energy Commission Decision.
- With implementation of Condition of Certification **TRANS-8** regarding pilot notification and awareness, impacts on aviation safety from potential thermal plume air hazards from low-altitude overflight that would result from the proposed changes would continue to be less than significant.

CONCLUSION AND ORDER

The California Energy Commission hereby adopts staff's recommendations and approves the amended conditions of certification to the Commission Decision for the Mountainview Generating Station. New language is shown as **bold and underlined**.

PROPOSED AND AMENDED CONDITIONS OF CERTIFICATION

Staff recommends the following modifications to the Air Quality Conditions of Certification. **Bold underline** is used to indicate new language. ~~Strikethrough~~ is used to indicate deleted language. For convenience, a clean version of all the conditions reflecting the proposed changes that would become applicable to Mountainview follows the ~~strikeout underline~~ text in Appendix A.

THE FOLLOWING CONDITIONS OF CERTIFICATION PERTAIN TO THE FOLLOWING EQUIPMENT:

1,991 MMBTU/HR at 30 degrees Fahrenheit natural Gas Turbine (ID No. D18) (A/N 391557) No. 3-4A GE Model 7FA.04 with Dry Low NOx combustors DLN 2.6+ connected directly to a 175.7 177.1 MW (nominal at ISO conditions gross output at 59 degrees Fahrenheit) Electric Generator (ID No. B19) and a Heat Recovery Steam Generator (ID No. B20) with 135 MMBTU/HR Duct Burners (ID No. D21) connected to a 212.4 MW (gross output at 59 degrees Fahrenheit) GE Model D11 steam turbine (common with turbine 3B). in common with Gas Turbine No. 3-2 to a 214.5 MW (nominal at ISO conditions) steam turbine (ID No. B22). Turbine 3A, the HRSG, and steam turbine are all identified as ID No. D18 (A/N 500208) and the duct burners are identified as ID No. D21 (A/N 578178). Equipment D18 and D21 are both connected to a CO oxidation catalyst, No. 3-1 (ID No. C23) (A/N 562528), with 240 cubic feet of total catalyst volume, Selective Catalytic Reduction, No. 3-2 (ID No. C24) (A/N 366451562528), with 2750 cubic feet of total volume 72 feet height, 1.5 feet long, 25.65 feet wide with an ammonia injection grid (ID No. B25), and share a common stack, Stack No. 3A (ID No. S26), with a height of 200 feet and diameter of 18 feet. a CO oxidation catalyst (ID No. C23) with 240 cubic feet of total volume connected to an exhaust stack (ID No. S26) (A/N 391557) No 3-1/3-2.

1,991 MMBTU/HR at 30 degrees Fahrenheit natural Gas Turbine (ID No. D27) (A/N 391558) No. 3-2B GE Model 7FA.04 with Dry Low NOx combustors DLN 2.6+ connected directly to a 175.7 177.1 MW (nominal at ISO conditions gross output at 59 degrees Fahrenheit) Electric Generator (ID No. B28) and a Heat Recovery Steam Generator (ID No. B29) with 135 MMBTU/HR Duct Burners (ID No. D30) connected to a 212.4 MW (gross output at 59 degrees Fahrenheit) GE Model D11 steam turbine (common with turbine 3A). in common with Gas Turbine No. 3-1 to a 214.5 MW (nominal at ISO conditions) steam turbine (ID No. B31). Turbine 3B, the HRSG, and steam turbine are all identified as ID No. D27 (A/N 578179) and the duct burners are identified as ID No. D30 (A/N 578179). Equipment D27 and D30 are both connected to a CO oxidation catalyst, No. 3-2 (ID No. C32) (A/N 562529), with 240 cubic feet of total catalyst volume, Selective Catalytic Reduction, No. 3-2 (ID No. C33) (A/N 366452562529), with 2750 cubic feet of total volume 72 feet height, 1.5 feet long, 25.65 feet wide with an ammonia injection grid (ID No. B34), and share a common stack, Stack No. 3B (ID No. S35), with a height of 200 feet and diameter of 18 feet. a CO oxidation catalyst (ID No. C32) with 240 cubic feet of total volume connected to an exhaust stack (ID No. S35) (A/N 391559) No 3-1/3-2.

1,991 MMBTU/HR at 30 degrees Fahrenheit natural Gas Turbine (ID No. D36) (A/N 391559) No. 4-3A GE Model 7FA.04 with Dry Low NOx combustors DLN 2.6+ connected directly to a 175.7 177.1 MW (nominal at ISO conditions gross output at 59 degrees Fahrenheit) Electric Generator (ID No. B37) and a Heat Recovery Steam Generator (ID No. B38) with 135 MMBTU/HR Duct Burners (ID No. D39) connected to a 212.4 MW (gross output at 59 degrees Fahrenheit) GE Model D11 steam turbine (common with turbine 4B). in common with Gas Turbine No. 4-4 to a 214.5 MW (nominal at ISO conditions) steam turbine (ID No. B40). Turbine 4A, the HRSG, and steam turbine are all identified as ID No. D36 (A/N 578180)

and the duct burners are identified as ID No. D39 (A/N 578180). Equipment D36 and D39 are both connected to a CO oxidation catalyst, No. 4-1 (ID No. C41) (A/N 562530), with 240 cubic feet of total catalyst volume, Selective Catalytic Reduction, No. 4-1 (ID No. C42) (A/N 366153562530), with 2750 cubic feet of total volume 72 feet height, 1.5 feet long, 25.65 feet wide with an ammonia injection grid (ID No. B43), and share a common stack, Stack No. 4A (ID No. S44), with a height of 200 feet and diameter of 18 feet, a CO oxidation catalyst (ID No. C41) with 240 cubic feet of total volume connected to an exhaust stack (ID No. S44) (A/N 391559) No 4 3/4 4.

1,991 MMBTU/HR at 30 degrees Fahrenheit natural Gas Turbine (ID No. D45) (A/N 391560) No. 4-4B GE Model 7FA.04 with Dry Low NOx combustors DLN 2.6+ connected directly to a 175.7 177.1 MW (nominal at ISO conditions gross output at 59 degrees Fahrenheit) Electric Generator (ID No. B46) and a Heat Recovery Steam Generator (ID No. B47) with 135 MMBTU/HR Duct Burners (ID No. D48) connected to a 212.4 MW (gross output at 59 degrees Fahrenheit) GE Model D11 steam turbine (common with turbine 3B), in common with Gas Turbine No. 4-3 to a 214.5 MW (nominal at ISO conditions) steam turbine (ID No. B49). Turbine 3A, the HRSG, and steam turbine are all identified as ID No. D45 (A/N 578181) and the duct burners are identified as ID No. D48 (A/N 578181). Equipment D45 and D48 are both connected to a CO oxidation catalyst, No. 4-2 (ID No. C50) (A/N 562531), with 240 cubic feet of total catalyst volume, Selective Catalytic Reduction, No. 4-2 (ID No. C51) (A/N 366154562531) with 2750 cubic feet of total volume 72 feet height, 1.5 feet long, 25.65 feet wide with an ammonia injection grid (ID No. B52), and share a common stack, Stack No. 4B (ID No. S53), with a height of 200 feet and diameter of 18 feet, a CO oxidation catalyst (ID No. C50) with 240 cubic feet of total volume connected to an exhaust stack (ID No. S53) (A/N 391560) No 4 3/4 4.

THE FOLLOWING CONDITIONS OF CERTIFICATION PERTAIN TO THE FOLLOWING EQUIPMENT:

Internal combustion engine, emergency power, diesel Caterpillar 3512B-LE2200, turbocharged, aftercooled, 2,200,155 BHP A/N 366155500222 (ID. No. D5461)

THE FOLLOWING CONDITION OF CERTIFICATION PERTAINS TO THE GAS TURBINES, DUCT BURNERS AND EMERGENCY ENGINES

AQ-36 The following condition is applicable to each of the four combustion turbines (D19, D27, D36, D45):

- A. The gas turbines shall not be operated unless the operator facility demonstrates to the District and GPM that the facility holds sufficient 114,412 pounds of NOx RTCs in its allocation account to offset the prorated annual emissions increase for the first compliance year of operation. The RTCs held to satisfy the first year of operation portion of this condition may be transferred only after one year from the initial start of operation. In addition, the gas turbines shall not be

operated unless the operator demonstrates to the District that, at the commencement of each compliance year after the first compliance year of operation, the facility holds sufficient **107,552 pounds of NOx RTCs in an amount equal to the annual emission increase valid during that compliance year. RTCs held to satisfy the compliance year portion of this condition may be transferred only after the compliance year for which the RTCs are held. If the initial or annual hold amount is partially satisfied by holding RTCs that expire midway through the hold period, those RTCs may be transferred upon their respective expiration dates. This hold amount is in addition to any other amount of RTCs required to be held under other condition(s) stated in this permit.**

~~The owner/operator shall limit the first year, defined as the first 12 months following initial operation, cumulative facility wide NOx emissions from all equipment to no more than 492,897 lbs/year.~~

~~The owner/operator shall prior to the beginning of all years subsequent to the first year (as defined above), hold a minimum of 464,338 lbs of NOx RTCs for the operation of all equipment at the facility.~~

~~In accordance with District Rule 2005 (f), unused RTCs may be sold only during the reconciliation period for the fourth quarter of the applicable compliance year inclusive of the first compliance year.~~

The following condition is applicable to each of the four duct burners (D21, D30, D39, D48):

B. The duct burner shall not be operated unless the facility holds 7,758 pounds of NOx RTCs in its allocation account to offset the annual emissions increase for the first compliance year of operation. The RTCs held to satisfy the first year of operation portion of this condition may be transferred only after one year from the initial start of operation. In addition, the duct burner shall not be operated unless the operator demonstrates to the District that, at the commencement of each compliance year after the first compliance year of operation, the facility holds 7,293 pounds of NOx RTCs valid during that compliance year. RTCs held to satisfy the compliance year portion of this condition may be transferred only after the compliance year for which the RTCs are held. If the initial or annual hold amount is partially satisfied by holding RTCs that expire midway through the hold period, those RTCs may be transferred upon their respective expiration dates. This hold amount is in addition to any other amount of RTCs required to be held under other condition(s) stated in this permit.

The following condition is applicable to the emergency fire pump engine (D58):

C. The emergency fire pump IC engine shall not be operated unless the facility holds 841 pounds of NOx RTCs in its allocation account to offset the annual emissions increase for the first compliance year of operation. The RTCs held to satisfy the first year of operation portion of this condition may be transferred only after one year from the initial start of operation. In addition, the emergency fire pump IC engine shall not be operated unless the operator demonstrates to the District that, at the commencement of each compliance year after the first compliance year of operation, the facility holds 841 pounds of NOx RTCs valid during that compliance year. RTCs held to satisfy the compliance year portion of this condition may be transferred only after the compliance year for which the RTCs are held. If the initial or annual hold amount is partially satisfied by holding RTCs that expire midway through the hold period, those RTCs may be transferred upon their respective expiration dates. This hold amount is in addition to any other amount of RTCs required to be held under other condition(s) stated in this permit.

The following condition is applicable to the emergency IC engine (D61):

D. The emergency IC engine shall not be operated unless the facility holds 1,549 pounds of NOx RTCs in its allocation account to offset the annual emissions increase for the first compliance year of operation. The RTCs held to satisfy the first year of operation portion of this condition may be transferred only after one year from the initial start of operation. In addition, the emergency IC engine shall not be operated unless the operator demonstrates to the District that, at the commencement of each compliance year after the first compliance year of operation, the facility holds 1,549 pounds of NOx RTCs valid during that compliance year. RTCs held to satisfy the compliance year portion of this condition may be transferred only after the compliance year for which the RTCs are held. If the initial or annual hold amount is partially satisfied by holding RTCs that expire midway through the hold period, those RTCs may be transferred upon their respective expiration dates. This hold amount is in addition to any other amount of RTCs required to be held under other condition(s) stated in this permit.

Verification: The project owner shall submit to the CPM copies of all RECLAIM reports filed with the District in each Quarterly Operational Report. (see AQ-8).

PROPOSED NEW CONDITION OF CERTIFICATION – TRAFFIC AND TRANSPORTATION

TRANS-8 Pilot Notification and Awareness

The project owner shall initiate the following actions:

- Submit a letter to the Federal Aviation Administration (FAA) requesting a Notice to Airmen (NOTAM) be issued advising pilots of the location of the Mountainview Generating Station and recommending avoidance of overflight of the project site below 1,000 feet above ground level (AGL). The letter should also request that the NOTAM be maintained in active status until the Los Angeles Sectional Chart and Airport Facility Directories (AFDs) identified below have been updated.
- Submit a letter to the FAA requesting a power plant depiction symbol be placed at the Mountainview Generating Station site location on the Los Angeles Sectional Chart with a notice to “avoid overflight below 1,000 feet AGL”.
- Submit a request to the San Bernardino International Airport Manager to add a new remark to the Automated Surface Observing System (ASOS) identifying the location of the Mountainview Generating Station and advising pilots to avoid direct overflight below 1,000 feet AGL as they approach or depart the airport.
- Submit a letter to the Southern California Terminal Radar Approach Control (TRACON) requesting that aerodrome remarks describing the location of the Mountainview Generating Station plant and advising against direct overflight below 1,000 feet AGL to the:
- FAA Airport/Facility Directory – Southwest U.S.
- Jeppesen Sanderson Inc. (Airway Manual Services - Western U.S. Airport Directory)
- Pilots Guide to California Airports

Verification: No later than 60 days after the project owner completes replacement of the Advanced Gas Path components, the project owner shall submit draft language for the letters of request to the FAA (including Southern California (TRACON) and San Bernardino International Airport) to the CPM for review and approval.

IT IS SO ORDERED.

CERTIFICATION

The undersigned Secretariat to the Commission does hereby certify that the foregoing is a full, true, and correct copy of an Order duly and regularly adopted at a meeting of the California Energy Commission held on March 9, 2016.

AYE: Weisenmiller, Douglas, McAllister, Hochschild, Scott

NAY: None

ABSENT: None

ABSTAIN: None



Tiffani Winter
Secretariat