

DOCKETED

Docket Number:	85-AFC-03C
Project Title:	Compliance - Application for Certification for Midway-Sunset Cogeneration Project
TN #:	237725-1
Document Title:	Midway Sunset Letter - Post Certification Amendment - CC-2183
Description:	N/A
Filer:	Greg Jans
Organization:	Midway Sunset Cogeneration Company
Submitter Role:	Applicant
Submission Date:	5/6/2021 4:03:41 PM
Docketed Date:	5/6/2021



MIDWAY SUNSET
Cogeneration Company

May 06, 2021

CC: 2183

Ms. Mary Dyas
Compliance Project Manager
California Energy Commission
Energy Facilities Siting Division
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: Energy Commission Docket 85-AFC-03C Post Certification Amendment to Replace the Unit C Combustion System with a DLNH+ Turndown Enhance (DLNH+TE) Combustion System.

Dear Ms.Dyas,

MSCC is licensed by the Energy Commission as a cogeneration facility comprised of three GE Frame 7E combustion turbine generators (CTGs}. The CTGs produce electricity for sale through the California Independent System Operator (CAISO) markets. The exhaust heat from each CTG is designed to be routed through each unit's heat recovery steam generator (HRSG) producing steam for use in the adjoining oil field for thermally enhanced oil recovery (TEOR}.

The original design of the CTGs included bypass stacks for the HRSGs. The HRSGs require water flow in order to operate without damaging the generator tubes. When MSCC was first permitted, the bypass stacks allowed the CTGs to continue operating, supplying power to the grid, on the rare occasions that produced water from the oil field was not available for the HRSGs. Eventually, the permitted NOx limits were reduced to the point that Selective Catalytic Reduction (SCR) was required. With the SCR grids installed inside the evaporator sections of the HRSGs, the bypass stacks could no longer be utilized without exceeding the permitted NOx emission limit. The upgrade to the DLNI+TE combustion systems allows the CTGs to utilize the bypass stacks once again while staying within the NOx emission limit.

By 2015, declining steam demand had reduced the need for MSCC's steam to the output of one CTG (Unit C) leaving two CTGs (Units A and B) unable to continue to operate as cogeneration units. MSCC responded by requesting, and the Energy Commission approved a Post Certification Amendment for Units A and B to upgrade, at considerable expense, their combustion systems to GE's recently developed DLNI +TE combustion systems. The upgrade of Unit A and Unit B to the DLN H+TE combustion systems allowed Units A and B CTGs to utilize the bypass stacks (generate electricity without producing steam) while staying within the NOx

emission limit. Unit C continued to supply the reduced steam demand through Unit C's HRSG/SCR grid arrangement; therefore Unit C was not converted to DLN +TE.

Unit C currently meets the permitted 5ppm NO_x emission limit through the use of GE's DLN9 combustion system (NO_x emission not to exceed 9ppm) in conjunction with the ammonia injected SCR grid that reduces the NO_x emissions to 5ppm or less. The SCR grid is installed internal to Unit C's HRSG and is bypassed when the unit is operated as a simple cycle/peaking unit. Unit C's NO_x emissions released through the bypass stack are controlled only by the DLN9 combustion system and the permitted 5ppm limit cannot be met.

As part of the DLN +TE combustion systems conversion, MSCC installed a continuous emissions monitor (CEM) grid with testing and sampling ports upstream of the bypass stack. The grid covers a wider area of the stack and will mitigate any stratification that might occur. The existing SCR cogeneration stack sample system will remain in place and be certified, as required, in preparation of the unlikely event that ammonia injection is required during a cogeneration operation.

The DLN +TE is leading edge technology. MSCC has 6 years' experience with Unit A and Unit B meeting permitted NO_x limits using DLN +TE combustion without the use of the SCR system. However, in case any problems arise, MSCC preserved the option of activating the SCR system during cogeneration operations; however with the DLN +TE combustion system performing as designed, MSCC has no requirement to inject ammonia. There is also a financial incentive to avoid ammonia injection to the extent feasible. The SCR grid is basically inert unless ammonia is injected. The CTG exhaust passing through the SCR grid upstream of the main exhaust stack (HRSG) will have no effect on the SCR. Other than eliminating ammonia slip, the upgrade to DLN +TE combustion systems had no effect on any Unit A or Unit B emissions. As peaking units, Units A & B operate less than base loaded cogeneration units so subsequent emissions are correspondingly less.

GE's DLN +TE combustion system meets MSCC's permitted 5ppm NO_x emission limit without the use of the SCR and allows more flexibility to operate at reduced loads. MSCC's approved Unit A and B Post Certification Amendment includes leaving the SCR grid and ammonia injection system intact for use if either unit is required as a cogeneration unit and the SCR is needed to meet emissions limits. When the SCR system is used, MSCC will meet all the SCR conditions, including the calculation and recording of ammonia slip.

The continuing decline in steam demand; the termination of MSCC's last remaining steam contract; and California's stated goal to become 100% carbon free in California's electric grid supply influenced MSCC management's decision to mothball MSCC. However, as a result of the August 2020 California power blackouts, the CAISO refused to grant mothball status and requested, from the CAISO governing board, approval to designate MSCC as a Reliability Must-Run (RMR) facility. The CAISO board approved the RMR status of MSCC on December 17, 2020.

The designation of MSCC as an RMR facility places MSCC in a difficult position. Unit C has not yet been upgraded to the DLN+ 1TE combustion system and cannot operate in simple cycle mode, bypassing the HRSG, without exceeding NOx limits, yet, MSCC must respond to any CAISO RMR request to support the California power grid. A CAISO request would require Unit C to operate. Unit C, without the DLN+ 1TE upgrade and without a steam requirement, would need to respond in simple cycle mode and exceed the NOx emission limit.

MSCC is using a three pronged approach to reach a resolution.

First: MSCC applied for and received a regular variance from the District, allowing Unit C to run in simple cycle and exceed NOx emissions for a limited amount of excess NOx whenever CAISO determines there is a need for Unit C. This variance is good until March 9, 2022. (See attachment A)

Second: MSCC requested and received permission from the Energy Commission (Attachment B) and the District (Attachment C) to remove any requirement that MSCC must operate as a "cogeneration" facility. This allows the three units to run in simple cycle, Unit C being limited by Unit C's variance conditions, while not producing steam.

Third: Obtaining this Post Certification Amendment allowing the upgrade of Unit C's combustion system to DLN 1+TE. The amendment is very much similar to the previously approved upgrades for Units A and B. The difference between the amendment for Units A & B and the amendment for Unit C is the revision of the CEC Air Quality Conditions/Verifications performed for the Unit A&B amendment. The revisions made for Units A & B will be utilized by Unit C with no further required revision. The approval of this amendment will be the long term solution for continued operation of Unit C to support the energy needs of California.

This request for a Post Certification Amendment is for conversion of Unit C's DLN-9 dry low NOx emission combustion system to a DLN 1+TE combustion system.

The following is in response to the Energy Commission's Rule of Practice and Procedure & Power Plant Site Certification Regulations Section 1769 (a) (I);

(A) A Complete description of the proposed modifications, including new language for any conditions that will be affected:

Existing DLN-9 combustion chambers, liners and burner heads in Unit C will be replaced with DLN 1+TE combustion chambers, liners, transition pieces and burner heads including fuel nozzles. The end result will be a Unit, Unit C,

meeting the permitted NOx emission limit while bypassing the HRSG and SCR grid to operate as a peaking unit. Modifications made to the Energy Commission's Conditions of Certification to accommodate the upgrade of Unit A and Unit B combustion systems to DLN H+TE will serve to accommodate the upgrade of Unit C's combustion system to DLN I+TE. The only required change would be to AQ-27 (See attachment D). The Condition should include a statement limiting Unit C annual fuel usage 1667 MMscf. Verification should include a statement that: Records of Unit C fuel use will be included in the Quarterly Air Reports and the Annual Operating Report

- (B) A discussion of the necessity for the proposed modification.

The proposed modification will accommodate for the lack of MSCC steam production while maintaining the availability of electric power to the grid with Unit C as a peaking unit.

- (C) If the modification is based on information that was known by the petition during the certification proceeding, an explanation of why the issue was not raised at that time;

DLN I+TE technology was not available during the certification process.

- (D) If the modification is based on new information that changes or undermines the assumptions, findings or any other bases of the final decision, an explanation of why the change should be permitted;

This modification does not change or undermine the assumption, rationale finding or other bases of the final decision.

- (E) An analysis of the impacts the modification may have on the environment and proposed measures to mitigate any significant adverse impacts;

Unit C's Authority to Construct application to the San Joaquin Valley Air Pollution Control District limits Unit C annual fuel throughput to 1617 MMscf resulting in a proportionate reduction in emissions. Unit C's conversion to DLN I+TE has no significant adverse impacts on the environment.

- (F) A discussion of the impact of modification on the facility's ability to comply with applicable laws, ordinances, and standards;

This modification will not impact the facility's ability to comply with applicable laws, ordinances, regulations and standards.

- (G) A discussion of how the modification affects the public;

This modification will allow MSCC to operate Unit C as a peaking or cogeneration unit supplying electric power to the grid with a fuel usage restriction of 1667 MMscf and the attendant reduction of Unit C's emissions.

- (H) A list of property owner's potential affected by the modification;

No property owners will be affected by this modification.

- (I) A discussion of the potential effect on nearby property owner, the public and the parties in the application proceedings;

Since there is no change in the permitted emissions limits, there will be no potential effect on nearby property owners.

MSCC would normally wait until the Authority to Construct Petition was approved and include it with the Post Certification Amendment submittal but because of time constraints we hoped parallel submittals would allow for expedited approval. If you have any questions or comments, please call me at (661) 768-3018 or Ray Smith at (661) 768-3016.

Sincerely,



Greg Jans
Acting Executive Director

Attachments:

- A. District Regular Variance # S-21-02r
- B. CEC Order # 21-0317-1a;
Approving Petition For A Jointly Initiated Amendment
- C. District Project # S-1204542;
Minor Title V Permit Modification

D. CEC ID# 85-AFC-03C;
Midway Sunset Cogeneration Project
AQ Conditions of Certification As Amended
Updated August 23, 2019

CC: File CC-2183
Ray Smith