

DOCKETED

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Project Title:	High Desert Power Plant
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Document Title:	Petition to Amend HDPP
Description:	Administrative Changes to Air Quality Conditions
Filer:	Jon Boyer
Organization:	Middle River Power
Submitter Role:	Applicant
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High Desert Power Project, LLC

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September 20, 2022

Mr. Joseph Douglas
Compliance Project Manager
California Energy Commission
715 P Street
Sacramento, CA 95814

Subject: High Desert Power Project (97-AFC-1C): Petition for Revisions/Administrative Changes to Air Quality Conditions for Turbine Efficiency Improvements

Dear Mr. Douglas:

Pursuant to Section 1769(a)(3)(B) of the Commission's Regulations, High Desert Power Project, LLC ("HDPP") submits this petition for revisions to the Commission Decision (97-AFC-1C) for the High Desert Power Project ("Project") located in Victorville, California. HDPP plans to implement turbine efficiency improvements as part of the scheduled maintenance period in the spring of 2023. The Mojave Desert Air Quality Management District (MDAQMD) issued a draft modified Title V Operating Permit (No. 104701849) on September 15, 2022 for 45-day public comment period review. This Petition requests Commission Staff approval of the proposed modifications to existing Air Quality conditions of certification to conform with the Title V Operating Permit issued by the MDQAMD for the planned turbine efficiency improvements.

The HDPP efficiency improvements will increase the turbine firing temperature with new Ultra-Low Nitrogen Oxides (NO_x) combustion and turbine hardware. The replacement of blades and vanes with updated, functionally equivalent parts, will result in improved efficiency. The work will be performed ahead of the anticipated summer peak in 2023 during an already scheduled maintenance outage scheduled to begin on March 1, 2022. The improvements are expected to result in the following benefits: (1) improved efficiency via lower heat rate allowing for additional generation during the critical summer peak period months; (2) reduced NO_x emissions through the installation of Ultra Low NO_x (ULN) combustors with NO_x reduction from 25 parts per million (ppm) to 12 ppm (prior to the selective catalytic reduction [SCR] system) at 15% oxygen (O₂); and (3) increased reliability. The planned HDPP efficiency improvements include the following work to be performed in the power block area: (1) Combustion Turbine -- replacement of all existing turbine parts, including blades, vanes, rings, and seals with updated replacement parts; and (2) Combustors -- convert existing dry low NO_x (DLN) to ULN system with reduced NO_x emissions. The efficiency improvements will not result in any significant environmental impacts or affect the Project's ability to comply with applicable laws, ordinances, regulations, or standards.

Description of Efficiency Improvements

The efficiency improvements will be performed during required scheduled maintenance for the Project that will occur beginning March 1, 2023. The efficiency improvements are not a change to the Project design or operations; instead, replacement parts will be installed at the Project that will improve the plant's performance. The efficiency improvements will not increase the Project's hourly or annual emissions above currently permitted limits. HDPP is not requesting any increases to the Project's hourly, daily, or annual emission or operational limits to accommodate the efficiency improvements.

The planned efficiency improvements include the following work to be performed in the power block area:

- (1) Combustion Turbine -- replacement of all existing turbine parts, including blades, vanes, rings, and seals with updated replacement parts; and
- (2) Combustors -- convert existing dry low NOx (DLN) to ULN system with reduced NOx emissions.

As stated above, the efficiency improvements will occur within the existing power block area. No new ground disturbance is required. Furthermore, the proposed modifications do not require substantive changes to the Commission Conditions of Certification (COCs) for air quality, and do not conflict with current conditions. The proposed changes to existing air quality COCs are administrative in nature and necessary to conform the Project's license to the Title V Operating Permit. As detailed in Attachment 1, HDPP proposes the following revisions to existing Commission Conditions of Certification:

- Administrative changes to AQ-16 and AQ-18 to express testing timeframes in months versus years;
- Change to AQ-32 to reduce emission limits by 0.5 ton per year for NOx, VOC, and PM₁₀, and to reduce CO emission limit from 750 tons per year to 198.2 tons per year; and
- Addition of new Condition AQ-40 (assumed) to comply with MDAQMD's one-time requirement for source testing for NOx, CO, ammonia slip, PM₁₀, SO₂, and VOCs within 180 days of completion of the proposed efficiency improvements.

Based on consultations with the U.S. Environmental Protection Agency (EPA) – Region 9, the project does not trigger the “modification” provisions of the Prevention of Significant Deterioration (PSD) permitting requirements under Rule 1600.

As demonstrated above, the proposed efficiency improvements will not result in an increase to emission limits or result in an adverse environmental impact. The proposed changes do not affect compliance with applicable laws, ordinances, regulations, or standards. Accordingly, HDPP requests that the Energy Commission Staff expedite review of this petition and approve the proposed changes to the Project's air quality COCs in accordance with Title 20 CCR Section 1769 (a)(3)(B) once the MDAQMD issues the final Title V Operating Permit for the Project.

If you have any questions or need additional information, please contact me at 760-912-3007

Sincerely,

HIGH DESERT POWER PROJECT, LLC

Jon Boyer
Director – Environmental, Health, and Safety

Attachment

cc.
Roseana Navarro-Brasington, MDAQMD
Lisa Beckham, US EPA Region 9

ATTACHMENT 1
DESCRIPTION OF PROPOSED AIR QUALITY CONDITION REVISIONS

CHANGES TO CONDITIONS

Proposed Changes to Conditions of Certification AQ-16, AQ-18, and AQ-31, and Addition of New Condition AQ-40

Proposed changes to the following Conditions of Certification are provided with the new text shown in underlined and deleted text shown in strikethrough. *A discussion of the reason for the requested changes is provided following the proposed condition language.*

AQ-16 The project owner shall perform the following compliance tests in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the MDAQMD no later than six (6) weeks prior to the expiration date of this permit. The following compliance tests and their frequencies are required:

- a. NO_x as NO₂ in ppmvd at 15% O₂ and lb/hr at least once every ~~5 years~~ 60 months (measured per USEPA Reference Methods 7E, 19 and 20).
- b. VOC as CH₄ in ppmvd at 15% O₂ and lb/hr at least once every ~~3 years~~ 36 months (measured per USEPA Reference Methods 25A and 18).
- c. SO_x as SO₂ in ppmvd at 15% O₂ and lb/hr at least once every ~~5 years~~ 60 months.
- d. CO in ppmvd at 15% O₂ and lb/hr at least once every ~~5 years~~ 60 months (measured per USEPA Reference Method 10).
- e. PM₁₀ in mg/m³ at 15% O₂ and lb/hr at least once ~~a year~~ every 12 months (measured per USEPA Reference Methods 5 and 202 or CARB Method 5).
- f. Flue gas flow rate in scfmd each time a compliance test is conducted.
- g. Opacity (measured per USEPA reference Method 9).
- h. Ammonia slip in ppmvd at 15% O₂ at least once every ~~5 years~~ 60 months.

Verification: See verification for Condition **AQ-15**.

The revisions to AQ-16 are in response to an administrative change implemented by the MDAQMD in the September 15, 2022 draft Title V Permit.

AQ-18 The project owner shall, at least as often as once every ~~5 years~~ 60 months (commencing with the initial compliance test), include the following supplemental source tests in the annual compliance testing:

- a. Characterization of cold startup VOC emissions;
- b. Characterization of warm startup VOC emissions;
- c. Characterization of hot startup VOC emissions; and
- d. Characterization of shutdown VOC emissions.

Verification: See verification for Condition **AQ-15**.

The revision to AQ-18 is in response to an administrative change implemented by the MDAQMD in the September 15, 2022 draft Title V Permit.

AQ-31 Emissions from this facility, including the cooling tower, may not exceed the following emission limits, based on a rolling twelve (12) month summary:

- a. NO_x — ~~205~~ 204.5 tons/year, verified by CEMS
- b. CO — ~~750~~ 198.2 tons/year, verified by CEMS
- c. VOC as CH₄ — ~~429~~ 128.5 tons/year, verified by compliance tests and hours of

operation

- d. SO_x as SO₂ — 14 tons/year (LHV), 15.8 tons/year (HHV), verified by fuel sulfur content and fuel use data
- e. PM₁₀ — ~~233.2~~ 232.7 tons/year, verified by compliance tests and hours of operation

Verification: See Condition **AQ-20** and its verification.

The emission reductions by 0.5 ton per year for NO_x, VOC, and PM₁₀ were implemented by the MDAQMD as the project will result in slight reduction in emissions. Based on the requirements of Rule 1301(HH), 1304(B) and 1304(C)(2)(d) for a modified major facility, the historic actual emissions (HAE) for the fully offset non-attainment pollutants (NO_x, VOCs, PM₁₀) were set equal to the potential emissions (PE) minus one (1) pound per day of pollutants from each turbine as the simultaneous emission reduction (SER) requirement. Annual emission limits for CO were reduced from 750 tons per year (tpy) to 198.2 tpy to conform with MDAQMD requirements for attainment pollutants. The air basin is in attainment for CO and thus offsets were not required as part of the original permitting action. The calculation methodology of Rule 1304(C)(2)(d) could not be used for attainment pollutants. In its place and consistent with District Rules, the historic actual emissions (HAE) was defined under Rule 1301(HH) and is based on the actual emissions from any two (2) of the previous five (5) operating years which were 2019 and 2020. This established the HAE at 99.2 tpy. To account for future actual emissions, an emission increase of 99 tpy was applied based on Rule 1304(D)(2) which would be less than the major modification thresholds for CO.

AQ-40 POST TURBINE IMPROVEMENT PROJECT INITIAL COMPLIANCE TESTS: The owner/operator (o/o) shall perform initial test within 180 days of completion of the turbine improvement project.

- a. NO_x as NO₂ in ppmvd at 15% oxygen and lb/hr (measured per USEPA Reference Method 20 or Method 7E performed with Method 3 or 3A to determine NO_x and diluent concentration).
- b. VOC as CH₄ in ppmvd at 15% oxygen and lb/hr (measured per USEPA Reference Methods 25A and 18).
- c. SO_x as SO₂ in ppmvd at 15% oxygen and lb/hr.
- d. CO in ppmvd at 15% oxygen and lb/hr (measured per USEPA Reference Method 10).
- e. PM₁₀ in lb/hr at 15% O₂ (measured per USEPA Reference Methods 5 and 202 or CARB Method 5).
- f. Ammonia slip in ppmvd at 15% O₂.

[District Rules 1159; 1303]

Verification: Forty-five (45) days after testing the project owner shall provide the CEC CPM a copy of the source test results.

The addition of the Post Turbine Improvement Project Initial Compliance Tests condition is to verify that the turbines will continue to comply with the MDAQMD permit limits and was added by the MDAQMD in the draft Title V Permit dated September 15, 2022.