

Tehama County Air Pollution Control District
Permit to Operate
is hereby granted to
CALIFORNIA POWER HOLDINGS, LLC

PERMIT NUMBER: pto220

EXPIRATION DATE: 05/22/2019

PLANT OPERATING SCHEDULE

16 **PROCESS UNITS:** MWe **HOURLY RATE:** 44

LOCATION/EQUIPMENT/PROCESS/CONTROL SUMMARY

LOCATION: 970 Diamond Avenue, Red Bluff, California.

EQUIPMENT: Sixteen (16) Wartsila natural gas fired internal combustion engines rated at 3,870 horsepower at peak load, four cycle, lean burn, model 18V22OSG. Each engine drives a 2,800 kWe (2.8 MWe) generator.

PROCESS: Greater than forty-four megawatts electrical (>44 MWe) generation peaking power plant and transmission to the PG&E grid.

CONTROL: Sixteen (16) Hug EM77/6 selective catalytic reduction (SCR) systems using urea CO(NH₂)₂ injection.

 Sixteen (16) Oxicat™ oxidation stage effluent exhaust control systems.

GENERAL PERMIT CONDITIONS

1. The permittee shall maintain compliance at all times with all applicable Federal and State of California laws, and District Rules and Regulations, and permit conditions governing air pollution. (Rule 2:1)
2. Any person building, erecting, altering or replacing any article, machine, equipment or other contrivance, the use of which may cause the issuance of air contaminants or the use of which may eliminate or reduce or control the issuance of air contaminants shall first obtain written authorization for such construction from the Air Pollution Control Officer. (Rule 2:2)
3. Operating staff at the facility shall be advised of and be familiar with all conditions contained in this permit. (Rule 2:10)

4. Operation under this permit is deemed acceptance of all permit conditions as specified. (Rule 2:10)
5. All equipment, including both process and air pollution control equipment, shall be maintained at regular intervals to ensure minimal discharge of emissions. Manufacturers' recommended maintenance procedures shall be adhered to at all times. (Rule 2:10)
6. The District reserves the right to amend this permit in order to abate a nuisance or to ensure compliance with all applicable Federal and State of California laws, and District rules, regulations, and permit conditions governing air pollution. (Rule 2:10)
7. If any condition of this permit is in conflict with any applicable Federal or State of California law, or District rule, regulation, or permit condition governing air pollution the more stringent law, rule, regulation, or permit condition shall apply. (Rule 2:10)
8. If any condition of this permit is found invalid, such finding shall not affect the validity of the remaining conditions. (Rule 2:10)
9. In the event that control of this facility will be assumed by another person, company, corporation, or entity, the District shall be notified of such transfer of control by written notification a maximum of ten (10) days after to the actual transfer date. (Rule 2:10)
10. No facility processes shall discharge into the atmosphere any visible air contaminant, which exceeds a Ringelmann #2/40% opacity for a period or periods aggregating more than three (3) minutes in any one (1) hour (sixty consecutive minutes). (Rule 4:1)
11. Failure to comply with any Condition of this Permit, and/or the permitted source willfully fails or refuses, within a reasonable time period, to furnish requested information, analysis, plans or specifications relating to emissions from the source for which this Permit was issued, shall constitute grounds for a civil penalty, and may result in a, revocation or suspension of this Permit by the Tehama County Air Pollution Control District (District) Hearing Board. (Rule 2:10, H&S Code 42303)
12. This permit is not transferable either from one location to another, from one piece of equipment to another, or from one person to another, except with the written approval of the Air Pollution Control Officer. (Rule 2:13)
13. This permit, or a readable reproduction, shall be available at the facility where the permitted device is operating. (Rule 2:15)
14. Failure to comply with any of the emission limitations or restrictions prescribed by this permit occurring as a result of a process upset condition or breakdown of any air pollution control equipment or related operating equipment, or any in-stack continuous monitoring equipment, may constitute a violation of any such limitations or restrictions. Period(s) of upset or breakdown shall be reported to the Air Pollution Control Officer by the permittee shall as soon as reasonably possible, but no later than one (1) hour after its detection. If the Air Pollution Control Officer cannot be contacted, the report of the upset or breakdown shall be made at the commencement of the next regular working day.

Appropriate corrective measures are immediately to be undertaken to correct the occurrence or limit its duration. As soon as the upset or breakdown has been corrected, but no later than ten (10) calendar days, the permittee shall submit a written report to the Air

Pollution Control Officer, on forms supplied by the District, describing the cause(s) of the breakdown, corrective measures taken, a statement that the occurrence has been corrected, together with the date and time of correction. (Rule 4:17)

15. The permittee shall provide access for the purpose of inspection at any time the facility is in operation. (H&S Code 41510)
16. The permittee shall comply with all applicable requirements of the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588). (H&S Code, Part 6 Sections 44300 through 44394)

SPECIFIC PERMIT CONDITIONS

17. Fugitive dust emissions generated from access roads, internal driveways, equipment use areas, parking areas, etc., shall be controlled at all times by the use of dust suppression techniques that may include but are not limited to the following methods:
 - a. Decreased driving speeds;
 - b. Watering;
 - c. Palliative dust agents;
 - d. Paving and/or chip sealing.
(Rule 2:10)
18. The non-resettable fuel meter that records the total natural gas fuel flow to the facility shall be maintained to be accurate to $\pm 1\%$. (Rule 2:10)
19. The plant must be in compliance with the emissions limitations, operating limitations and other requirements per the RICE NESHAP at all times. (40 CFR 63 Subpart ZZZZ)
20. All of the natural gas fired Wartsila internal combustion engines shall be fired exclusively with pipeline PUC natural gas. Propane, or compressed natural gas (CNG), may be used as a standby fuel when the PUC natural gas supply is interrupted by circumstances beyond the control of the facility owner or operator. (Rule 2:10)
21. No Wartsila natural gas fired internal combustion engines shall discharge to the atmosphere any air contaminants greater than the following:
 - a. Oxides of nitrogen (NO_x) 9.00 ppmvd corrected to 15% O₂;
 - b. Total hydrocarbons as non-methane or non-ethane organic compounds (NMOC) 25.00 ppmvd corrected to 15% O₂;
 - c. Carbon monoxide (CO) 56.00 ppmvd corrected to 15% O₂;
 - d. Ammonia (NH₃) 10.00 ppmvd;
 - e. Sulfur oxides .000829 Lbs/MMBtu;
 - f. Particulate matter equal to or less than ten microns (PM₁₀) 0.02 g/bhp-hr.
(Rule 2:10)
22. No Wartsila natural gas fired, spark ignition, internal combustion engine exhaust stack visible emissions shall exceed a Ringelmann 1/4 or 5% opacity for a period or periods aggregating more than three (3) minutes in any one (1) hour (sixty consecutive minutes). (Rule4:1)
23. The engine(s) shall be in full compliance with the applicable requirements of 40 CFR Part

- 63, Subpart ZZZZ (National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. (40 CFR Part 63 Subpart ZZZZ))
24. The CO emissions from the engine shall not exceed 47 ppmvd @ 15% O₂. (40 CFR Part 63 Subpart ZZZZ)
 25. The permittee shall install equipment to automatically shut down the engine if the catalyst inlet temperature exceeds 1,350 F. (40 CFR Part 63 Subpart ZZZZ)
 26. The permittee shall conduct annual compliance tests to demonstrate compliance with the CO emission requirement. (40 CFR Part 63 Subpart ZZZZ)
 27. Measurements to determine O₂ concentration must be made at the same time as the measurements for the CO concentration. (40 CFR Part 63 Subpart ZZZZ)
 28. The emission limits listed in Condition #21 and the Ringelmann or opacity limitations listed in Condition #22 shall not apply during start-up or shut-down periods, which are not to exceed one (1) hour in duration. Good operating practices shall be used to the fullest extent during start-up and shut-down periods to minimize pollutant and visible emissions. (Rule 2:10)
 29. Fugitive natural gas emissions shall be controlled at all times such that a nuisance is not created at any point beyond the facility property lines. (Rule 4:4)

MONITORING, RECORDING, AND REPORTING REQUIREMENTS

30. Operational records shall be maintained that shall include on a daily/monthly basis the number of kWe-hrs, or MWe-hrs, produced by the 16 Wartsila engines. All records of electrical production shall be maintained for a minimum of three (3) years and shall be presented upon request by the APCO or his/her designee. (Rule 2:10)
31. Actual annual CO emissions shall be calculated utilizing the following methodology:
 - a. [CO startup engine hours per year X startup emission rate (12.33 lbs/hr)] + [equivalent full load engine hours X steady-state CO emission rate (3.5 lbs/hr)]. Actual annual CO emissions shall be calculated on a yearly average basis.
 - b. Equivalent full load engine hours shall be calculated from the energy production, excluding startup, divided by 2.8 Megawatts.
 - c. CO startup engine hours shall be calculated from the minutes between initiation of fuel combustion at engine start until the CO catalyst is at or above the proper operating temperature (450 degrees Fahrenheit) for steady-state CO emissions control.
 - d. To establish compliance with this condition the facility shall maintain continuous records of energy production (kW) and CO catalyst temperature for each engine. (Rule 2:10)
32. At any time that facility-wide emissions of NO_x exceeds 30.26 tons per year the owner or operator shall immediately offset the excess emissions. (Rule 2:10)

Actual annual NO_x emissions shall be calculated utilizing the following methodology:

 - a. [NO_x startup engine hours per year X NO_x startup emission rate (5.00 lbs/hr)] + [NO_x equivalent full load engine hours per year X NO_x steady-state emission rate

- (0.91 lbs/hr)]. Actual annual NO_x emissions shall be calculated on a calendar year basis.
- b. NO_x startup engine hours shall be calculated from the minutes between initiation of fuel combustion at engine start until initiation of urea injection for each engine.
 - c. To establish compliance with this condition the facility shall maintain continuous records of energy production (kW), initiation of urea injection for each engine that validates with an accounting record the continuous injection of urea for the entire time period that each engine is in operation as well as total amount of urea used annually by all sixteen (16) engines. (Rule 2:10)
33. At any time that facility wide emissions of VOCs (as NMOC) exceeds 25 tons per year the owner or operator shall immediately offset the excess emissions.
- Actual annual VOC emissions shall be calculated utilizing the following methodology:
- a. [CO startup engine hours per year X VOC startup emission rate (1.322 lbs/hr)] + [VOC equivalent full load engine hours per year X VOC steady-state emission rate (0.879 lbs/hr)]. Actual annual VOC emissions shall be calculated on a calendar year basis.
 - b. VOC start-up emissions shall be calculated using CO startup engine hours as defined in Condition #31.
 - c. To establish compliance with this condition the facility shall maintain continuous records of energy production (kW) and CO catalyst temperature for each engine. (Rule 2:10)
34. The permittee shall notify the District in writing, within fifteen (15) days, when CO, NO_x or VOC emissions are within twenty percent (20%) of exceeding the CO emissions limit of 99.99 tons per year. The notice shall indicate either:
- a. The intention to remain under the CO emission limit of 99.99 tons per year and/or the NO_x and/or VOC emission offset threshold(s) for the current calendar year; or
 - b. The intention to apply for a Title V Operating Permit within twelve (12) months of exceeding the CO emission limit of 99.99 tons per year and/or the source and quantity of emission offsets to be provided to increase the applicable emission offset threshold for NO_x or VOCs.
 - c. If the CO emissions are within 20% of the CO emission limit listed in Condition #25, written notice shall include records of actual CO emissions, energy production, operating hours, and CO startup hours for the current calendar year.
 - d. If NO_x emissions are within 20% of the NO_x emission limit listed in Condition #26, written notice shall include records of actual NO_x emissions, energy production, operating hours, and NO_x startup hours for the current calendar year.
 - e. If VOC emissions are within 20% of the VOC emission limit listed in Condition #27, written notice shall include records of actual VOC emissions, energy production, operating hours, and CO startup hours for the current calendar year. (Rule 2:10)
35. Emission offsets shall satisfy emission offset requirements, including offset ratios. (Rule 2:3A New Source Review (amended 6/3/1997))

36. Two (2) representative Wartsila engines selected by the District shall be source tested at peak electrical generating load and maximum heat input pursuant to the following conditions:
- a. Annual source testing shall be performed by an independent testing company. The independent test company shall submit a source test protocol to the District a minimum of thirty (30) days prior to the actual source test date. The independent test company shall receive written District approval of the protocol prior to conducting source testing. The District shall be notified a minimum of five (5) days prior to the actual source test date so that District personnel may be present to observe source testing. (If either of the annually tested engines exceeds the emission limits listed in Condition #21 the remainder of the engines shall be source tested using the test methods or calculations procedures listed in Condition #31.c.
 - b. The actual source test date shall be scheduled a minimum of ninety (90) days prior to the expiration date of this Permit to Operate.
 - c. Compliance shall be determined using the following test methods or calculation procedures:
 - i. Sample and Velocity Traverse - U.S. EPA Method 1, or ARB Method 1.
 - ii. Velocity and Volumetric Flow Rate - U.S. EPA Method 2, or ARB Method 2.
 - iii. Stack Gas Oxygen(O₂) –ASTM D6522,U.S. EPA Method 3, or ARB Method 3. (40 CFR 63 ZZZZ)
 - iv. Moisture Content - U.S. EPA Method 4, or ARB Method 4.
 - v. Oxides of Nitrogen (NO_x) - U.S. EPA Method 7E, or ARB Method 100.
 - vi. Carbon Monoxide (CO) - U.S. EPA Method 10, or ARB Method 100.
 - vii. Carbon Dioxide (CO₂) - U.S. EPA Method 3A, or ARB Method 100.
 - viii. Sulfur Dioxide (SO_x) - Calculated emission rate may be based on local PUC natural gas SO₂ content of .000829 lbs/MMBtu, or U.S. EPA Method 6 or ARB Method 100.
 - ix. Total Hydrocarbons (Organic Gasses as NMOC) - U.S. EPA Method 18 or 25.
 - x. PM₁₀ - Calculated emission rate may be based on 0.02 g/bhp-hr, or EPA Method 5 or ARB Method 5.
 - xi. Ammonia (NH₃) Bay Area Air Quality Management District Source Test Method ST-1B, or any other proper test method that would be more desirable for measuring NH₃ contained in the effluent air stream as approved by the APCO.
 - d. The independent source test company shall submit a final report within forty-five (45) days of the actual source test date directly to the District. The report shall list:
 - i. All performance test determinations of flue gas concentrations in appropriate units such as gr/dscf, g/bhp-hr, ppmvd, lbs/MMBtu. The appropriate reporting units shall reported in lbs/hr, lbs/day, and tpy.
 - ii. The report shall contain all calculations and shall specify the source of the emission rate.
 - iii. Each separate test run shall be listed in the report, and the test runs shall be averaged.

iv. A summary of emissions. (Rule (2:10))

37. If the results of the annual compliance test demonstration show emissions exceedances of Condition #24 the engine must be shut down as soon as safely possible, and appropriate corrective action must be taken as soon as possible. The engine must be retested within 7 days of being restarted and the emissions must be meet the required levels. If the retest shows that the emissions continue to exceed the specified levels, the engine must again be shut down and may only operate for startup and testing, until the facility can demonstrate compliance. (40 CFR 63 Subpart ZZZZ)
38. Each engine operated during any calendar quarter shall be compliance tested for NO_x and CO using a District approved portable analyzer to demonstrate compliance with Condition #21 no later than the 15th day of the following calendar quarter. Engines not operated at any time during a calendar quarter are not required to be tested.
- a. Engines that emit NO_x and/or CO greater than the limits listed in Condition #21 shall cause the owner or operator to evaluate the performance of the air pollution control equipment to determine if the HUG SCR catalyst, Oxicat oxidation catalyst, or any component part of the control system needs servicing/replacement. The source owner or operator must then notify the District of the excess emission(s), reduce emissions to compliant level, show that compliance has been re-established by District approved portable analyzer verification, and return to normal operation. (Rule 2:10)
39. The emission rate in ppm corrected to 15% O₂ of NO_x and CO, as well as the O₂ percent recorded by the portable analyzer shall be downloaded and kept in a spreadsheet format. Strip chart recordings produced while conducting compliance testing shall be maintained for two (2) years and shall be presented to the APCO or his/her designee upon request. Within fifteen (15) days after the start of the next calendar quarter an electronic copy of the portable analyzer spreadsheet data emission recordings shall be sent to the District that lists the following:
- a. A column listing the quarterly NO_x and CO ppm rate and the O₂ percent obtained from the District approved portable analyzer for each engine compliance tested. (Rule 2:10)
40. The natural gas meter readings shall be recorded in a gas usage log for each month, or any part of a month, that the engines are operated. (Rule 2:10)
41. The permittee shall comply with all monitoring, record keeping and reporting requirements for greenhouse gases (GHGs). (Rule 7:3)
42. The permittee shall submit the first semi-annual compliance report that covers between Oct 19, 2013 and December 31, 2013. Each subsequent compliance report must be submitted every July 31st and January 31st after the initial semi-annual report. (40 CFR 63 Subpart ZZZZ)
- a. A copy of each notification and report that is submitted to comply with the RICE NESHAP, including all documentation supporting any Initial Notification or Notifications of Compliance Status that is submitted.
- b. Records of the occurrence and duration of each malfunction of operation of the

- engines, the air pollution control equipment, and monitoring equipment.
- c. Records of performance tests and performance evaluations.
 - d. Records of all required maintenance performed on the catalyst system and monitoring equipment.
 - e. Records of actions taken during periods of malfunction to minimize emissions, including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.
 - f. Records that show continuous (annual compliance demonstrations and times when the engine was shut down due to the catalyst inlet temperature at greater than 1,350 F).
 - g. Records must be kept for five (5) years following the date of each occurrence, measurement, corrective action report, or record.
 - h. Records must be readily accessible in hard copy or electronic format for at least five (5) years.
43. The permittee shall submit an annual report in electronic format and a hard copy of the annual report a minimum of forty-five (45) days prior to the expiration date of this Permit to Operate that contains the following for the previous calendar year:
- a. The amount of natural gas used each month at the facility, and summarized for the previous one (1) year period.
 - b. A copy of the operating logs that have been maintained for each engine.
 - c. A copy of the log that records the total amount of electricity produced.
 - d. A spreadsheet summarizing actual monthly GHG emissions from all permitted emission units.
 - e. A spreadsheet summation of the quarterly reports submitted to the District pursuant to Condition #38 that lists the following:
 - i. A column listing the quarterly NO_x and CO ppm rate and the O₂ percent obtained from the District approved portable analyzer for each engine compliance tested.
 - f. Calculation of annual CO, NO_x and VOC emissions for the previous calendar year. (Rule 2:10)
44. The hard copy Annual Report shall be signed and dated by a responsible company official. (Rule 2:10)
45. The hours of operation of each engine shall be recorded. The recorded engine information shall include, on a weekly basis, the total hours of operation. All preventative and corrective maintenance, and any modification(s) performed shall be documented. This information shall be retained for two (2) years and shall be made available upon request by the Air Pollution Control Officer (APCO) or his/her designee. (Rule 4:34)
46. Carbon Monoxide (CO) emissions from all sixteen (16) engines at the facility shall not exceed 99.99 tons per year. This engine operating limit is federally enforceable. (Rule 7:2)

INDEMNIFICATION

47. District Rule 2:19 District Indemnification applies to this permit.

JOSEPH H TONA
AIR POLLUTION CONTROL OFFICER

DATE