

**DOCKETED**

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*Comment Received From: Enchanted Rock  
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**AMENDED Enchanted Rock Response to SV1 Comments on Draft  
EIR**

*Additional submitted attachment is included below.*

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## STATE OF CALIFORNIA

### Energy Resources Conservation and Development Commission

Great Oaks South Backup Generating Facility Small Power Plant Exemption

Docket Number: 20-SPPE-01

Regarding: SV1 Comments on the Draft Environmental Impact Report – GOSBGF, docketed July 06, 2021

AMENDED Enchanted Rock Comments submitted July 19, 2021

**AFTER ENCHANTED ROCK FILED COMMENTS ON JULY 14, 2021, CEC STAFF ASKED ENCHANTED ROCK TO CLARIFY CERTAIN ELEMENTS OF THE ANALYSIS AS PRESENTED. SUBSEQUENTLY, ENCHANTED ROCK INVESTIGATED THESE ITEMS AND THE FOLLOWING COMMENTS ARE UPDATED WITH CORRECTED VALUES. THE PRIOR FILING IS SUPERCEDED IN ITS ENTIRETY WITH THIS FILING.**

#### **Background and Introduction**

Enchanted Rock is a developer of clean resiliency microgrids for commercial and industrial facilities seeking protection from long duration power outages. We operate over 200 such microgrids utilizing natural gas reciprocating engines in applications including manufacturing, healthcare, logistics, and data centers, to name a few.

Information we previously provided to the California Energy Commission was referenced in the Draft Environmental Impact Report (DEIR) referenced above. Subsequent comments on the DEIR by the Applicant raised questions about Enchanted Rock emissions levels and business model to which Enchanted Rock provides the following clarification.

## Enchanted Rock Responses

### SV1 Comment 1:

*In addition, Staff uses emission data provided by Enchanted Rock that is misleading. Staff provides no evidence that the emission data provided was obtained through the methods normally required for permitting emission sources in California. The emission data provided for the proposed project are guaranteed by the manufacturer of the emergency generators and the selective catalytic reduction (SCR) supplier. SV-1 requests that Section 5 of the DEIR be revised to include acknowledgement that the data provided for Enchanted Rock natural gas solution are not guaranteed and therefore estimates may be significantly underestimated.*

### Enchanted Rock Response 1:

The mass emissions rate data presented in Table D-9 of Appendix D in the Great Oaks South Backup Generating Facility (GOSBGF) Draft Environmental Impact Report (DEIR) are the results of the emission source test data from the Enchanted Rock Standard A24500 Genset that occurred in September of 2019. The new engine (0-hour) emission source test was performed at a Nationally Recognized Testing Laboratory per Code of Federal Regulation Title 40, Part 1065 and Part 1048. The testing performed was intended to document emissions limits with existing permitted installations.

Over the last 18 months, however, Enchanted Rock has developed new emissions control technology designed for the California market. The new Enchanted Rock Standard California Genset Unit achieves significantly lower emissions levels that are well below the emission levels described in the GOSBGF DEIR. The California emissions package is installed in the same modular sound attenuated genset package that is quieter than typical diesel systems.

Following recent emissions source testing on the Standard California Genset Unit (using the ASTM Method D6348-03 test method) Enchanted Rock's guaranteed emission levels are provided below in Table 1.

**Table 1. Enchanted Rock Standard California Genset Unit Emissions Levels**

Source	Pollutant	Emission Factor (g/bhp-hr)	Individual Max Daily Emissions (lb/day)
Enchanted Rock Natural Gas Generator - CA Unit (448 KW-ESP per Unit)	NO <sub>x</sub>	0.022	0.63
	VOC	0.006	0.17
	CO	0.031	0.89
	PM	0.0027	0.08

**SV1 Comment 2:**

*In addition, Staff should acknowledge that Enchanted Rock does not presently supply natural gas engines for only emergency use and instead has previously marketed to Equinix a natural gas solution” whereby, the multiple small natural gas engines are used for Equinix facilities to “self generate” pursuant to temporary approved Resource Adequacy program and that participation in such a program could offset the increased costs of multiple natural gas engines that are significantly more than the cost of the proposed generators. The emissions that would be created during self-generation for Resource Adequacy purposes are not accounted for in Staff’s Alternative Analysis*

**Enchanted Rock Response 2:**

Contrary to the statement in SV1’s comment, Enchanted Rock’s natural gas microgrids can be supplied for emergency use only. The gensets are designed to match diesel performance with under 10 second start time, comparable transient response (ISO 8528 G3 levels), and similar power densities. Even without participation in grid services, the total cost of ownership of an Enchanted Rock microgrid is at a nominal premium to Tier 4 diesel, when considering maintenance, operation and fuel inventory.

However, most of Enchanted Rock’s microgrids provide both emergency use AND grid support services, such as Resource Adequacy in California, which recent extreme weather events have shown are badly needed in the state. The revenue from these grid support services in California reduces the cost of the emergency power system to at or below the cost of Tier 4 diesel; we estimate supporting the grid in times of tight supply will constitute approximately 60 hours per year of operation and which will negate the need for ~20 hours per year of system readiness testing.

What’s more, the most recent CA grid emergency and the associated Governor’s Executive Order highlight just one example of the ongoing risk of increased emergency operation in excess of 20 test hours annually. More frequent extreme weather and emergency conditions, if they continue, will result in emergency use operating hours converging with Resource Adequacy operating hours.

Comparing NOx, VOC, CO, and PM emissions for a 99 MW plant using an Enchanted Rock Microgrid system with the emissions from a 99 MW plant using the proposed Cummins Tier 4 engine demonstrates significant hourly air quality benefits (see Table 2 below) ranging from 88% to 99% improvement, depending on pollutant. SO2 and CO2 were not included since local fuel composition determines the SO2 levels and we expect to use Renewable Natural Gas in CA to achieve zero or negative carbon emissions.

Annual air quality benefits (see Table 3 below) from the same Enchanted Rock microgrid, assuming 60 hours when providing Resource Adequacy, when compared to the 20 hours of readiness testing for the Tier 4 diesel system are also substantial ranging from 59% to 96% improvement, depending on pollutant.

**Table 2. Comparative HOURLY Plant Emissions**

Source	Pollutant	Emission Factor (g/bhp-hr)	Percentage Reduction from Tier 4
Enchanted Rock Natural Gas Generator - CA Unit (60 Annual Hours)	NO <sub>x</sub>	0.0220	-95%
	VOC	0.0060	-96%
	CO	0.0310	-99%
	PM	0.0027	-88%
Source	Pollutant	Emission Factor (g/bhp-hr)	
Cummins Diesel Generator Tier 4 - CA Unit (20 Annual Hours)	NO <sub>x</sub>	0.4821	
	VOC	0.1368	
	CO	2.5147	
	PM	0.0228	

**Table 3. Comparative ANNUAL Plant Emissions**

Source	Pollutant	Facility Wide Annual Emissions (tons/yr)	Percentage Reduction from Tier 4
Enchanted Rock Natural Gas Generator - CA Unit (60 Annual Hours)	NO <sub>x</sub>	0.27	-84%
	VOC	0.07	-85%
	CO	0.37	-96%
	PM	0.03	-59%
Source	Pollutant	Facility Wide Annual Emissions (tons/yr)	
Cummins Diesel Generator Tier 4 - CA Unit (20 Annual Hours)	NO <sub>x</sub>	1.67	
	VOC	0.47	
	CO	8.70	
	PM	0.08	

**Notes:**

1. Cummins engines are equipped with Miratech Selective Catalytic Reduction (SCR) system and diesel particulate filters (DPF) to achieve compliance with Tier 4 emission standards