

Casa Del Zorro PDS2019-AD-19-028

Noise Letter Study

2-26-2020

Casa Del Zorro Solar Noise Letter Study

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1. Noise Study Overview

Greenskies Clean Energy (“Greenskies”), in partnership with SD Renewables, has been engaged to develop a solar installation (the “Project”) on behalf of and for the benefit of Casa del Zorro Resort (the “Resort”) in Borrego Springs. As part of the Project application process and in order to specifically address potential or stated concerns of Project neighbors, and comments received from both the Borrego Springs Community Planning Group and Planning & Development Services Department for the County of San Diego County, Greenskies conducted a letter study to demonstrate that the proposed solar Project will not create noise issues for the surrounding neighbors and community.

The intent of this study is to evaluate the proposed Project noise levels at different times of day in comparison to County requirements.

2. Project Description

The proposed Project (PDS2019-AD-19-028) is a 750 kW AC single axis tracking solar PV generator. The location of the system is 3845 Yaqui Pass Rd, Borrego Springs, immediately across the street from the entrance to the Resort. The proposed Project includes 2,333 solar modules, five inverters, and will be mounted on a portion of a 6.54 acre site, using a racking system that tracks the sun in the E-W direction. The figure below shows the proposed Project layout.

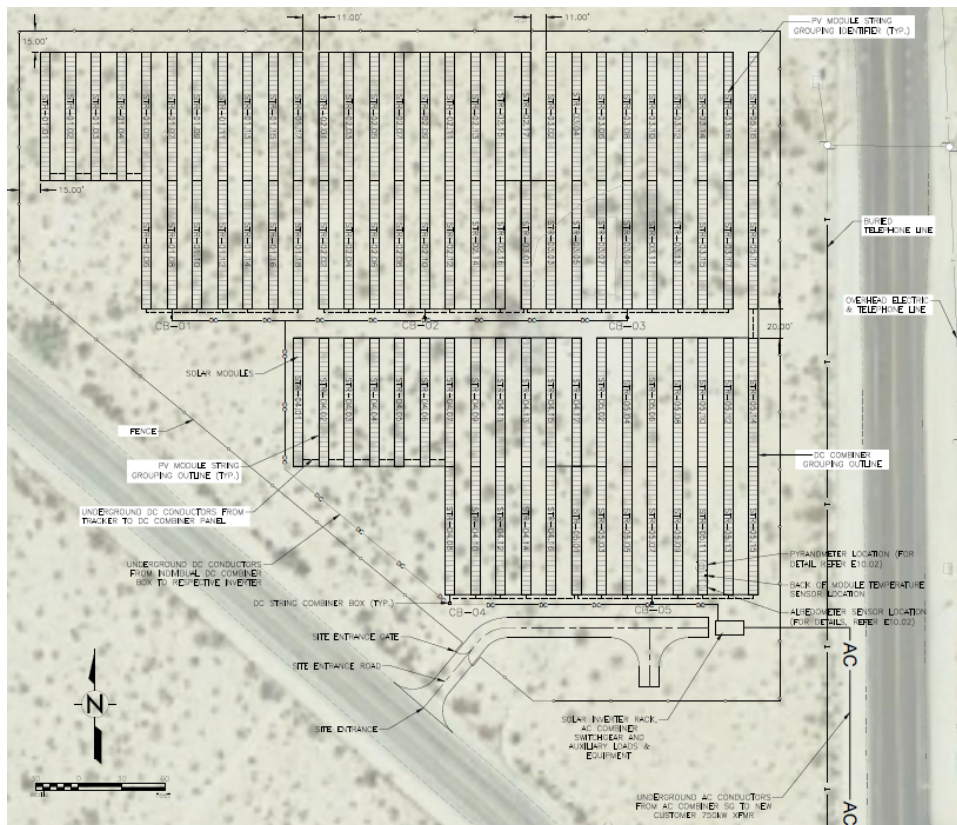


Figure 1. Array Layout

The Project is also proposed to include a six foot tall chain link fence that will include solid slats.

The Project will include a concrete pad with electrical equipment and electrical conducts will go underground, crossing the road to connect to the Casa Del Zorro Resorts existing electrical infrastructure. All energy generated by the system will be used onsite by the Resort. The PV modules will be no taller than eight feet at maximum.

Noise generating components include the inverters, transformer, and tracking system.

3. Study Methodology and Results

The proposed Project will produce minor temporary noise impacts during construction. There will be no significant noise produced through the operational life of the equipment within the Project.

Since the solar system operates differently depending on whether there is sunlight, sound generated by the equipment has been estimated for both daytime and nighttime conditions. The following summarizes the proposed equipment, the assumed maximum possible sound level emissions, and the time of day the equipment generally operates based on daylight:

- Transformer: 65 dBA2 per NEMA Rating TR-1 - Day and Night
- Solectria XGI 1500: 55 dBA at 10 feet – Day Only
- ATI single axis tracking motors: 44 dBA at 40 ft

Sound propagation depends on the terrain, ground cover, intervening objects, and trees. Assuming flat ground and a relatively hard ground cover such as pavement, packed dirt, or water, sound from stationary sources generally reduces 6 dBA per doubling of distance. Assuming flat ground with a softer ground cover such as grass, sound reduced 7.5 dBA per doubling of distance.

The Project site is generally flat with soft ground. The electrical equipment is approximately 100 feet from the nearest property boundary, and much further away from, any buildings or residences. Based on sound propagation calculated according to the ISO 9613 Standard for “Attenuation of Sound During Propagation Outdoors – Part 2: General Method of Calculation”, the equipment would generate 66.76 at 10 feet thus, the sound at the property boundary (100 feet) is a maximum of 42.4 dBA during the daytime and a maximum of 39.5 dBA during the night.

Separately, the tracking system will make momentary noise on a low level every time the modules move position. However, the duration of each noise is less than a minute, far less than an hour. The closest distance from property boundary to tracking motor is approximately 75 feet. Thus the short term maximum possible noise at property boundary from the motor is 41.4 dBA. This will only occur during daytime hours.

Listed below are the sound level limits as defined by San Diego County Zoning Ordinance.

Table 2-1: Sound Level Limits in Decibels (dBA)

ZONE		APPLICABLE LIMIT ONE-HOUR AVERAGE SOUND LEVEL (DECIBELS)
R-S, R-D, R-R, R-MH, A-70, A-72, S-80, S-81, S-87, S-88, S-90, S-92, R-V, and R-U Use Regulations with a density of less than 11 dwelling units per acre.	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
R-RO, R-C, R-M, C-30, S-86, R-V, R-U and V5. Use Regulations with a density of 11 or more dwelling units per acre.	7 a.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
S-94, V4, and all other commercial zones.	7 a.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	55
V1, V2	7 a.m. to 7 p.m.	60
V1, V2	7 p.m. to 10 p.m.	55
V1	10 p.m. to 7 a.m.	55
V2	10 p.m. to 7 a.m.	50
V3	7 a.m. to 10 p.m.	70
	10 p.m. to 7 a.m.	65
M-50, M-52, M-54	Anytime	70
S-82, M-58, and all other industrial zones.	Anytime	75

Source: County of San Diego Noise Ordinance Section 36.404

Figure 2. Noise Ordinance

Construction period noise impacts are also projected to be below County noise limits. Equipment required for construction of the facility is listed in Attachment A. Construction activity includes limited civil work, installation of fencing, driving of piles, mechanical installation of steel racking material, electrical installation of modules and wiring, trenching, and dust control. There will be vehicle traffic for equipment, deliveries, and personnel.

In summary, the noise levels generated by all the components that comprise the Project are below the County noise limits. Therefore, there would be no significant adverse noise impact due to the proposed Project and there is no need for mitigation.

Attachment A. Construction Equipment

	Number	Usage Factor %	50 ft. DBA
Backhoe	1	40%	80
Concrete Mixer Truck	1	40%	85
Excavator	1	40%	84
Generator (for office trailer)	1	50%	70
Gradall (Telehandler)	2	40%	85
Pickup Truck	3	40%	55
Vibratory Pile Driver	1	20%	95
Flatbed Truck	1	40%	84
Tractor (Trailer) Delivery	20	40%	84