

3.12 NOISE

Noise from the construction of the solar panel facility is exempted under Connecticut regulations for the control of noise. For more information refer to RCSA 22a-69-1.8(g). During construction, the increase in noise will likely lead to a subsequent elevation in ambient sound levels in the immediate vicinity of the Project. Standard construction equipment will be used for the Project, and the highest level of noise generated from this equipment - such as backhoes, bulldozers, cranes and trucks - is expected to be approximately 88 dBA from the origin.

The primary sources of noise generation associated with the Facility will be the (1) 2,000 kVA transformers and (8) inverters. The tracker motors for the solar panels themselves also emit noise, however the level of noise for these motors is minimal. A summary of the equipment and manufacturer's listed sound data is provided below in Table 4.

Table 4: Equipment Sound Summary

Equipment	Number of Sources	Listed Sound Pressure (dBA)	Distance of Observed Sound Level (meters)
Sungrow SG125HV 125kW Inverters	8	61.6	1
2,000 kVA Transformers	1	61	1

The logarithmic decibel scale is utilized to combine sound levels and adjust for distance based on the Inverse Square Law. Total sound levels from the proposed equipment was calculated as shown below:

Calculate Anticipated Sound Level at Nearest Property Boundary

Multiple analysis points were studied along the property boundary to determine at which point the highest level of sound will be produced by the equipment on-site. Once the point was determined, following equation was used to determine the sound level of each piece of noise-producing equipment:

$$L_b = L_a - 20 \times \log_{10}\left(\frac{D_b}{D_a}\right)$$

Where:

L_b = Noise level at new distance (dBA)

L_a = Noise level at original distance (dBA)

D_b = New distance from source of noise (meters)

D_a = Original distance from source of noise (meters)

Using the data from Table 4, as well as the distances from each inverter and the transformers to the property line, the total anticipated sound level for each piece equipment was calculated.

Combining Sound Levels

To add multiple sound levels of different strength, the following equation was used:

$$L_t = 10 \log_{10}\left(\sum 10^{\frac{L_b}{10}}\right)$$

After combining all sound levels from each piece of equipment, it was determined that the highest collective operational noise at the property boundary would be 42.1 decibels. The collective operational noise at the nearest residence (519 Norwich Road) would be 35.7 decibels. These noise levels meet applicable CT DEEP Noise Standards. Noise levels will effectively be reduced to zero during nighttime hours when the array is not generating electricity.

