March 20, 2024

Mr. Mark Cook
Tobin, Carberry, O'Malley, Riley, & Selinger, P.C.
43 Broad Street
New London, CT 06320

SUBJECT: Environmental Sound Evaluation
QCells BESS Facility
Waterford, CT

Dear Mr. Cook,

Cavanaugh Tocci Associates has evaluated the environmental sound impact associated with the proposed Battery Energy Storage System (BESS) at 40 Norwich Road in Waterford, Connecticut. The objectives of this evaluation were:

- To define acoustic design goals based on applicable noise regulations,
- To estimate and evaluate the acoustic impact of the proposed project in the surrounding community.

Results of the evaluation are summarized herein. Appendix A of this report is a glossary of relevant acoustic terminology.

Environmental Noise Regulations

To the best of our knowledge, state and local noise regulations apply to sound produced by the proposed project. A brief summary of these regulations follows:

State of Connecticut Noise Regulation

The State of Connecticut Noise Regulation (Section 22a-69-1 to 7.4) defines limits for environmental sound produced by this project. The sound level limits are based on both emitter and receptor land use classifications, and are listed below in Table 1:

TABLE 1
Connecticut Regulations for the Control of Noise Sound Level Limits (dBA)

Emitter Class	Receptor Class			
	C	B	A/Day	A/Night
C	70	66	61	51
B	62	62	55	45
A	62	55	55	45

Definitions

In the above table, day is defined as the time interval 7:00 a.m. to 10:00 p.m. Night is defined as the time interval 10:00 p.m. to 7:00 a.m. Noise Zone Classifications are based on the actual land use (not zoning). Where multiple land uses exist on the same property, the least restrictive limits apply.

A Class A noise zone is land generally designated for residential use or areas where serenity and tranquility are essential to the intended use.

A Class B noise zone includes land uses generally of a commercial nature.

A Class C noise zone includes uses generally of an industrial nature, including utilities.

Exceptions and Other Limit Provisions

Section 22a-69-3.3 Prominent Discrete Tones

To offset the undesirable nature of tonal sound in the environment, the regulation penalizes sources of prominent, audible discrete tones. If a facility produces such sounds, the applicable limits in Table 1 are reduced by 5 dBA. In its definitions (Section 22a-69-1.2), the regulation defines a method for identifying prominent discrete tones based on measuring one-third octave band sound levels.

Town of Waterford, CT Noise Ordinances

The Town of Waterford, CT Code of Ordinances addresses noise in Chapter 9.06. This chapter is modeled on the State regulation described above; in particular, specific sound level limits are identical. The article omits the tone requirement from the State regulation, and does not introduce any restrictions not covered by the State regulation.

Facility Acoustic Requirements

Our interpretation of the above referenced regulations follows:

- The State of Connecticut Noise Regulation is more restrictive than the Town of Waterford Noise Ordinance. Accordingly, compliance with the state noise regulation will ensure compliance with the local regulation.
- The property of the proposed Project is within a C-G commercial zoning district and is currently a commercial use. Although the Project could be interpreted as a utility facility, and therefore subject to Class C emitter requirements, due to zoning and current use we have conservatively evaluated the Project as a Class B emitter.
- The nearest residences to the west of the facility are within an R-40 residential zone; both zoning and use are consistent with a receiver classification of A. The facility will produce sound during daytime and nighttime hours, therefore the more stringent nighttime limit of 45 dBA applies.

- Commercial properties to the north and south of the Project have zoning and use consistent with a Class B receptor, with a corresponding limit of 62 dBA.
- The cemetery to the east of the site in our opinion meets the intent of Class A receptors as it is a use which requires “serenity and tranquility”. However, since this is only a daytime use, the daytime limit of 55 dBA would apply at this boundary.

Facility Sound Analysis

Facility-related sound impacts that are associated with equipment at the proposed BESS facility have been calculated using CadnaA environmental sound modeling software (Version 2023 MR2 DataKustic GmbH). The CadnaA sound modeling software uses algorithms and procedures described in International Standard ISO 9613-2:1996 “Acoustics- Attenuation of sound during propagation outdoors – Part 2: General method of calculation”. This standard and its associated methodology are the most universally accepted approach for environmental sound modeling of industrial and transit sound sources. The methodology described in this standard provides estimates of A-weighted sound levels for meteorological conditions that are favorable for the propagation of sound (downwind with a wind speed of 1-5 meters/sec). This methodology is also valid for sound propagation under well-developed moderate ground-based temperature profile inversions, which commonly occur on clear calm nights.

Our analysis considers the following sound sources:

1. ***Four Battery Storage Units***
   Sungrow ST2752UX liquid-cooled battery electric storage system (BESS) units. Modeling was based on acoustic test report supplied by the manufacturer for these units. The acoustic model for this evaluation uses the nearfield sound measurements that are presented in this report to define source emission characteristics.

2. ***One Power Conversion System***
   Sungrow SC4000UD power conversion system (PCS), combining inverter and transformer modules. Appendix B of this report contains an acoustic test report for a similar sized unit manufactured by Sungrow.

The acoustic model for this evaluation uses full-capacity operation data for these sources; therefore, based on the data provided, our results represent worst-case operating conditions. Figure 1 presents the results of the acoustic modeling for proposed BESS facility. Table 2 below provides a summary of our estimates of facility A-weighted sound levels at relevant property boundaries. Our review of the 1/3 octave band spectra concludes that the proposed project will not produce “prominent discrete tones” at any of the surrounding receptors, however, the A-weighted levels at the nearest residential receptors exceed the appropriate limits.

TABLE 2
Estimate of Facility Sound Levels at Property Boundaries (dBA)

Receptor	Facility Sound	Produces Tone	Limit
PL1	***54***	No	45
PL2	***49***	No	45
PL3	58	No	62
PL4	41	No	55 (daytime)
PL5	60	No	62

Mitigation

Full compliance with the applicable noise regulations will require mitigation. To this end we recommend installing a sound barrier. Figure 2 presents the location and dimensions of this barrier. Figure 3 presents results of the acoustic modeling for the Project with the sound barrier included. Table 3 below provides a summary of our estimates of Project A-weighted sound levels at relevant receptors. The data indicates that with the sound barrier wall the Project will comply with the A-weighted sound level limits of the State of Connecticut Noise Regulation. Furthermore, the Project is not expected to produce “prominent discrete tones” at the neighboring properties.

TABLE 3
Estimate of Project Sound Levels at Property Boundaries (dBA)
with Mitigation

Receptor	Facility Sound	Produces Tone	Limit
PL1	43	No	45
PL2	39	No	45
PL3	54	No	62
PL4	41	No	55 (daytime)
PL5	60	No	62

Conclusion

Based on our review of the data presented in Table 3, it is our professional opinion that, as modeled, and with the recommended mitigation, sound produced by the proposed BESS project at 40 Norwich Road in Waterford, Connecticut will comply with the most stringent requirements of the state and local noise regulations.

Sincerely,

CAVANAUGH TOCCI

Douglas Bell

Douglas H. Bell
24026/QCells Waterford CT BESS Sound Evaluation.docx

FIGURES

Estimated Sound Levels Produced by the Project (Base Design) at Nearest Properties

Figure 1

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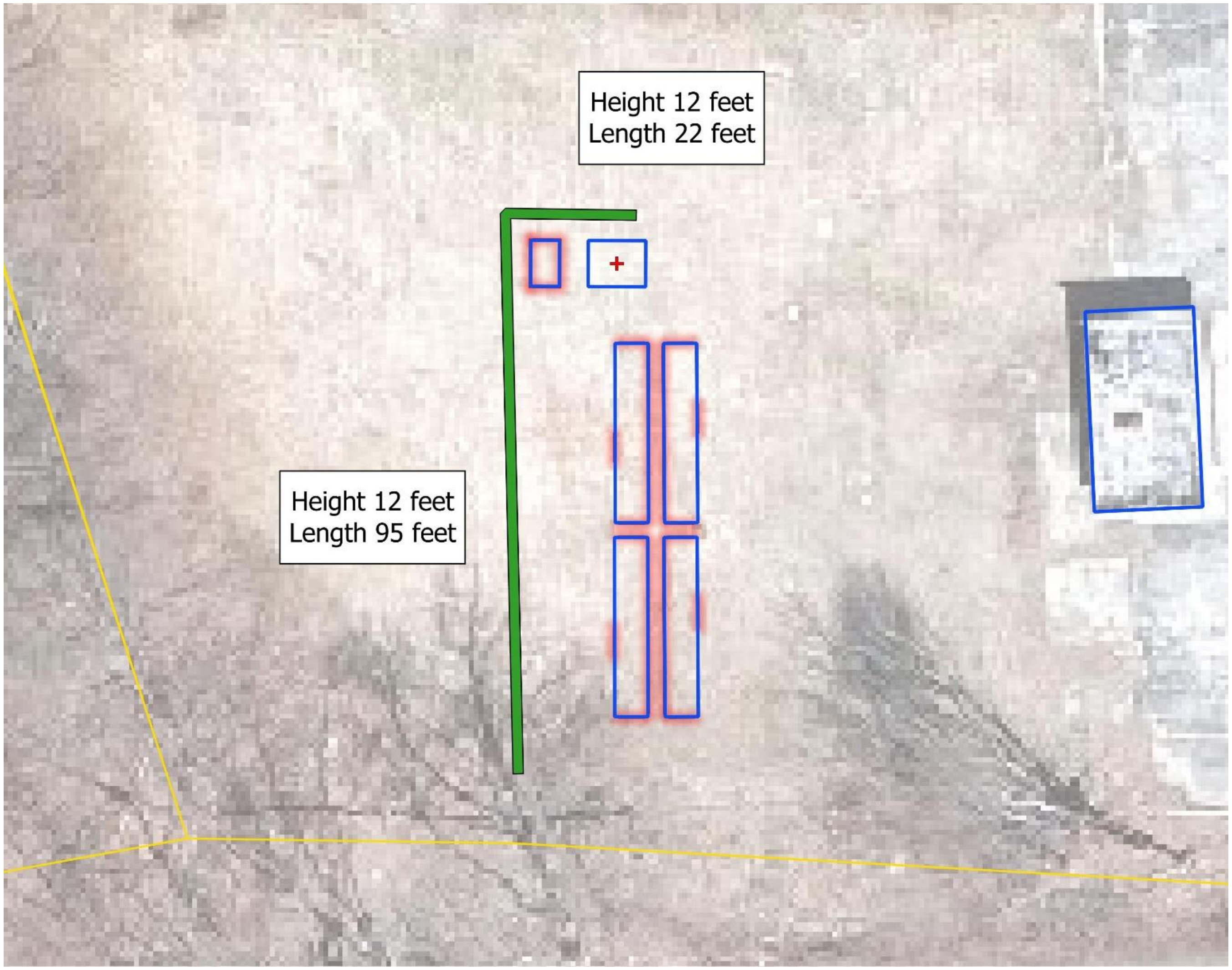
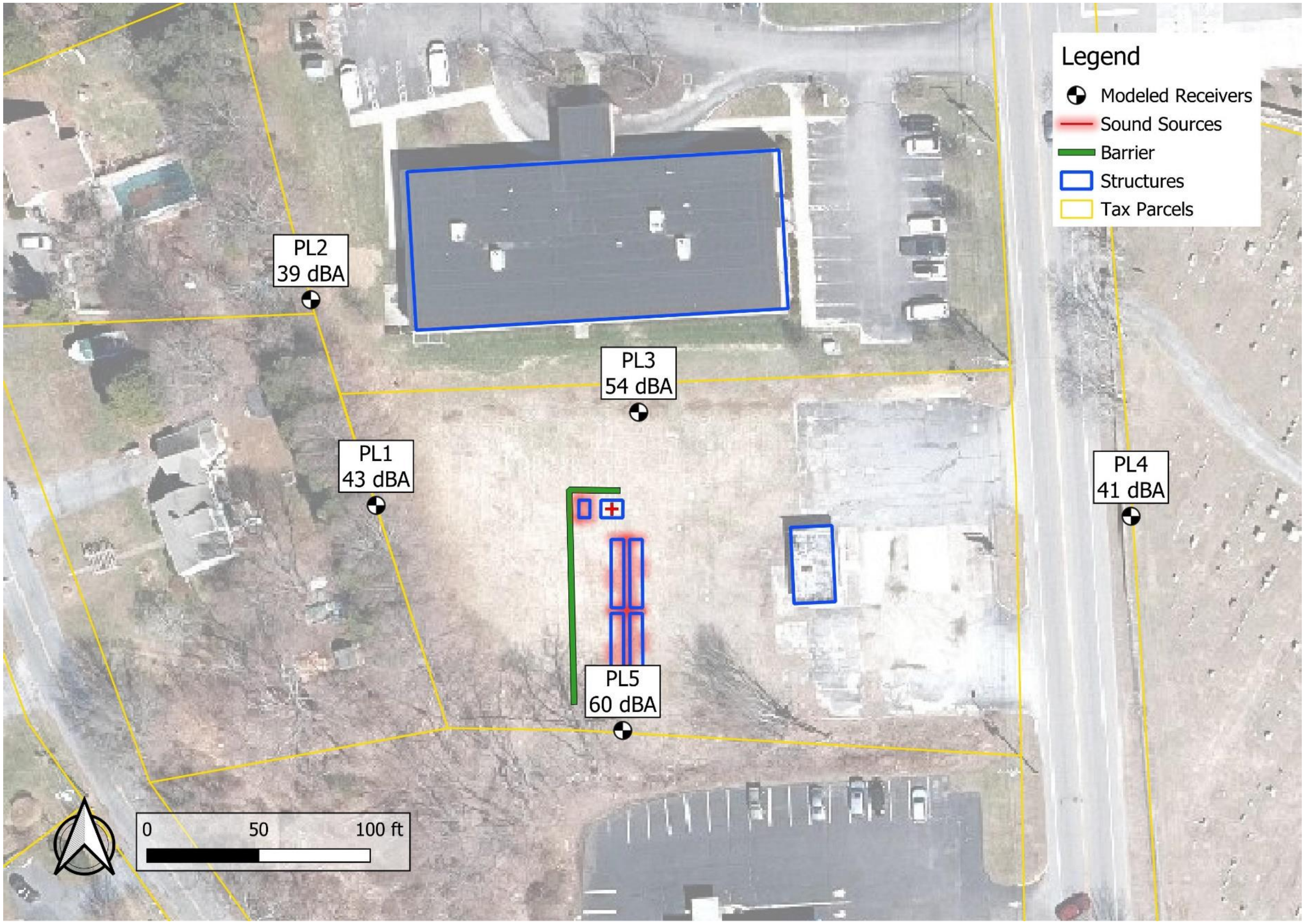


Recommended Sound Barrier Wall

Figure 2



Estimated Sound Levels Produced by the Project (With Mitigation) at Nearest Properties

Figure 3

Appendix A

Sound Measurement Terminology

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SOUND MEASUREMENT TERMINOLOGY

In order to quantify the amplitude, frequency, and temporal characteristics of sound, various acoustical descriptors are used. The following is an introduction to acoustic terminology that is used in this report.

Sound Level

Sound levels are typically quantified using a logarithmic decibel (dB) scale. The use of a logarithmic scale helps to compress the wide range of human sensitivity to sound amplitude into a scale that ranges from approximately 0 to 180 dB. Note however, that the use of the logarithmic scale prevents simple arithmetic operations when combining the cumulative impact of sources. For example, two sources of equal sound level operated simultaneously results in a combined sound level that is only 3 dB higher than if only one source was operated alone. An important feature of the human perception of continuous sound is that an increase or decrease in sound pressure level by 3 dB or less is barely perceptible, and an increase or decrease by 10 dB is perceived as a doubling or halving of noise level.

A-weighting

Generally, the sensitivity of human hearing is restricted to the frequency range of 20 Hz to 20,000 Hz. However, the human ear is most sensitive to sound in the 500 Hz to 5,000 Hz frequency range. Above and below this range, the ear becomes progressively less sensitive. To account for this feature of human hearing, sound level meters incorporate filtering of acoustic signals that corresponds to the varying sensitivity of the human ear to sound at different frequencies. This filtering is called A-weighting. Sound level measurements that are obtained using this filtering are referred to as A-weighted sound levels and are signified by the identifier, dBA. A-weighted sound levels are widely used for evaluating human exposure to environmental sounds. To help place A-weighted sound levels in perspective, Figure A-1 contains a scale showing typical sound levels for common interior and environmental sound sources.

Spectral Characteristics – Octave and 1/3 Octave Band Sound Levels

To characterize a sound, it is often necessary to evaluate the frequency distribution of the sound energy. As mentioned before, the frequencies of most interest where human exposure is concerned range between 20 Hz and 20,000 Hz. This frequency range is commonly divided into octave bands, where an octave band is a range of frequencies. Each octave band is referred to by its center frequency and has a bandwidth of one octave (a doubling of frequency). To cover the full range of human hearing, it is necessary to measure sound in 10 separate octave bands. Typically, the lowest frequency band measured has a center frequency of 31.5 Hz. The next frequency band has a center frequency of 63 Hz. This geometric series continues to the highest frequency band that has a center frequency of 16,000 Hz. A set of octave band sound levels to describe a particular sound is called an octave band spectrum. Covering the full range of hearing, an octave band spectrum would have 10 values, one for each band. Under certain circumstances, more frequency resolution in acoustical data is needed to identify the presence of tonal sounds. A 1/3 octave band spectrum uses filters that divide each octave band into 3 separate frequency bands. Note that octave band and 1/3 octave band sound levels are not usually A-weighted, with their units being dB.

Environmental Noise Descriptors

Sound levels in the environment are continuously fluctuating and it is difficult to quantify these time-varying levels with single number descriptors. Statistical approaches, which use *percentile sound levels* and *equivalent sound levels*, are often used to quantify the temporal characteristics of environmental sound.

Percentile sound levels (L_n) are the A-weighted sound levels that are exceeded for specific percentages of time within a noise measurement interval. For example if a measurement interval is one hour long, the 50th percentile sound level (L_{50}) is the A-weighted sound level that is exceeded for 30 minutes of that interval.

- L_{90} is the sound level in dBA exceeded 90 percent of the time during the measurement period. The 90th percentile sound level represents the nominally lowest level reached during the monitoring interval and is typically influenced by sound of relatively low level, but nearly constant duration, such as distant traffic or continuously operating industrial equipment. The L_{90} is often used in standards to quantify the existing background or residual sound level.

- L_{50} is the median sound level: the sound level in dBA exceeded 50 percent of the time during the measurement period.

- L_{10} is the sound level exceeded only 10 percent of the time. It is close to the maximum level observed during the measurement period. The L_{10} is sometimes called the intrusive sound level because it is caused by occasional louder noises like those from passing motor vehicles or aircraft.

By using percentile sound levels, it is possible to characterize the sound environment in terms of the steady-state background sound (L_{90}) and occasional transient sound (L_{10}).

The equivalent sound level (L_{eq}) is the energy average of the A weighted sound level for the measurement interval. Sounds of low level and long duration, as well as sounds of high level and short duration influence this sound level descriptor.

Noise levels at night generally produce greater annoyance than do the same levels which occur during the day. It is generally agreed that a given level of environmental noise during the day would appear to be 10 dBA louder at night – at least in terms of potential for causing community concern. The day night average sound level (Ldn) is a 24 hour average A-weighted sound level where a 10 dB “penalty” is applied to sound occurring between the hours of 10:00 p.m. and 7:00 a.m. The 10 dB penalty accounts for the heightened sensitivity of a community to noise occurring at night.

When a steady continuous sound is measured, the L_{10}, L_{50}, L_{90} and L_{eq} are all equal. For a constant sound level, such as from a power plant operating continuously for a 24-hour period, the L_{dn} is approximately 6 dBA higher than the directly measured sound level.

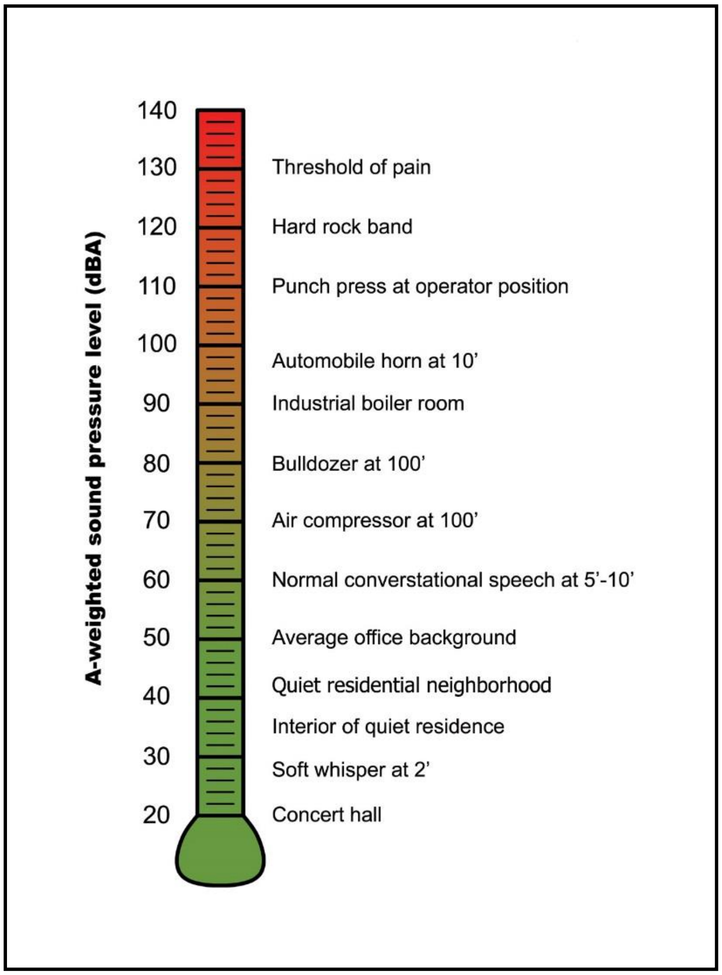

Figure A-1
Typical Sound Levels for Common Interior and Environmental Sources

Appendix B

Sound Report for Sungrow SG3425UD PCS

SUNGROW USA CORP.
SOLAR INVERTER SKID
NOISE TEST
MODEL NO. SG3600UD
SERIAL NO. A2011215246

CSTI REPORT NO. R-1259-0
CSTI PROJECT NO. 6808

7 SEPTEMBER 2021

Prepared By:
CSTI acoustics

Prepared For:
Sungrow USA Corp.
575 Market Street
San Francisco, CA 94105

Revision History

Rev.	Date	Reason for Issue/Description of Changes	Prepared	Checked	Approved
0	7 Sep 2021	Initial Report Submittal	ASY	ASB	ASB

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TABLES

FIGURES

1. INTRODUCTION

Collaboration in Science and Technology Inc. (CSTI) was retained by Sungrow USA Corp. (Sungrow) to determine the sound levels of a Solar Inverter Skid with Model No. SG3600UD and Serial No. A2011215246 operating close to nominal power or >90% loading. The measurements and calculations were performed according to the ISO 3746:2010 standard.

Information on the test condition and test environment is presented in Section 2. The sound instrumentation is described in Section 3. The sound measurement data is presented in Section 4. Section 5 summarizes the results of the test. Appendix A presents the calibration certificates of the equipment. Appendix B presents one-third octave band sound data and sound power level calculations.

2. TEST CONDITION AND TEST ENVIRONMENT

Sound measurements were made around the field-installed Solar Inverter Skid while it was operating close to nominal power or >90% loading between 2:30 and 3:30 PM on 25 August 2021 at a location near Co. Rd. 322 in El Campo, Texas 77437. Adam Young of CSTI made the measurements.

The Solar Inverter Skid was about 20 ft (6.1 m) long by 8 ft (2.4 m) wide by 9.5 ft (2.9 m) tall. The skid was mounted on a platform that was roughly 3 ft. tall making the total height of the package roughly 12.5 ft. (3.7 m) tall.

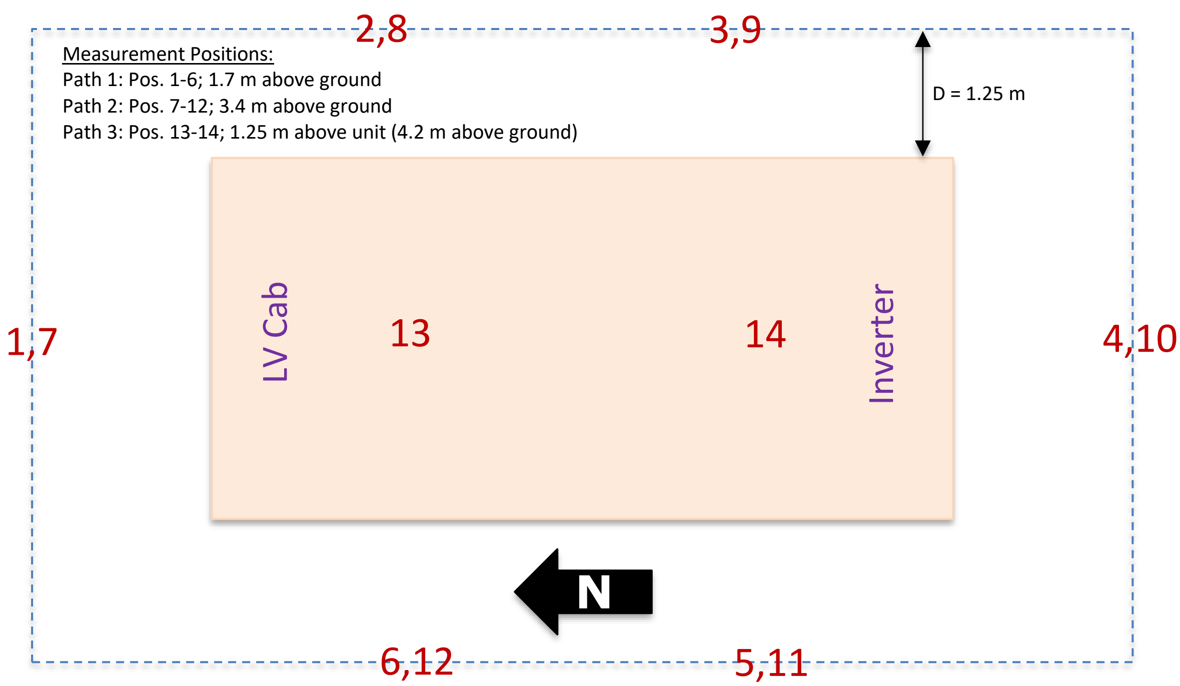
The outdoor test environment was free of significant reflecting surfaces.

Measurements of the background (ambient) sound level were made around the Solar Inverter Skid without the transformer fans running (the dominant sound source). However, it was not possible to shut off power to the transformers, and the associated “hum” was present during the ambient measurements. Therefore, ambient corrections were not made to the presented measured operating sound levels (presented in Table 1). The greatest source of actual ambient sound was insects, though a frequency analysis suggests insects did not significantly affect the operational noise measurements.

Figure 1 shows a photo of the Solar Inverter Skid. Figure 2 shows a drawing of an overhead view with the measurement positions marked. Sound measurements were made at 1.25 m from the equipment skid which is roughly the width of the worker access platform. Three measurement “paths” were made: one at a height of 5.5 ft. (1.7 m) above the ground, one at a height of 11 ft. (3.4 m) above the ground, and one at 1.25 m above the top of the unit (4.2 m above the ground).

Figure 1. Photo of Solar Inverter Skid (Looking East)

Figure 2. Measurement Positions, Overhead View



3. INSTRUMENTATION

Noise measurements were made using the following equipment:

- Rion NL-62 Sound Level Meter, S/N 01030561
- Rion NC-74 Sound Level Calibrator, S/N 34883949

The sound level meter meets the requirements for a Type 1 sound level meter per ANSI S1.4, American National Standard Specification for Sound Level Meters. The sound level meter was calibrated before and after the measurements with the calibrator and showed no significant variation. The calibration certificates for the meter and calibrator are presented in Appendix A.

4. SOUND DATA

Twenty-second samples of one-third octave-band and A-weighted sound pressure levels were measured at positions around the package while in operation as called for in the ISO 3746:2010 standard. The measurement positions are shown in Figure 2.

Ambient measurements were also made at the same locations shown in Figure 2, though we did not correct for the ambient due to the transformer noise present during those measurements.

Octave band, A-weighted, and unweighted (dBZ) data for each measurement position are presented in Table 1. Average sound pressure levels and sound *power* levels (L_W) are also presented. One-third octave band data and sound power level calculations are presented in Appendix B.

Table 1. Sound Measurement Data, dB

Position	Octave Band Center Frequency, Hz									dBA	dBZ
	31.5	63	125	250	500	1000	2000	4000	8000		
1	69	68	68	67	68	63	62	57	52	69.2	75.6
2	66	67	68	67	67	63	63	57	51	68.9	74.6
3	69	68	70	71	75	66	64	62	58	74.3	79.0
4	71	71	74	71	78	71	71	66	64	78.0	81.8
5	69	68	70	71	76	66	63	60	59	74.3	79.2
6	66	67	65	66	69	62	60	56	51	68.7	74.2
7	61	64	64	58	58	54	45	40	35	58.7	69.0
8	65	68	71	65	66	64	59	56	50	68.2	75.2
9	69	69	69	72	75	65	66	61	55	74.0	79.0
10	70	73	74	71	81	71	68	67	62	78.6	83.3
11	69	69	72	72	73	67	65	60	55	73.6	79.0
12	67	68	67	66	70	63	62	58	52	69.9	75.3
13	64	68	68	65	71	60	56	51	47	68.5	74.9
14	69	71	73	71	74	64	63	57	51	72.4	79.2
Average	**68**	**69**	**71**	**69**	**74**	**66**	**64**	**61**	**57**	**73.3**	**78.4**
L_W	**91**	**92**	**93**	**92**	**97**	**88**	**87**	**83**	**80**	**95.9**	**100.9**

The maximum A-weighted sound pressure level measured was 78.6 dBA, at position 10 on the South side of the package near the Inverter. The maximum A-weighted sound pressure level measured at 1.7 m (ear height) above the ground was 78.0 dBA, at position 4 (also near the Inverter.) The average of all fourteen measurements was 73.3 dBA. The A-weighted sound *power* level (L_W) for the package is 95.9 dBA.

5. SUMMARY

The sound levels from a Solar Inverter Skid with Model No. SG3600UD and Serial No. A2011215246 were measured.

The maximum A-weighted sound pressure level measured was 78.6 dBA, at position 10 on the South side of the package near the Inverter. The maximum A-weighted sound pressure level measured at 1.7 m (ear height) above the ground was 78.0 dBA, at position 4 (also near the Inverter.) The average of all fourteen measurements was 73.3 dBA. The A-weighted sound *power* level (L_W) for the package is 95.9 dBA.

APPENDIX A: CALIBRATION CERTIFICATES FOR EQUIPMENT

Scantek, Inc.
CALIBRATION LABORATORY
ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.45457

Instrument: **Sound Level Meter**
Model: **NL62**
Manufacturer: **Rion**
Serial number: **01030561**
Tested with: **Microphone UC-59L s/n 00638**
Preamplifier NH26 s/n 00603
Type (class): **1**
Customer: **CSTI Acoustics**
Tel/Fax: **281-492-2784 / 281-492-1434**

Date Calibrated: **10/14/2020** *Cal Due:*

Status:	Received	Sent
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: __Yes **X** No
Calibration service: __ Basic **X** Standard
Address: **16155 Park Row Blvd., Suite 150, Houston, TX 77084-6971**

Tested in accordance with the following procedures and standards:
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2019	Scantek, Inc./ NVLAP	Oct 31, 2020
DS-360-SRS	Function Generator	33584	Oct 23, 2019	ACR Env./ A2LA	Oct 23, 2021
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 22, 2019	ACR Env./ A2LA	Oct 22, 2020
HM30-Thommen	Meteo Station	1040170/39633	Oct 24, 2019	ACR Env./ A2LA	Oct 24, 2020
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Oct 23, 2019	Scantek, Inc./ NVLAP	Oct 23, 2020

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
22.2	100.00	51.8

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	William D. Gallagher
Signature	*[signature]*	Signature	*[signature]*
Date	10/14/2020	Date	10/14/2020

Calibration Certificates or Test Reports shall not be reproduced, except in full, without written approval of the laboratory.
This Calibration Certificate or Test Reports shall not be used to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the federal government.
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Scantek, Inc.
CALIBRATION LABORATORY
ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1
ACCREDITED by NVLAP (an ILAC MRA signatory)

NVLAP®
CALIBRATION
NVLAP Lab Code: 200625-0

Calibration Certificate No.45459

Instrument: **Acoustical Calibrator**
Model: **NC-74**
Manufacturer: **Rion**
Serial number: **34889349**
Class (IEC 60942): **1**
Barometer type:
Barometer s/n:
Customer: **CSTI Acoustics**
Tel/Fax: **281-492-2784 / 281-492-1434**

Date Calibrated: **10/14/2020** *Cal Due:*

Status:	Received	Sent
In tolerance:	X	X
Out of tolerance:		
See comments:		

Contains non-accredited tests: __Yes **X** No
Address: **16155 Park Row Blvd., Suite 150, Houston, TX 77084-6971**

Tested in accordance with the following procedures and standards:
Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence Cal. Lab / Accreditation	Cal. Due
483B-Norsonic	SME Cal Unit	31052	Oct 31, 2019	Scantek, Inc./ NVLAP	Oct 31, 2020
DS-360-SRS	Function Generator	33584	Oct 23, 2019	ACR Env./ A2LA	Oct 23, 2021
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Oct 22, 2019	ACR Env. / A2LA	Oct 22, 2020
HM30-Thommen	Meteo Station	1040170/39633	Oct 24, 2019	ACR Env./ A2LA	Oct 24, 2020
140-Norsonic	Real Time Analyzer	1406423	Oct 31, 2019	Scantek / NVLAP	Oct 31, 2020
PC Program 1018 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
4134-Brüel&Kjær	Microphone	173368	Oct 23, 2019	Scantek, Inc. / NVLAP	Oct 23, 2020
1203-Norsonic	Preamplifier	14059	March 3, 2020	Scantek, Inc./ NVLAP	March 3, 2021

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK)

Calibrated by:	Lydon Dawkins	**Authorized signatory:**	William D. Gallagher
Signature	*[signature]*	Signature	*[signature]*
Date	10/14/2020	Date	10/14/2020

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APPENDIX B: ADDITIONAL SOUND DATA AND CALCULATIONS

Position	One-Third Octave Band Center Frequency, Hz																													dBA	dBZ
	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.3k	1.6k	2k	2.5k	3.2k	4k	5k	6.3k	8k	10k		
1	65	65	63	62	64	63	58	67	58	59	64	63	65	64	60	58	59	58	55	59	57	53	47	55	48	46	46	69.2	75.6
2	59	62	61	61	62	64	58	67	58	59	63	63	63	63	59	57	59	57	54	61	56	52	47	55	49	45	45	68.9	74.6
3	64	66	63	64	64	63	62	67	66	63	66	68	71	72	65	63	62	58	57	61	60	60	51	58	53	53	53	74.3	79.0
4	67	67	64	65	67	68	69	71	65	63	65	69	76	73	68	69	64	62	63	67	67	62	56	64	59	60	60	78.0	81.8
5	65	65	63	63	64	63	62	68	65	63	66	68	73	72	67	63	60	59	58	58	59	58	51	55	56	53	53	74.3	79.2
6	58	62	61	61	62	63	55	62	60	59	62	63	65	66	58	59	57	57	54	56	53	51	47	53	48	45	44	68.7	74.2
7	55	57	57	57	58	61	55	63	51	51	52	55	57	52	47	48	50	49	41	41	38	36	29	37	31	29	30	58.7	69.0
8	61	61	60	61	65	64	61	70	59	57	58	63	64	60	59	62	56	56	54	55	54	50	45	55	48	43	44	68.2	75.2
9	65	64	64	65	64	64	62	65	65	66	65	69	72	71	65	62	60	60	59	63	61	57	52	57	53	50	48	74.0	79.0
10	65	66	65	66	70	69	69	73	64	63	65	70	79	75	68	69	65	62	62	64	63	64	57	63	59	55	56	78.6	83.3
11	63	65	64	65	65	64	63	71	64	66	66	69	70	69	65	63	63	60	60	62	60	57	52	56	52	49	48	73.6	79.0
12	63	62	60	63	64	62	58	66	60	58	61	63	67	65	62	60	57	58	56	59	55	54	48	56	50	46	45	69.9	75.3
13	58	59	60	64	64	60	61	67	60	59	58	61	68	66	58	55	56	55	51	51	51	48	42	47	44	40	39	68.5	74.9
14	63	65	65	66	67	66	67	70	67	65	64	68	72	68	61	60	60	57	56	60	58	55	48	52	48	46	44	72.4	79.2
Average	**63**	**64**	**63**	**64**	**65**	**65**	**64**	**68**	**63**	**62**	**64**	**67**	**72**	**69**	**64**	**63**	**60**	**59**	**58**	**61**	**60**	**57**	**51**	**57**	**53**	**52**	**51**	**73.3**	**78.4**
L_W	**86**	**86**	**85**	**86**	**87**	**87**	**86**	**91**	**86**	**85**	**86**	**89**	**94**	**92**	**86**	**86**	**83**	**81**	**80**	**83**	**82**	**80**	**73**	**80**	**76**	**74**	**74**	**95.9**	**100.9**

Unit Dimensions	in	m
l1	240	6.1
l2	96	2.4
l3	150	3.8

Meas. Distance, m		1.25
Measurement Surface Area		
a	4.3	m
b	2.5	m
c	5.1	m
S	179.4	m^2
L_W Corr.	22.5	dB