

BEFORE THE OHIO POWER SITING BOARD

**In the Matter of the Application of
Alamo Solar I, LLC
for a Certificate of Environmental
Compatibility and Public Need**

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Case No. 18-1578-EL-BGN

SUPPLEMENTAL TESTIMONY OF DAVID HESSLER

Q.1. Please state your name and business address.

A.1. My name is David M. Hessler and I am the vice president of Hessler Associates, Inc. The address of my company's administrative offices is 38329 Old Mill Way, Ocean View, Delaware 19970, and my personal office is located at 5096 N. Silver Cloud Dr., St. George, Utah 84770.

Q.2. Did you previously present direct testimony in this proceeding?

A.2. Yes. I previously provided direct testimony in this proceeding.

Q.3. On whose behalf are you offering testimony?

A.3. I am filing supplemental testimony on behalf of the Applicant, Alamo Solar I, LLC.

Q.4. What is the purpose of your supplemental testimony?

A.4. To address Condition 3 of the Amended and Restated Joint Stipulation and Recommendation filed on July 30, 2020 ("Amended Joint Stipulation") as it relates to operational sound emanating from the Project's inverters.

Q.5. Have you reviewed the Amended Joint Stipulation?

A.5. Yes.

Q.6. Can you please describe the revisions to Condition 3 in the Amended Joint Stipulation?

1 **A.6.** Condition 3 generally relates to the Project's layout and setbacks. With respect to
2 sound, the Amended Joint Stipulation now includes a minimum setback of "500 feet
3 between any central inverter and any residence on a non-participating parcel."

4 **Q.7. Have you conducted an analysis of the operational sound levels expected as a result**
5 **of the 500 foot setback from the inverters?**

6 **A.7.** Yes.

7 **Q.8 Can you please describe that analysis?**

8 **A.8.** We developed a computer noise model of the Project, using conventional
9 Cadna/A[®] software, that includes not only the substation but also all of the inverters
10 using the preliminary layout attached to Mr. Herling's testimony. In general, acoustical
11 performance information on inverters for solar facilities is not readily available; however,
12 the Applicant was able to obtain a highly detailed sound test report from the manufacturer
13 of a common inverter model, the SMA SC4600-UP, that is, or is representative of, the
14 type of inverter likely to be used for this Project. In contrast to the limited information
15 typically provided by inverter suppliers, SMA carried out a shop test at its manufacturing
16 facility in Germany in accordance with DIN EN ISO 9614-2 "Determination of sound
17 power levels of noise sources using sound intensity", Part 2: "Measurement by permanent
18 scanning", which determined the sound power level spectrum of the unit in 1/3 octave
19 band resolution. This result gives not only the precise overall sound power level but also
20 quantifies any hums or tones present in the frequency spectrum. The model results are
21 summarized graphically in **Exhibit DMH-S1** to my testimony, which shows the sound
22 contours from the Project during normal operation on a sunny day projected out to an
23 extremely quiet sound level of 35 dBA. This figure shows that all non-participating

1 residences are either close to or, in the vast majority of cases, outside the 35 dBA
2 contour.

3 **Q.9. Based on your experience, would an operational sound level of 35 dBA at a nearby**
4 **residence lead to noise complaints?**

5 **A.9.** No. Such a sound level is so low in absolute terms that it is generally considered
6 inconsequential even in rural environments where the background sound level is
7 essentially negligible.

8 **Q.10. You mentioned that the SMA sound test report contained information on the**
9 **frequency content of this inverter model. Does this allow you draw any conclusions**
10 **about the audibility and potential impact of tones at the nearest non-participants?**

11 **A.10.** Yes. The 1/3 octave band sound power level spectrum of the unit is smooth and
12 a-tonal for the most part, but there are peaks in the 3150 and 6300 Hz 1/3 octave bands
13 that are about 11 dB above the neighboring bands. While this indicates that the unit
14 emits prominent tones, it is very important to understand that in a sound intensity test the
15 measurements are taken with a special probe inches from the surface of the test subject
16 and the spectrum shape does not remain the same with increasing distance. In fact, the
17 higher frequencies, where the two peaks are, diminish very rapidly with distance and at
18 the minimum 500 foot setback distance would lose their prominence relative to adjoining
19 frequencies and would have values in the 20's dB. Such low levels would be buried in
20 the background sound level and can essentially be regarded as negligible and inaudible.

21 **Q.11. Are any non-participating residences actually located 500 feet from an inverter in**
22 **the preliminary layout?**

1 **A.11.** No. The nearest non-participating residence as things currently stand is
2 approximately 600 feet from an inverter while the next nearest homes are generally more
3 than 675 feet away. Even if this distance decreased to the minimum 500 ft. setback, the
4 Project sound level would remain low at about 38 dBA. Such a level, were it to occur,
5 would still be negligible, if not totally inaudible, even in this quiet environment.
6 Moreover, it is important to add, this sound only exists during day.

7 **Q.12. Are there any other changes to the Amended Joint Stipulation that relates to noise?**

8 **A.12.** Yes. Condition 3 has also been revised to state that “The Applicant shall
9 promptly retrofit any inverter as necessary to effectively mitigate any off-site noise issue
10 identified during operation of the facility.”

11 **Q.13. Do you believe the inverters could be retrofitted in a practical manner to reduce**
12 **noise?**

13 **A.13.** Yes. The mid-frequency sound audible at moderate distances generally comes
14 from the cooling air intakes and discharges, which could be fitted with acoustical hoods,
15 louvers or silencers, in the unlikely event mitigation is necessary. As indicated above, I
16 don’t believe the sound emissions from the inverters in this Project are likely to result in
17 any kind of community disturbance, but this proviso effectively serves as a backup to
18 ensure that noise will not be a problem.

19 **Q.14. Given the results of your modeling, is there flexibility to make changes in the**
20 **preliminary layout as a result of final project engineering and avoid adverse noise**
21 **impacts at non-participating residences?**

22 **A.14.** Yes. With an inverter setback of 500 feet or more from any non-participating
23 residences their exact location is immaterial from a noise impact perspective.

1 **Q.15. Does this conclude your supplemental testimony?**

2 **A.15.** Yes, it does.

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CERTIFICATE OF SERVICE

The Ohio Power Siting Board's e-filing system will electronically serve notice of the filing of this document on the parties referenced in the service list of the docket card who have electronically subscribed to this case. In addition, the undersigned certifies that a courtesy copy of the foregoing document is also being served upon the persons below via electronic mail this 9th day of October 2020.

/s/ Michael J. Settineri

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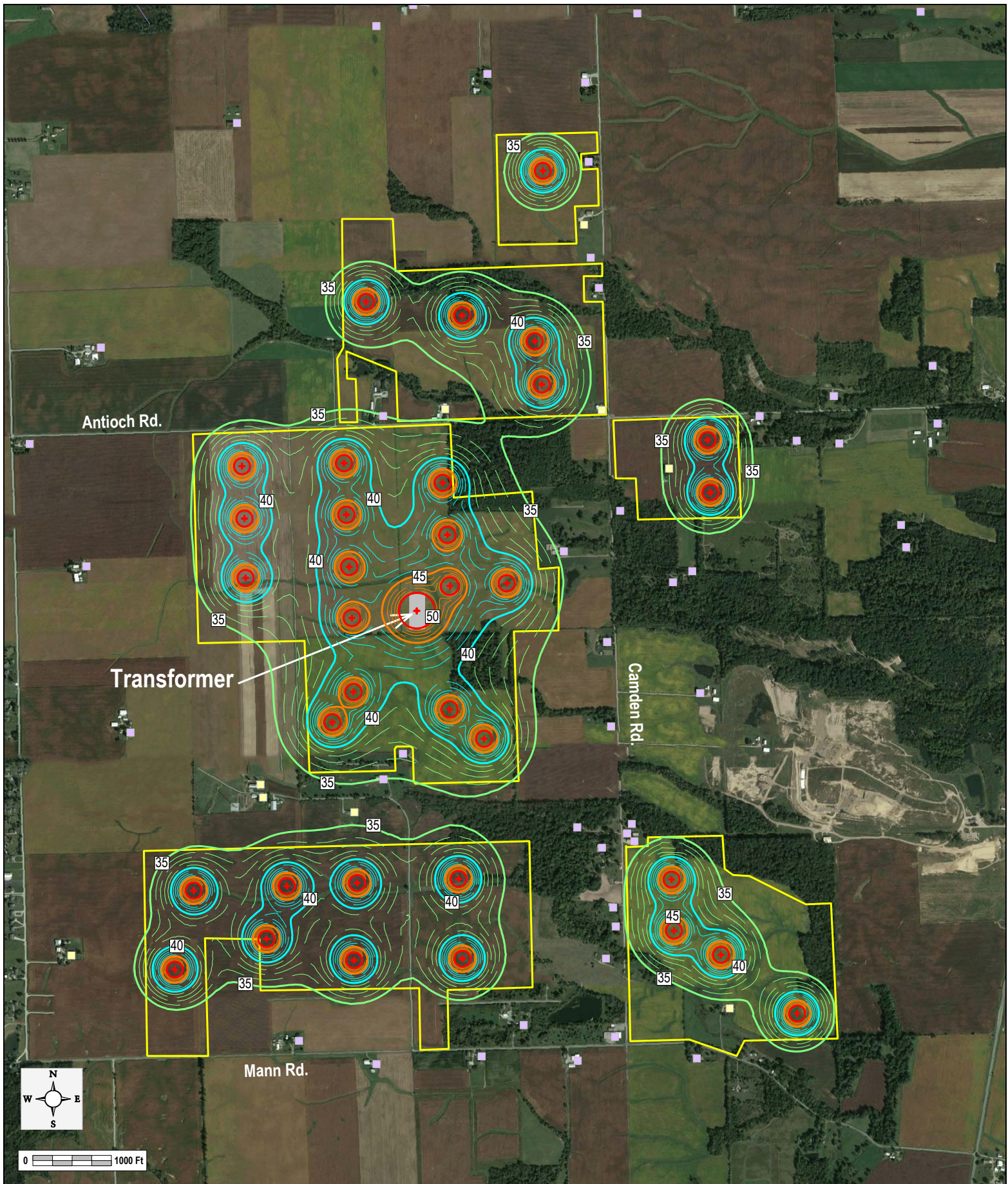
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Project:		Description:	Plot 1	Legend:
Alamo Solar				
Prepared for:				
Open Road Renewables				
Date:	Drawing #:	Predicted Sound Contours (dBA) of Facility in Operation	 Residence	
August 16, 2020	ORA-Rev-E-1-1			 Participating Residence
			 Project Area	

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Summary: Testimony Supplemental Testimony of David Hessler electronically filed by Mr. Michael J. Settineri on behalf of Alamo Solar I, LLC