

December 7, 2020

Patrick R. Smith, P.E.  
Duke Energy Renewables, LLC

**Subject: *Duke Energy Renewables - Noise Analysis***  
***South Dixon Solar, LLC***  
***Lee County, IL***

As a supplement to the technical memorandum dated November 11, 2020 for the subject project, a more detailed analysis of the anticipated transformer/inverter frequency emissions has been performed and compared to the allowable octave band sound pressure limits permitted by the Illinois Pollution Control Board (IPCB).

According to Chapter 35, Subtitle H, Chapter I, Part 901, a facility operating in an agricultural field (Class C Land) cannot cause an exceedance of sound levels to residential land (Class A Land) during daytime hours as highlighted in the table below, which are applicable the South Dixon Solar Site in Lee County, IL.

Octave Band Center Frequency (Hertz)	Allowable Octave Band Sound Pressure Levels (dB) of Sound Emitted to any Receiving Class A Land from		
	Class C Land	Class B Land	Class A Land
31.5	75	72	72
63	74	71	71
125	69	65	65
250	64	57	57
500	58	51	51
1000	52	45	45
2000	47	39	39
4000	43	34	34
8000	40	32	32

Based on frequency emission data provided by the manufacturer, it is not anticipated that any of the IPCB allowable octave band sound pressure levels will be exceeded at the Class A land uses surrounding the South Dixon Solar Site. The table below summarizes the maximum octave band sound pressure levels anticipated at the adjacent Class A land uses.

Octave Band Center Frequency	31 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Maximum Octave Band SPLs from Inverters	5.9	23.9	34.6	28.4	29.1	38.1	40.5	39	21