Appendix 4-3

Noise Impact Assessment

SEVEN STARS ENERGY PROJECT

Noise Impact Assessment

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EXECUTIVE SUMMARY

Seven Stars Energy Limited Partnership (the “Proponent”) retained DNV Canada Ltd. (“DNV”) to conduct a sound assessment for the Seven Stars Energy Project (the “Project”) located approximately 5 km southeast of Weyburn, Saskatchewan.

The Project layout consists of a total of 50 wind turbine generators (WTGs), 4 of which are alternate locations and a substation with one step-up transformer. There is no external energy facility noise in the vicinity of the Project.

Of the 151 dwellings identified in proximity to the Project, 33 dwellings within 2 km of a Project noise source have been included in this report. All 33 dwellings have been verified to be occupied private residences.

The sound pressure level (SPL) at each dwelling for the aggregate of all WTGs and the substation transformer, were calculated based on the ISO 9613-2 method, and in accordance with Alberta Utilities Commission (AUC) Rule 012: Noise Control, in the absence of any formal noise guidelines for wind power projects in Saskatchewan.

The highest modelled cumulative nighttime SPL is 40 dBA at H-011 near the Project transformer and H-040 and H-153 near T10.

All dwellings are in compliance with the permissible sound levels (PSL) defined in AUC Rule 012.

1 INTRODUCTION

The name of the project is Seven Stars Energy Project (hereafter referred to as “the Project”) and Seven Stars Energy Limited Partnership is the Project Proponent. Seven Stars Energy Limited Partnership has requested that DNV Canada Ltd. (“DNV”) perform a noise analysis for the Project located approximately 5 km southeast of Weyburn, Saskatchewan.

The layout considered for the noise analysis consists of 50 Vestas V163 4.5 MW Wind Turbine Generators (WTGs) with Serrated Trailing Edge (STE) blades and a hub height of 98 m, and one step-up transformer within the substation. Of the 50 WTGs locations, 46 will be built because 4 are designated as alternate locations and have conservatively been included within the analysis.

The objective of this assessment is to predict the sound levels generated by the Project’s WTGs and substation transformer at all dwellings within 2 km of the Project’s sound emitting equipment using the ISO 9613-2 sound propagation model [1] and, in the absence of formal sound modeling guidelines or regulations in Saskatchewan, using Alberta Utilities Commission (AUC) Rule 012: Noise Control [2] as the primary guideline to follow.

1.1 General characteristics

The Seven Stars Energy Project area, defined as the combination of all land parcels under a development agreement with the Proponent, comprises approximately 24,000 acres of land within the Rural Municipalities of Griffin No. 66 and Weyburn No. 67 being considered for development; however, only a very small fraction of the Project Area will be used for the Project’s construction and operational activities.

The area is populated with dwellings interspersed within and around the Project area. Ambient sound levels in the Project area and on adjacent lands are of rural-agricultural settings, with sounds originating from residential activities, agricultural activities (tractors and other machinery), vehicle traffic, and ambient natural noise (wind through vegetation, birds, etc.).

The total nameplate capacity of the Project is 200 MW. The Project also includes access roads on Project lands, a 34.5 kV 3-phase collector system, a substation (235 MVA, 230 kV), an operations and maintenance building, as well as a temporary laydown area and permanent meteorological towers.

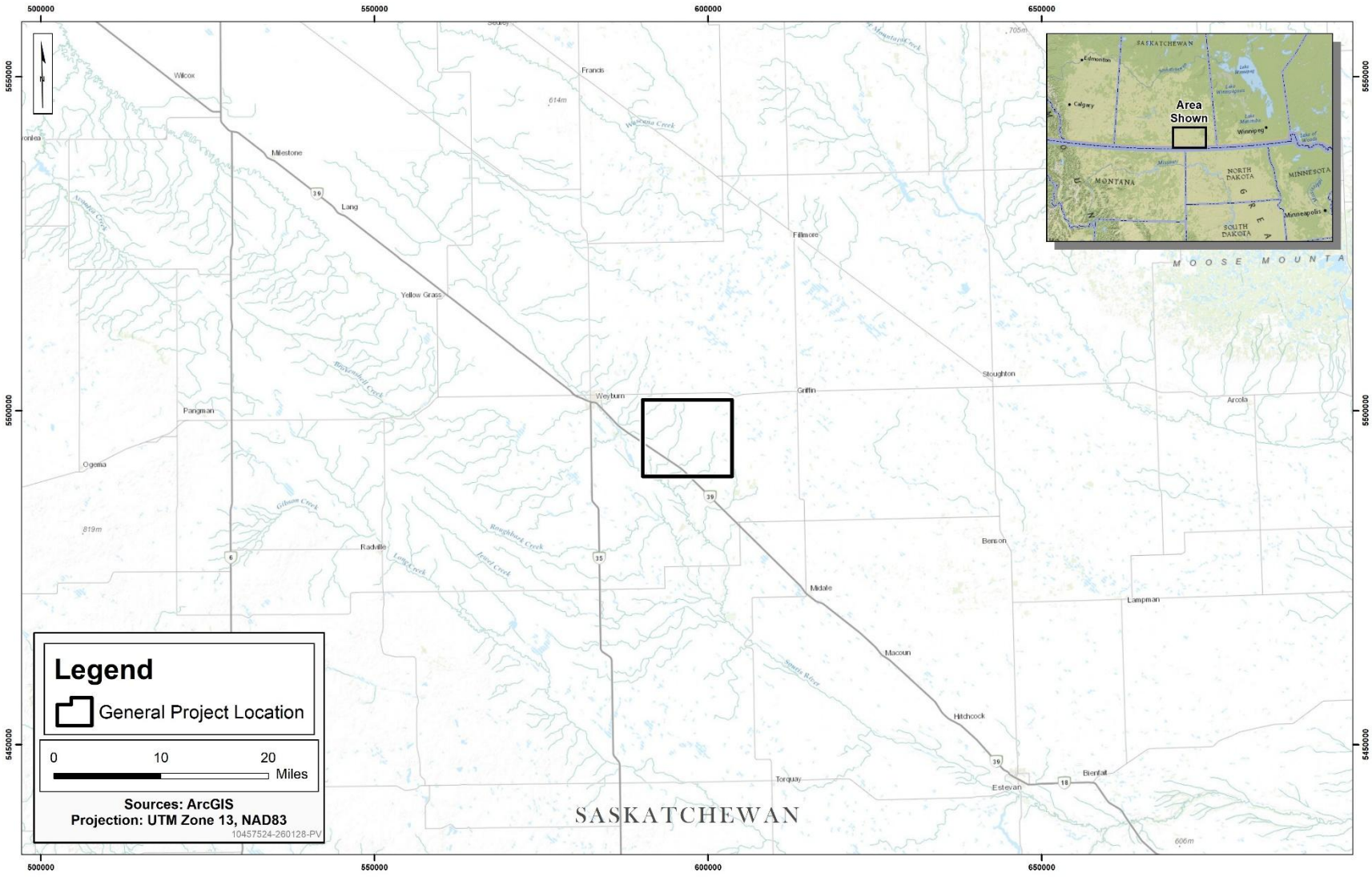

Figure 1-1 General location of the Project

2 ENVIRONMENTAL SOUND BACKGROUND

Sound levels are expressed in the decibel unit and are quantified on a logarithmic scale to account for the large range of acoustic pressures to which the human ear is exposed. A decibel (dB) is used to quantify sound levels relative to a 0 dB reference. The reference level of 0 dB is defined as a sound pressure level of 20 micropascals (μPa), which is the typical lower threshold of hearing for humans.

Sound levels can be presented both in broadband (sound energy summed across the entire audible frequency spectrum) and in octave band spectra (audible frequency spectrum divided into bands). Frequency is expressed in the Hertz unit (Hz), measuring the cycles per second of the sound pressure waves. The audible range of humans spans from 20 to 20,000 Hz. Since the human ear does not perceive every frequency with equal loudness, spectrally varying sounds are often adjusted with a weighting filter. The A-weighting filter is applied to closely approximate the human ear's response to sound. This scale is commonly used in environmental and industrial sound. Sound expressed in the A-weighted scale is denoted dBA. This is used as the weighting in this report.

A sound source has a certain sound power level rating which describes the amount of sound energy per unit of time. This is a basic measure of how much acoustical energy it can produce and is independent of its surroundings. Sound pressure is created as sound energy flows away from the source. The measured sound pressure level (SPL) at a given point depends not only on the power rating of the source and the distance between the source and the measurement point (geometric divergence), but also on the amount of sound energy absorbed by environmental elements between the source and the measurement point (attenuation). Sound attenuation factors include meteorological conditions such as wind direction, temperature, and humidity, sound interaction with the ground, atmospheric absorption, terrain effects, diffraction of sound around objects and topographical features, and foliage.

3 APPLICABLE REGULATIONS

There are currently no regulations in Saskatchewan pertaining to acoustic impact modeling or monitoring for wind power projects. In the absence of any regulations, the current analysis considers the Alberta Utilities Commission (AUC) Rule 012: Noise Control [2].

3.1 Determination of permissible sound level

As stated in the AUC Rule 012, the PSL for a wind farm is calculated as follows:

Permissible sound level (PSL)	=	Basic sound level (BSL)	+	Daytime adjustment	+	Class A adjustment	+	Class B adjustment	+	Class C adjustment

As mentioned in Rule 012, the average rural ambient sound level in Alberta (and realistically in Saskatchewan) is approximately 35 dBA Leq at night. Therefore, the minimum nighttime Basic sound level (BSL) is determined to be 40 dBA Leq (5 dB above ambient) according to the BSL definition in Rule 012.

The Daytime adjustment adds 10 dBA to the BSL during the hours of 7:00 a.m. and 10:00 p.m.

Class A adjustments are based on the nature of the activity and/or the actual ambient sound level in an area.

Class B adjustments are applicable if the activity will only be of a temporary duration.

Class C adjustments account for sound caused by wind near a dwelling resulting in the wind masking the noise level of a wind turbine at certain wind speeds.

In the case of the present assessment, no Class A, B, or C adjustments have been considered in order to remain conservative in the analysis. Therefore, the applicable Permissible sound level (PSL), which represents "the maximum sound level that the wind farm must not exceed at a point 15 m from the nearest or most impacted dwelling unit" when combined with the ambient sound level, is considered equivalent to the BSL of each respective dwelling unit at night.

All dwellings are assumed to have a night-time BSL (and PSL) of 40 dBA. The daytime PSL is 50 dBA at all dwellings.

4 DESCRIPTION OF THE PROJECT SITE

4.1 Site description

The Project is situated in relatively simple terrain, consisting of flat farmland, with WTG base elevations ranging from approximately 572 to 610 meters above sea level. The ground cover on and near the site is primarily composed of farmland or open fields. Dwellings are interspersed throughout the Project site. The Project is located approximately 5 km southeast of Weyburn, Saskatchewan.

4.2 Project layout

The Project layout used in this assessment consists of 50 Vestas V163 4.5 MW WTGs with STE blades and a hub height of 98 m. One transformer was included at the substation location.

The coordinates of the Project equipment are presented in Appendix A. The turbine layout and substation transformer location were provided by the Proponent [3].

4.3 Neighbouring External Energy Projects

There is no neighbouring external energy related facility noise in the vicinity of the Project.

4.4 Dwelling locations

All dwellings considered for the NIA were identified by the Proponent through roadside field reconnaissance to verify locations and heights of buildings.

A list of 151 dwellings was provided by the Proponent [4]. Of the total number of identified dwellings, results for 33 dwellings within 2 km of a Project noise source were included in this assessment. All dwellings assessed for this Project are occupied private residences and are identified as numbers (ie. H-##) to protect residence's privacy. Coordinates of each dwelling are presented in Section 6.

All dwellings have been modeled at a height of 1.5 m and 4.5 m above ground level for one-storey and two-storey dwellings respectively. This represents the height of the highest bedroom, in accordance with AUC Rule 012.

5 SOUND ASSESSMENT

5.1 Description of the sound sources

The sources of sound considered in this analysis are the WTGs and substation transformer. Sound associated with other sources in the vicinity of the Project, such as construction activities, have not been considered. Project construction plans are not available at this time, therefore the noise impacts of construction activities are unknown. It is recommended that construction related noise is considered when plans are available.

5.1.1 Project turbines

Broadband and octave band sound power levels for the Vestas V163 4.5 MW wind turbines with STE blades and a hub height of 98 m are contained in the manufacturer documentation [5]. The maximum sound power level for the V163 4.5 MW turbine model is 106.3 dBA.

Table 5-1 shows the octave band sound power levels associated with the turbines used in this analysis.

Table 5-1 WTG sound power levels [dBA]

WTG Model	Frequency [Hz]									Total
	31.5	63	125	250	500	1000	2000	4000	8000	
Vestas V163 4.5MW STE blades	76.7	88.8	97.0	100.7	100.9	99.3	95.3	88.3	78.4	106.3

5.1.2 Substation transformer

There is one transformer planned at the Project substation, rated at 235 MVA with a voltage of 230 kV on the high voltage side.

A total broadband sound power level of 105 dBA for the transformer was estimated according to IEEE standard C57.12.90-2015 [6], based on an audible sound level of 75 dBA and the transformer dimensions provided by the Proponent. A tonality penalty of 5 dB is included in this value in accordance with ISO-1996-2 [7].

A typical transformer octave band distribution [8] was used. The octave band sound power levels of the Project transformer are shown in Table 5-2, inclusive of the tonal penalty.

Table 5-2 Transformer sound power levels [dBA]

Transformer	Frequency [Hz]									Total
	31.5	63	125	250	500	1000	2000	4000	8000	
235 MVA 230 kV	62.2	81.4	93.5	96.0	101.4	98.6	94.8	89.6	80.5	105.0

5.2 Assessment methodology

The sound pressure level at each dwelling for the aggregate of all WTGs and the substation transformer associated with the Project were calculated using CadnaA acoustic modeling software based on the ISO 9613-2 method [1]. The simulation was performed using the maximum sound power level of the turbines and transformer. The Project turbines were modeled with a 98 m hub height. The substation transformer was modeled at a height of 4.26 m above ground level (agl). The dwellings were modeled at a height of 1.5 m and 4.5 m above ground level for one-storey and two-storey dwellings respectively.

The ISO 9613-2 standard provides a prediction of the equivalent continuous SPL at a distance from one or more point sources. The method consists of octave-band algorithms (i.e., with nominal mid band frequencies from 31.5 Hz to 8 kHz) for calculating the attenuation of the emitted sound. The algorithm takes into account the following physical effects:

- Geometrical divergence – attenuation due to spherical spreading from the sound source
- Atmospheric absorption – attenuation due to absorption by the atmosphere
- Ground absorption – attenuation due to the acoustical properties of the ground

The ISO 9613-2 standard calculates attenuation “under meteorological conditions favorable to propagation from sources of sound emission.” These meteorological conditions are for “downwind propagation or, equivalently, propagation under a well-developed moderate ground-based temperature inversion, such as commonly occurs at night”. In other words, though a physical impracticality, the ISO 9613-2 standard treats every dwelling as being downwind from every source of sound emission (in this case, transformer and turbines).

The ISO 9613-2 standard accounts for ground absorption by assigning a numerical coefficient (G) with a value ranging from 0 to 1. A value of G = 0 represents hard ground (paving, water, ice, concrete, tamped ground, and other ground surfaces with a low porosity), while a G = 1 value represents porous ground (ground covered by grass, trees, or other vegetation, and other ground surfaces suitable for the growth of vegetation such as farming land). Though the ground use on and around the site is farming, a mixed (semi-reflective) global ground factor of G = 0.5 was used in this assessment. No permanent bodies of water (lakes, wide rivers, etc) capable of significantly reflecting sound waves between turbines and dwellings were determined to be present in the Project area.

Additionally, temperature, barometric pressure, and humidity parameters were selected to represent typical local annual averages, and topographical information to accurately represent terrain in three-dimensions was included in this assessment.

Specifically, the ISO 9613-2 parameters were set as follows:

- Ambient air temperature: 10º C
- Ambient barometric pressure: 101.32 kPa
- Humidity: 70%
- Overall ground factor: 0.5
- Topography included (10 m elevation intervals)

Additional attenuation from foliage was not considered in this assessment, implying that lower sound levels are expected in areas where there is foliage present in the line of sight between any turbine and a dwelling. Similarly, because the model assumes every dwelling is downwind of every sound source at all times, lower sound levels are expected at times when a dwelling is upwind of any sound source. Due to both of these modelling assumptions, sound levels are expected to be conservative.

6 RESULTS

Table 6-1 and Table 6-2 show the combined cumulative sound levels produced by the wind farm during nighttime and daytime respectively. The daytime sound contributions from the Project are identical to nighttime. The only distinction is the assumed ambient sound level (ASL), which is 35 dBA at night and 45 dBA during the day.

A detailed map illustrating predicted nighttime sound pressure levels at dwellings located in the vicinity of the Project is presented in Figure 6-1 and Figure 6-2.

The highest modelled cumulative nighttime SPL is 40 dBA at H-011 near the Project transformer and H-040 and H-153 near T10. All other dwellings have cumulative nighttime levels below 40 dBA.

All dwellings are in compliance with the permissible sound levels (PSL) defined in AUC Rule 012.

Table 6-1 Nighttime Results

Dwelling ID	Easting [m]	Northing [m]	Height [m]	Distance from nearest Project noise source [m]	ID of nearest Project noise source	Project noise contribution without ambient noise [dBA]	Ambient sound level (ASL) [dBA]	Predicted Cumulative sound level with ambient noise [dBA]	Applicable nighttime PSL [dBA]
H-011	597299	5495011	4.5	1112	TR1[1]	38.3	35	40	40
H-040	597169	5498478	1.5	1171	10	38.2	35	40	40
H-153	597173	5498429	1.5	1152	10	38.1	35	40	40
H-088	596243	5499317	1.5	1200	22	37.4	35	39	40
H-028	591815	5495991	4.5	1518	01	37.3	35	39	40
H-009	602110	5498451	4.5	1505	20	36.8	35	39	40
H-057	600844	5499360	4.5	1538	23	36.8	35	39	40
H-010	603086	5493131	1.5	1522	42	36.7	35	39	40
H-014	595712	5499415	1.5	1523	13	36.6	35	39	40
H-090	594578	5496003	4.5	1519	08	36.6	35	39	40
H-056	600274	5499491	1.5	1214	24	36.0	35	39	40
H-008	602207	5500974	1.5	1188	18	35.9	35	39	40
H-012	596401	5502528	4.5	1560	12	35.7	35	38	40
H-150	593095	5499249	4.5	1704	07	35.3	35	38	40
H-093	600463	5499788	1.5	1515	24	34.8	35	38	40
H-147	588823	5497029	4.5	1578	02	34.7	35	38	40
H-055	600455	5500177	1.5	1736	24	34.2	35	38	40
H-041	597727	5492967	1.5	1533	39	33.8	35	37	40
H-054	600196	5500869	1.5	1733	21	33.7	35	37	40
H-065	599064	5489242	4.5	1514	44	33.5	35	37	40
H-087	603608	5498716	1.5	1501	20	33.5	35	37	40
H-030	592812	5499202	1.5	1707	07	33.3	35	37	40
H-094	592974	5499282	1.5	1752	07	33.2	35	37	40
H-053	600277	5501214	1.5	1836	15	32.9	35	37	40
H-031	592965	5499434	1.5	1903	07	32.7	35	37	40
H-146	588933	5498641	4.5	1982	03	32.4	35	37	40
H-050	597139	5502947	1.5	1716	16	32.3	35	37	40
H-052	599359	5502590	1.5	1518	15	32.3	35	37	40
H-013	593564	5501265	1.5	1655	12	31.9	35	37	40
H-064	599053	5488876	4.5	1785	44	31.8	35	37	40
H-051	599389	5502825	1.5	1728	15	31.4	35	37	40
H-099	600222	5502192	1.5	1953	15	30.9	35	36	40
H-007	605187	5500379	1.5	1863	18	29.2	35	36	40

[1] TR1: Substation Transformer

Table 6-2 Daytime Results

Dwelling ID	Easting [m]	Northing [m]	Height [m]	Distance from nearest Project noise source [m]	ID of nearest Project noise source	Project noise contribution without ambient noise [dBA]	Ambient sound level (ASL) [dBA]	Predicted Cumulative sound level with ambient noise [dBA]	Applicable daytime PSL [dBA]
H-011	597299	5495011	4.5	1112	TR1	38.3	45	46	50
H-040	597169	5498478	1.5	1171	10	38.2	45	46	50
H-153	597173	5498429	1.5	1152	10	38.1	45	46	50
H-028	591815	5495991	4.5	1518	01	37.3	45	46	50
H-088	596243	5499317	1.5	1200	22	37.4	45	46	50
H-009	602110	5498451	4.5	1505	20	36.8	45	46	50
H-010	603086	5493131	1.5	1522	42	36.7	45	46	50
H-014	595712	5499415	1.5	1523	13	36.6	45	46	50
H-057	600844	5499360	4.5	1538	23	36.8	45	46	50
H-090	594578	5496003	4.5	1519	08	36.6	45	46	50
H-008	602207	5500974	1.5	1188	18	35.9	45	46	50
H-012	596401	5502528	4.5	1560	12	35.7	45	46	50
H-056	600274	5499491	1.5	1214	24	36.0	45	46	50
H-093	600463	5499788	1.5	1515	24	34.8	45	45	50
H-147	588823	5497029	4.5	1578	02	34.7	45	45	50
H-150	593095	5499249	4.5	1704	07	35.3	45	45	50
H-030	592812	5499202	1.5	1707	07	33.3	45	45	50
H-031	592965	5499434	1.5	1903	07	32.7	45	45	50
H-041	597727	5492967	1.5	1533	39	33.8	45	45	50
H-053	600277	5501214	1.5	1836	15	32.9	45	45	50
H-054	600196	5500869	1.5	1733	21	33.7	45	45	50
H-055	600455	5500177	1.5	1736	24	34.2	45	45	50
H-065	599064	5489242	4.5	1514	44	33.5	45	45	50
H-087	603608	5498716	1.5	1501	20	33.5	45	45	50
H-094	592974	5499282	1.5	1752	07	33.2	45	45	50
H-013	593564	5501265	1.5	1655	12	31.9	45	45	50
H-050	597139	5502947	1.5	1716	16	32.3	45	45	50
H-051	599389	5502825	1.5	1728	15	31.4	45	45	50
H-052	599359	5502590	1.5	1518	15	32.3	45	45	50
H-064	599053	5488876	4.5	1785	44	31.8	45	45	50
H-099	600222	5502192	1.5	1953	15	30.9	45	45	50
H-146	588933	5498641	4.5	1982	03	32.4	45	45	50
H-007	605187	5500379	1.5	1863	18	29.2	45	45	50

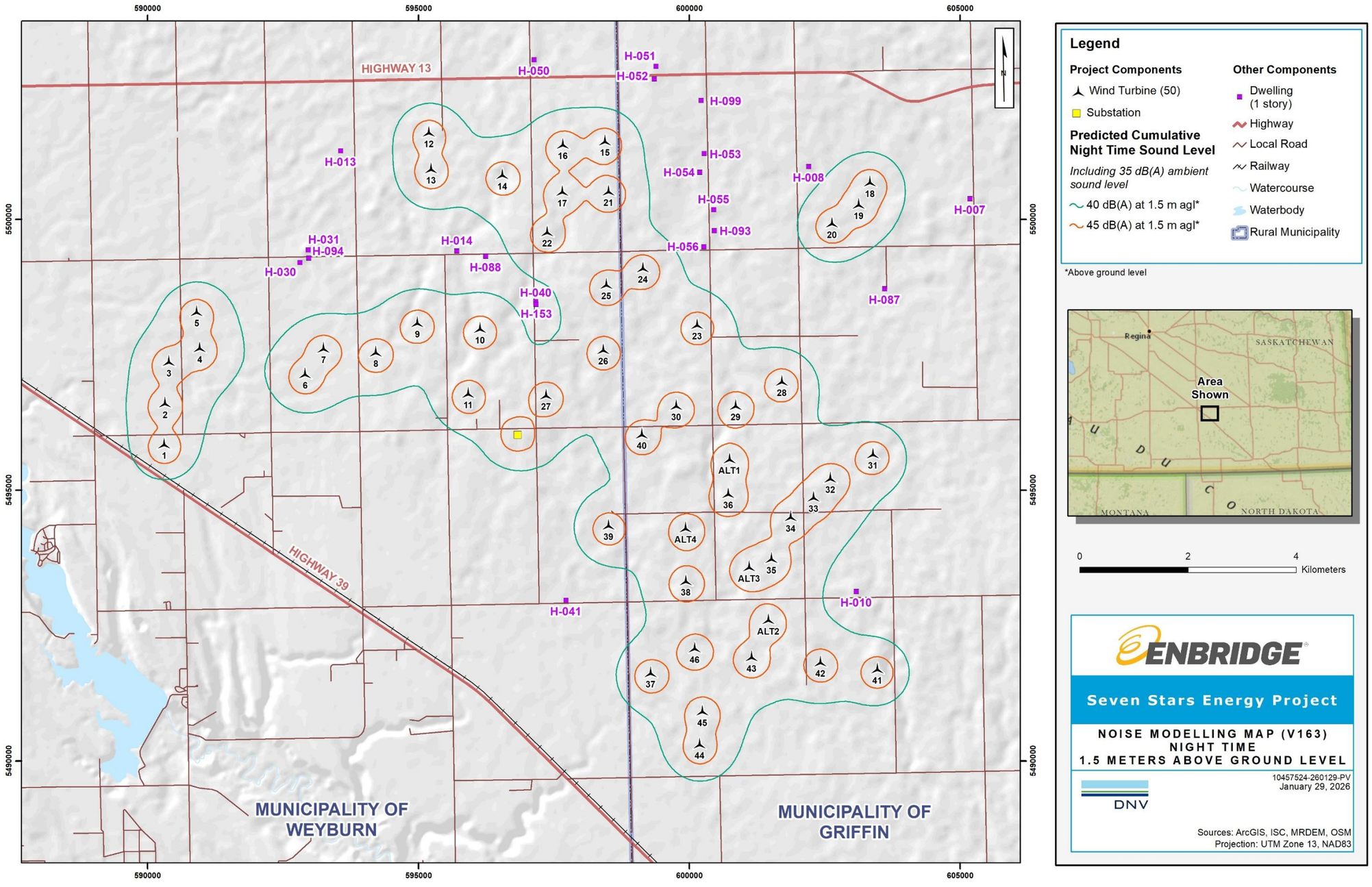

Figure 6-1 Modeled sound levels at the Seven Stars Energy Project at 1.5 m (night)

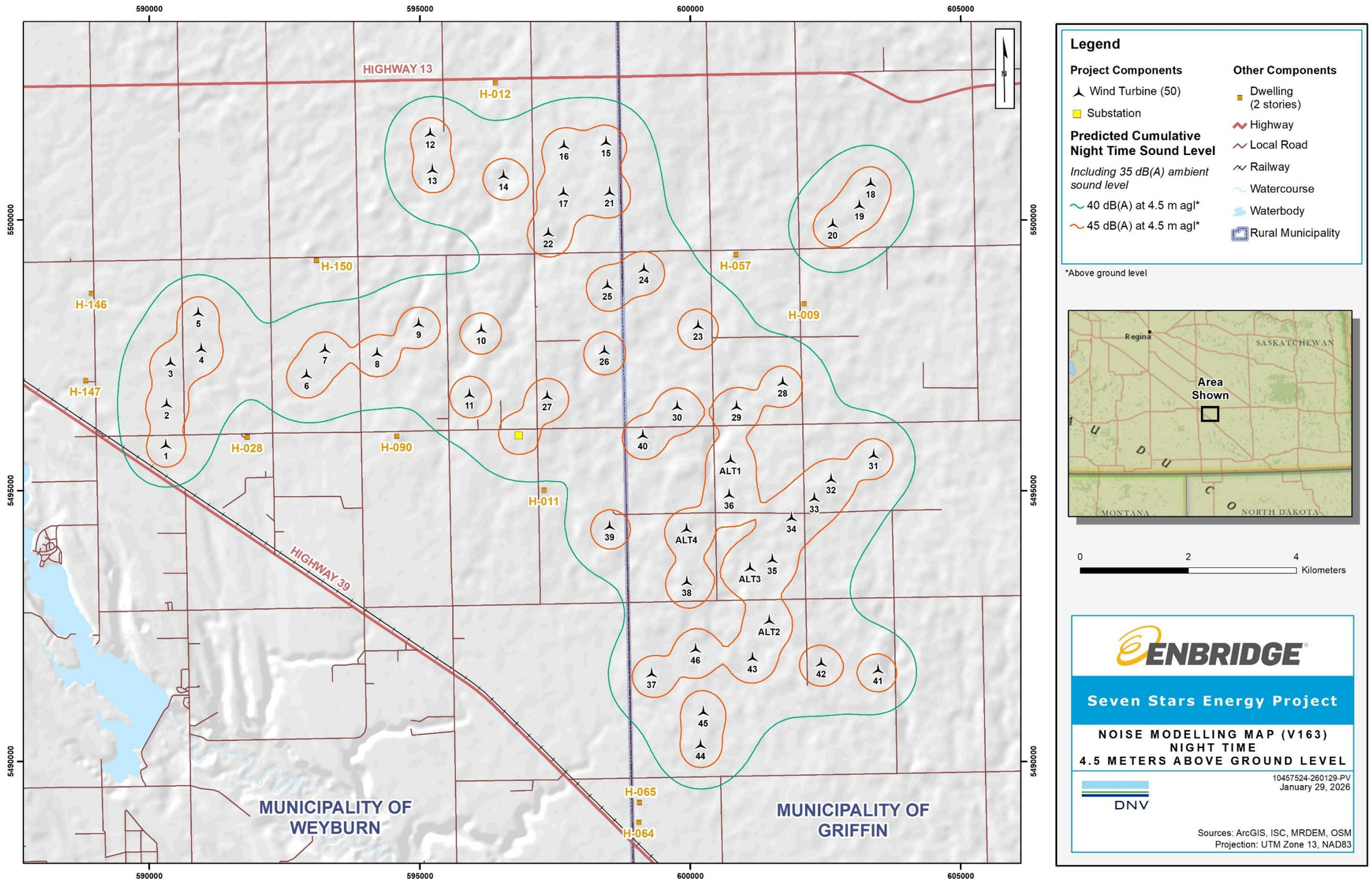

Figure 6-2 Modeled sound levels at the Seven Stars Energy Project at 4.5 m (night)

6.1 Low Frequency Noise Assessment

AUC Rule 012 provides the following two criteria to identify the potential for low frequency noise:

- the time-weighted average dBC – dBA value for the measured daytime or nighttime period is equal to or greater than 20 dB; and
- a clear tonal component exists at a frequency between 20 and 250 Hertz (Hz).

DNV examined the presence of any distinct tones at the sources from the available data in third-octave bands provided by the Customer. It was found that no distinct audible tone is present for wind turbines. In contrast, the transformer at the Project's substation was modeled with a tonal penalty of +5 dB to take into account the tone of the transformer.

Modern wind turbines are typically designed in such a way that tonality is not likely. In the unlikely event that a tone is detected, and measured, two potential solutions would be to operate the wind turbine in reduced noise mode or to make corrections and modifications to the wind turbine to eliminate the source of the tone.

DNV completed an analysis for all dwellings to determine the presence of low frequency noise. The summary of the 10 highest dBC-dBA differences within 2 km of a Project noise source are shown in Table 6-3.

Since none of the values are equal to or greater than 20 dB, low frequency noise impact at the dwellings is unlikely based on the AUC Rule 012 standard.

Table 6-3 Low-Frequency noise assessment

Dwelling ID	dBC-dBA
H-099	19.5
H-051	19.4
H-031	19.3
H-013	19.2
H-041	19.2
H-052	19.2
H-053	19.2
H-054	19.1
H-055	19.1
H-094	19.1

7 CONCLUSION

DNV has conducted an analysis to determine the maximum predicted sound levels at dwellings in the vicinity of the Seven Stars Energy Project in Saskatchewan. The Project equipment considered in the analysis were 50 Vestas V163 4.5MW WTGs with STE blades and a hub height of 98 m, including 4 alternate locations, and one step-up transformer within the substation.

Although there are no regulatory noise guidelines for wind projects in Saskatchewan, the Project is compliant with the Alberta AUC Rule 012 PSL for a rural environment during daytime and nighttime hours.

Results are presented for dwellings within 2 km of a Project noise source. Modeled nighttime cumulative sound pressure levels are below 40 dBA during nighttime hours and below 50 dBA during daytime hours. There is also no low frequency tonality potential identified, per the AUC Rule 012 standard method.

8 REFERENCES

[1] International Organization for Standardization. *ISO 9613-2: Acoustics – Attenuation of Sound During Propagation Outdoors – Part 2: General Method of Calculation*.

[2] Alberta Utilities Commission (AUC), Rule 012 – Noise Control. Effective 30 September 2024.

[3] Turbine and substation locations sent by email from NRSI to DNV on 26 November 2025, "*SevenStars_50xV163_4d5_20251104_V7*"

[4] PoR locations sent by email from NRSI to DNV on 10 March 2025, "Receptors_Merged_20250310.shp"

[5] Vestas Wind Systems A/S, *0122-5877_V02 - V163-4_5MW Third Octaves.pdf*. 2023-06-30.

[6] C57.12.90-2015 IEEE Standard Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers. 2021.

[7] International Organization for Standardization. *ISO 1996-2: Acoustics – Description, measurement and assessment of environmental noise -Part 2: Determination of sound pressure levels*. July 2017.

[8] Malcolm J. Crocker. *Handbook of Acoustics*. John Wiley & Sons. 1998.

APPENDIX A – SEVEN STARS WIND ENERGY PROJECT SOUND SOURCE LOCATIONS

ID	UTM Zone 13, NAD 83 Datum	
	Easting [m]	Northing [m]
Transformer/TR1	596832	5496021
T01	590311	5495782
T02	590323	5496538
T03	590398	5497305
T04	590965	5497557
T05	590907	5498226
T06	592913	5497079
T07	593248	5497552
T08	594217	5497478
T09	594982	5498023
T10	596142	5497914
T11	595924	5496718
T12	595197	5501535
T13	595237	5500862
T14	596554	5500755
T15	598448	5501376
T16	597672	5501316
T17	597659	5500444
T18	603339	5500617
T19	603131	5500209
T20	602638	5499860
T21	598514	5500450
T22	597381	5499700
T23	600152	5497987
T24	599150	5499033

ID	UTM Zone 13, NAD 83 Datum	
	Easting [m]	Northing [m]
T25	598472	5498729
T26	598419	5497525
T27	597363	5496686
T28	601713	5496941
T29	600861	5496494
T30	599762	5496493
T31	603396	5495600
T32	602611	5495154
T33	602299	5494802
T34	601875	5494440
T35	601524	5493666
T36	600724	5494868
T37	599289	5491561
T38	599942	5493259
T39	598516	5494283
T40	599128	5495965
T41	603475	5491633
T42	602428	5491758
T43	601157	5491853
T44	600198	5490246
T45	600248	5490852
T46	600106	5492016
ALT01	600750	5495507
ALT02	601465	5492539
ALT03	601109	5493514
ALT04	599938	5494233

About DNV

DNV is a global quality assurance and risk management company. Driven by our purpose of safeguarding life, property and the environment, we enable our customers to advance the safety and sustainability of their business. We provide classification, technical assurance, software and independent expert advisory services to the maritime, oil & gas, power and renewables industries. We also provide certification, supply chain and data management services to customers across a wide range of industries. Operating in more than 100 countries, our experts are dedicated to helping customers make the world safer, smarter and greener.