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**Technical Memorandum
Fountain Wind Project Update
June 7, 2023**

The Fountain Wind site plan now includes fewer wind turbines than those analyzed for the project in the December 20, 2019 noise technical report. Turbines A01 through A07, B01, D01 through D05, M03 through M05, M08A, N01 through N05, NO1A and NO2A which were present in the previous plans are not included in new plans (April 2023). Turbine C02 has been moved approximately 480 feet southeast of its previous location. Many of the turbines removed were those located nearest to noise-sensitive receptors in the vicinity. As a result, operation of turbines included in the April 2023 site plan would generate lower noise levels than those identified in the December 20, 2019 noise technical report. Updated versions of Tables 6, 7, and 8 of the noise technical report are shown below with calculated noise levels representative of the new condition. Table 11 shows a comparison of noise levels calculated under the current and previous plans and the reduction of noise at sensitive receptors. The Vestas V150-4.5 turbine was selected as the worst-case, loudest turbine that is anticipated to be used at the site. This turbine has a maximum sound power level of 107.6 dBA and a hub height of 105 meters (344 feet). Tables 6 and 7 demonstrate that the project as currently designed meets Shasta County noise requirements in all respects which are set forth in Policy N-b of the Shasta County General Plan.¹

TABLE 6: Project Generated Sound Pressure Levels at Nearby Residences

Receiver	A-Weighted Leq, dBA	L _{dn} ¹ , dBA
LT-1	34.6	41.0
LT-2	35.3	41.7
LT-3	33.1	39.5
R-4	42.6	49.0

¹ Assumes continuous simultaneous operation of all turbines, 24-hr/day.

¹ Policy N-b: Noise likely to be created by a proposed non-transportation land use shall be mitigated so as not to exceed the noise level standards of an hourly Leq of 55 dBA during daytime hours (7 a.m. to 10 p.m.) and 50 dBA during nighttime hours (10 p.m. to 7 a.m.) as measured immediately within the property line of adjacent lands designated as noise-sensitive. The noise levels specified above shall be lowered by 5 dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings). The County can impose noise level standards, which are more restrictive than those specified above based upon determination of existing low ambient noise levels. In rural areas where large lots exist, the exterior noise level standard shall be applied at a point 100 feet away from the residence.

TABLE 7: Increase in L_{dn} Resulting from Project Operations, 100% Operations

Receiver	Average Ambient L _{dn} , dBA	Project Generated L _{dn} ¹ , dBA	Existing + Project L _{dn} ¹ , dBA	L _{dn} Increase ² , dBA
LT-1	43.9	41.0	45.7	1.8
LT-2	42.6	41.7	45.2	2.6
LT-3	53.8	39.5	54.0	0.2
R-4	49.1	49.0	52.1	3.0

¹ Assumes continuous simultaneous operation of all turbines, 24-hr/day.

² Results were rounded to the nearest decibel. In some cases, this can result in relative changes that may not appear intuitive. For example, the difference between 64.4 (64) and 64.5 (65) is 0.1 (0), not 1.

TABLE 8: Difference Between A-Weighted and C-Weighted Results

Receiver	A-Weighted L _{eq} , dBA	C-Weighted L _{eq} , dBC	L _{dn} ¹ , dBA	L _{dn} ¹ , dBC	dBC – dBA, dB
LT-1	34.6	52.7	41.0	59.1	18.1
LT-2	35.3	53.2	41.7	59.6	17.9
LT-3	33.1	51.6	39.5	58.0	18.5
R-4	42.6	61.6	49.0	65.4	16.4

¹ Assumes continuous simultaneous operation of all turbines, 24-hr/day.

TABLE 7: Increase in L_{dn} Resulting from Project Operations, 100% Operations

Receiver	Average Ambient L _{dn} , dBA	Project Generated L _{dn} ¹ , dBA	Existing + Project L _{dn} ¹ , dBA	L _{dn} Increase ² , dBA
LT-1	43.9	41.0	45.7	1.8
LT-2	42.6	41.7	45.2	2.6
LT-3	53.8	39.5	54.0	0.2
R-4	49.1	49.0	52.1	3.0

¹ Assumes continuous simultaneous operation of all turbines, 24-hr/day.

² Results were rounded to the nearest decibel. In some cases, this can result in relative changes that may not appear intuitive. For example, the difference between 64.4 (64) and 64.5 (65) is 0.1 (0), not 1.

Table 11 shows a comparison of noise levels calculated under the current (April 2023) and previous plans (December 2019) and the reduction of noise at sensitive receptors.

TABLE 11: Change in Project-Generated Noise Levels Resulting from Site Plan Update

Receiver	December 20, 2019 Report		Current Project Description		Difference	
	A-Weighted L _{eq} , dBA	C-Weighted L _{eq} , dBC	A-Weighted L _{eq} , dBA	C-Weighted L _{eq} , dBC	A-Weighted L _{eq} , dBA	C-Weighted L _{eq} , dBC
LT-1	39.5	58.4	34.6	52.7	-4.9	-5.7
LT-2	39.5	58.5	35.3	53.2	-4.2	-5.3
LT-3	38.2	57.7	33.1	51.6	-5.1	-6.1
R-4	42.1	60.8	42.6	61.6	0.5	-1.8

Fountain Wind Energy Project

A-Weighted Project Generated Noise Contours, Leq

