Fredrikson & BYRON, P.A.

May 4, 2020

VIA E-MAIL AND FEDERAL EXPRESS

Mr. Steven Kahl
Executive Secretary
North Dakota Public Service Commission
600 E. Boulevard, Dept. 408
Bismarck, ND 58505-0480

RE: Aurora Wind Project, LLC
Aurora Wind Project – Williams County
Siting Application
Case No. PU-18-352

Dear Mr. Kahl:

In accordance with Certification Provision No. 38(A) of the North Dakota Public Service Commission's ("Commission") Order issuing a Certificate of Site Compatibility for the Aurora Wind Project, Aurora Wind Project, LLC hereby files two (2) copies of this letter and the following documents:

- Second Certification of Benjamin Conor Branch, with accompanying Exhibits:
  - Exhibit A – Layout Comparison Map
  - Exhibit B – Current Layout Map
  - Exhibit C – Turbine Index
  - Exhibit D – Sound and Shadow Flicker Addendum
  - Exhibit E – Supplement II Class III Cultural Resources Inventory Report (**CONFIDENTIAL**)

Electronic versions of this letter and the above-referenced documents are being filed with the Commission today via e-mail. If you have any questions, please let me know.

Sincerely,

Mollie M. Smith

MOLLIE M. SMITH

MMS/69948226
Enclosure

cc: Jerry Lein (via e-mail, w/o enclosure)
Patrick Fahn (via e-mail, w/o enclosure)
Jaimee Antognazzi (via e-mail, w/o enclosure)
Jennifer Dean (via e-mail, w/o enclosure)
Jeremy Price (via e-mail, w/o enclosure)

STATE OF NORTH DAKOTA

PUBLIC SERVICE COMMISSION

Aurora Wind Project, LLC
Aurora Wind Project – Williams County
Siting Application

Case No. PU-18-352

SECOND CERTIFICATION OF BENJAMIN CONOR BRANCH

STATE OF Kansas)
) ss.
COUNTY OF Johnson)

Benjamin Conor Branch, being first duly sworn upon oath, states and alleges as follows:

1. I am an Authorized Representative for the Aurora Wind Project ("Project"), which is owned by Aurora Wind Project, LLC ("Aurora Wind"). I am employed by Enel Green Power, which is assisting Aurora Wind with Project development. I have the authority to bind Aurora Wind with respect to the certifications made herein.

2. I provide this Second Certification pursuant to Provision No. 38 of the Certification Relating to Order Provisions – Wind Energy Conversion Facility Siting, which is part of the Commission's Findings of Fact, Conclusions of Law and Order, dated May 7, 2019 ("Order"), in the above-referenced docket.

3. Since the Order was issued, Aurora Wind has made minor modifications to the turbine model hub height and the Project layout. A figure comparing the current Project layout with the updated Project layout filed with my Certification dated October 1, 2019 ("First Certification") is attached hereto as **Exhibit A**. The current Project layout is attached hereto as **Exhibit B**.

4. In the First Certification, the layout consisted of 15 Vestas V110-2.0 turbines (80 meter hub height, 110 meter rotor diameter, and 135 meter tip height) and 56 Nordex N149-4.8

turbines (108 meter hub height, 149 meter rotor diameter, and 182.5 meter tip height). Since the filing of the First Certification, Aurora Wind has determined it will use the 106.9 meter hub height, rather than the 108 meter hub height, for the Nordex N149-4.8 turbines, with all other turbine specifications remaining the same. The turbine locations have not changed, and the layout continues to comply with all applicable setback requirements. A turbine index identifying which turbine model will be installed at each turbine location is attached hereto as **Exhibit C**.

5. The Project layout modifications include the following:

   a. Turbine 67 is now a primary turbine in place of Turbine 42, and a Vestas V110-2.0 turbine (rather than a Nordex N149-4.8 turbine) will be installed at Turbine 70. No other turbine adjustments were made.

   b. Minor adjustments were made to the locations of access roads, collection lines, and crane paths during final micrositing.

   c. Two meteorological tower locations will no longer be used and have been removed from the current layout.

6. The Project layout complies with all requirements set forth in the Commission's Order.

7. In accordance with Order Paragraph Nos. 5 and 6, updated noise and shadow flicker analyses were conducted for the updated turbine specifications, and a Sound and Shadow Flicker Addendum Report is attached as **Exhibit D**. As indicated in the report, the Project complies with the Commission's Avoidance Area Sound Requirement and Aurora Wind's shadow flicker goal of 30 hours per year or less at occupied residences.

8. All modifications are covered by the following: (1) the Archaeological Summary Report, filed on February 25, 2019 as Hearing Exhibit No. 16; (2) the Additional Aurora Wind

Project Area Class III Cultural Resources Inventory Report, filed on October 1, 2019 as Exhibit A to the First Certification; and (3) Supplement II for the Aurora Wind Project Area Class III Cultural Resources Inventory Report, attached hereto as **Exhibit E (CONFIDENTIAL)**. The State Historical Society of North Dakota ("SHSND") issued concurrence letters on the first two reports on February 1, 2019 (*see* Hearing Exhibit No. 17, filed on February 25, 2019) and September 26, 2019 (*see* Exhibit D to the First Certification), respectively. The SHSND is currently reviewing the most recent report and the concurrence letter will be filed with the Commission prior to construction activities occurring in the areas covered by said report; however, no cultural resources were identified in the areas surveyed for the Project layout modifications. As such, the Project layout modifications depicted in Exhibit A will not impact any National Register of Historic Places ("NRHP") eligible, potentially eligible, or unevaluated cultural resource sites.

9. All modifications are covered by the Wetlands and Waterbodies Technical Memorandum, filed on February 25, 2019 as Hearing Exhibit No. 20. The Project layout modifications depicted in Exhibit A will not result in any permanent impacts to wetlands or waterbodies.

10. The Project layout modifications and associated construction activities will not affect any known exclusion or avoidance areas within the designated Project site.

11. With respect to the Project, including the layout modifications, Aurora Wind will comply with the Commission's Order, including applicable laws and rules designating the site.

FURTHER AFFIANT SAYETH NOT.

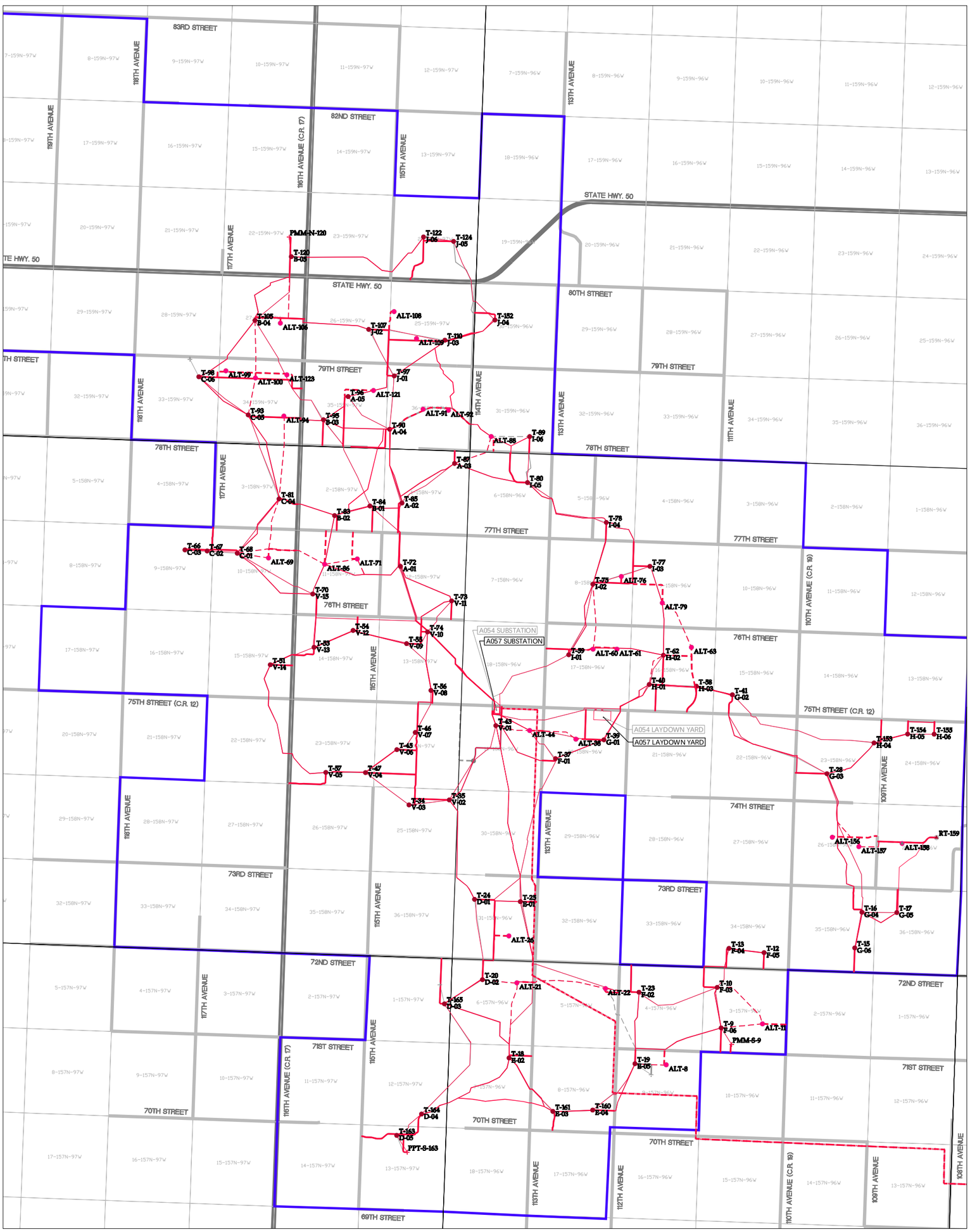
Benjamin Conor Branch

Subscribed and sworn to before me
this 1st day of May, 2020.

Melissa A Purdon
Notary Public

Melissa A Purdon
Notary Public State of Kansas
My Appt Expires 10/26/22

68934013 v4



LEGEND:

A057 DESIGN

- PRIMARY TURBINE
- ALTERNATE TURBINE
- MET TOWER
- RADAR TOWER
- PRIMARY ACCESS ROAD
- ALTERNATE ACCESS ROAD
- PRIMARY CRANE PATH
- ALTERNATE CRANE PATH
- PRIMARY UNDERGROUND COLLECTION
- ALTERNATE UNDERGROUND COLLECTION
- OVERHEAD TRANSMISSION LINE
- FACILITIES
- PROJECT AREA
- SECTIONS
- TOWNSHIPS
- MAJOR ROAD
- MINOR ROAD

A054 DESIGN

- PRIMARY TURBINE
- ALTERNATE TURBINE
- MET TOWER
- RADAR TOWER
- PRIMARY ACCESS ROAD
- ALTERNATE ACCESS ROAD
- PRIMARY CRANE PATH
- ALTERNATE CRANE PATH
- PRIMARY UNDERGROUND COLLECTION
- ALTERNATE UNDERGROUND COLLECTION
- OVERHEAD TRANSMISSION LINE
- FACILITIES

N

0' 3,000' 6,000' 9,000'

EXHIBIT A

REV.	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
0	04/15/20	A054R1 Layout vs. A057R3 Layout	DJ	CH	

Westwood
Westwood Professional Services, Inc.
westwoodps.com
Phone: (952) 937-5150

PROJECT:
Aurora Wind Project
Williams County, North Dakota

FILE NAME: N:\0014603.00\dwg\Civil\EXHIBIT\EXH05_A054vsA057.dwg

CLASSIFICATION:	FORMAT:	SCALE:	PLOT SCALE:	SHEET:
X	ANSI D	As Noted		001 OF 001

enel Green Power
Engineering & Construction
EGP VALIDATION

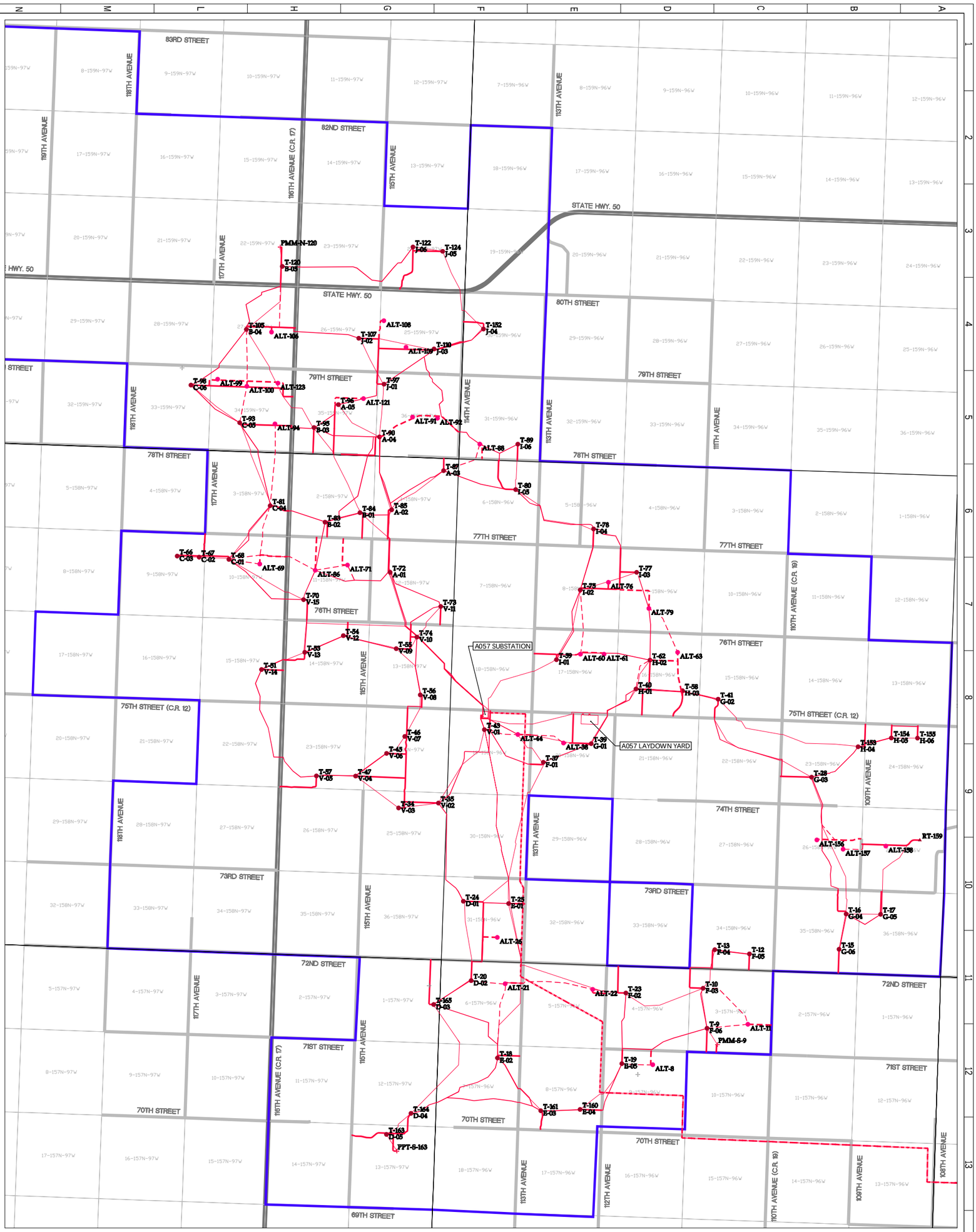
VALIDATED BY	X
VERIFIED BY	X
COLLABORATORS	X

UTILIZATION SCOPE: X

TITLE:
A054R1 Layout
vs.
A057R3 Layout

EGP CODE

GROUP	FUNCTION	TYPE	ISSUER	COUNTRY	TEC.	PLANT	SYSTEM	PROGRESSIVE	REVISION
EGP				U S				0 0 1	0



LEGEND:

A057 DESIGN

- PRIMARY TURBINE
- ALTERNATE TURBINE
- MET TOWER
- RADAR TOWER
- PRIMARY ACCESS ROAD
- ALTERNATE ACCESS ROAD
- PRIMARY CRANE PATH
- ALTERNATE CRANE PATH
- PRIMARY UNDERGROUND COLLECTION
- ALTERNATE UNDERGROUND COLLECTION
- OVERHEAD TRANSMISSION LINE
- FACILITIES
- PROJECT AREA
- SECTIONS
- TOWNSHIPS
- MAJOR ROAD
- MINOR ROAD

0' 3,000' 6,000' 9,000'

EXHIBIT B

REV.	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
0	04/15/20	A057R3 Overall Site Layout	DJ	CH	

Westwood
Westwood Professional Services, Inc.
westwoodps.com
Phone: (952) 937-5150

PROJECT:
Aurora Wind Project
Williams County, North Dakota

FILE NAME: N:\0014603.00\dwg\CIVIL\EXHIBIT\EXH185_A054vsA037.dwg

CLASSIFICATION:	FORMAT:	SCALE:	PLOT SCALE:	SHEET:
X	ANSI D	As Noted		001 OF 001

enel Green Power
Engineering & Construction

EGP VALIDATION

VALIDATED BY	X
VERIFIED BY	X
COLLABORATORS	X

UTILIZATION SCOPE: X

TITLE: A057R3 Overall Site Layout

EGP CODE

GROUP	FUNCTION	TYPE	ISSUER	COUNTRY	TEC.	PLANT	SYSTEM	PROGRESSIVE	REVISION
EGP				U S				0 0 1	0

TURBINE INDEX

Turb_Num	Alpha_Num	Pri_Alt	Northing	Easting	Latitude	Longitude	Size	Existing Grade Elev.	Finish Grade Elev.	Top Concrete Elevation
T-9	F-06	Primary	5368014.574	642242.996	48.4491853	-103.0763417	N149-4.8 108M HH	2399.4	2398.42	2398.9
T-10	F-03	Primary	5368780.381	642121.763	48.4560984	-103.0777202	N149-4.8 108M HH	2416.9	2414.64	2415.1
T-12	F-05	Primary	5369494.261	642975.033	48.4623238	-103.0659422	N149-4.8 108M HH	2417.8	2417.82	2418.3
T-13	F-04	Primary	5369536.168	642303.389	48.4628529	-103.0750081	N149-4.8 108M HH	2414.9	2413.89	2414.4
T-15	G-06	Primary	5369685.097	644694.949	48.4636465	-103.0426245	N149-4.8 108M HH	2418.3	2417.57	2418.1
T-16	G-04	Primary	5370371.472	644791.801	48.4697955	-103.0410775	N149-4.8 108M HH	2450.5	2447.86	2448.4
T-17	G-05	Primary	5370404.813	645455.588	48.4699421	-103.0320909	N149-4.8 108M HH	2419.9	2419.50	2420.0
T-18	E-02	Primary	5367207.051	638241.566	48.4428160	-103.1306921	N149-4.8 108M HH	2337.0	2335.76	2336.3
T-19	E-05	Primary	5367237.701	640643.248	48.4425596	-103.0982247	N149-4.8 108M HH	2358.8	2359.38	2359.9
T-20	D-02	Primary	5368666.274	637648.439	48.4560669	-103.1382283	N149-4.8 108M HH	2349.7	2347.35	2347.8
T-23	F-02	Primary	5368601.890	640640.519	48.4548263	-103.0978033	N149-4.8 108M HH	2388.8	2388.66	2389.2
T-24	D-01	Primary	5370184.880	637407.926	48.4697743	-103.1409808	N149-4.8 108M HH	2307.5	2307.24	2307.7
T-25	E-01	Primary	5370192.227	638282.328	48.4696487	-103.1291550	N149-4.8 108M HH	2340.5	2339.31	2339.8
T-28	G-03	Primary	5372966.691	643971.882	48.4933179	-103.0512698	N149-4.8 108M HH	2338.6	2339.15	2339.7
T-34	V-03	Primary	5371907.889	636056.379	48.4855611	-103.1586955	V110-2.0 80M HH	2365.1	2362.25	2362.8
T-35	V-02	Primary	5372047.160	636816.513	48.4866484	-103.1483683	V110-2.0 80M HH	2393.5	2391.50	2392.0
T-37	F-01	Primary	5372950.847	638790.272	48.4943412	-103.1213707	N149-4.8 108M HH	2419.1	2417.40	2417.9
T-39	G-01	Primary	5373362.757	639691.743	48.4978452	-103.1090377	N149-4.8 108M HH	2433.9	2432.87	2433.4
T-40	H-01	Primary	5374466.055	640491.845	48.5075870	-103.0978419	N149-4.8 108M HH	2436.2	2432.54	2433.0
T-41	G-02	Primary	5374362.583	642084.778	48.5062983	-103.0763226	N149-4.8 108M HH	2391.6	2389.39	2389.9
T-42										N/A
T-43	V-01	Primary	5373512.344	637619.208	48.4996476	-103.1370281	V110-2.0 80M HH	2384.6	2384.91	2385.4
T-45	V-06	Primary	5372944.590	635763.575	48.4949462	-103.1623191	V110-2.0 80M HH	2378.9	2378.79	2379.3
T-46	V-07	Primary	5373291.782	636094.672	48.4979964	-103.1577267	V110-2.0 80M HH	2407.3	2408.08	2408.6
T-47	V-04	Primary	5372473.318	635192.859	48.4908316	-103.1701927	V110-2.0 80M HH	2338.5	2337.75	2338.2
T-51	V-14	Primary	5374417.943	633261.373	48.5087301	-103.1957007	V110-2.0 80M HH	2354.5	2354.19	2354.7
T-53	V-13	Primary	5374798.443	634074.344	48.5119785	-103.1845769	V110-2.0 80M HH	2365.3	2364.51	2365.0
T-54	V-12	Primary	5375162.724	634798.237	48.5150991	-103.1746626	V110-2.0 80M HH	2342.1	2341.39	2341.9
T-55	V-09	Primary	5374972.063	635830.034	48.5131624	-103.1607603	V110-2.0 80M HH	2396.4	2395.46	2396.0
T-56	V-08	Primary	5374109.203	636346.230	48.5052919	-103.1540563	V110-2.0 80M HH	2416.0	2416.10	2416.6
T-57	V-05	Primary	5372432.112	634438.412	48.4906230	-103.1804119	V110-2.0 80M HH	2302.7	2301.62	2302.1
T-58	H-03	Primary	5374486.195	641389.461	48.5075667	-103.0856890	N149-4.8 108M HH	2439.7	2433.16	2433.7
T-59	I-01	Primary	5374940.608	638927.526	48.5122019	-103.1188517	N149-4.8 108M HH	2414.6	2414.84	2415.3
T-62	H-02	Primary	5375038.156	640728.767	48.5126780	-103.0944431	N149-4.8 108M HH	2428.5	2427.540	2428.0
T-66	C-03	Primary	5376506.534	631509.664	48.5278800	-103.2187475	N149-4.8 108M HH	2401.1	2400.88	2401.4
T-67	C-02	Primary	5376510.560	631933.766	48.5278272	-103.2130049	N149-4.8 108M HH	2396.6	2397.17	2397.7
T-68	C-01	Primary	5376501.287	632509.061	48.5276226	-103.2052196	N149-4.8 108M HH	2380.0	2379.23	2379.7
T-70	V-15	Primary	5375810.160	633988.399	48.5210941	-103.1854151	V110-2.0 80M HH	2424.1	2421.91	2422.4
T-72	A-01	Primary	5376433.892	635627.785	48.5263505	-103.1630221	N149-4.8 108M HH	2392.4	2392.86	2393.4
T-73	V-11	Primary	5375834.611	636640.443	48.5207423	-103.1495102	V110-2.0 80M HH	2413.7	2413.11	2413.6
T-74	V-10	Primary	5375217.978	636214.915	48.5152902	-103.1554712	V110-2.0 80M HH	2408.9	2407.87	2408.4
T-75	I-02	Primary	5376309.724	639306.968	48.5244283	-103.1132595	N149-4.8 108M HH	2408.0	2405.67	2406.2
T-77	I-03	Primary	5376712.807	640372.460	48.5278152	-103.0987013	N149-4.8 108M HH	2421.0	2417.93	2418.4
T-78	I-04	Primary	5377499.291	639494.812	48.5350825	-103.1103188	N149-4.8 108M HH	2424.1	2428.84	2429.3
T-80	I-05	Primary	5378169.469	637951.403	48.5414496	-103.1309932	N149-4.8 108M HH	2351.3	2350.34	2350.8
T-81	C-04	Primary	5377581.070	633242.878	48.5371766	-103.1949403	N149-4.8 108M HH	2397.1	2396.49	2397.0
T-83	B-02	Primary	5377326.080	634317.597	48.5346546	-103.1804707	N149-4.8 108M HH	2400.7	2400.91	2401.4
T-84	B-01	Primary	5377548.676	634979.232	48.5365142	-103.1714406	N149-4.8 108M HH	2385.7	2385.65	2386.2
T-85	A-02	Primary	5377640.288	635586.431	48.5372070	-103.1631894	N149-4.8 108M HH	2384.2	2383.86	2384.4
T-87	A-03	Primary	5378451.736	636541.560	48.5442961	-103.1499912	N149-4.8 108M HH	2348.6	2348.11	2348.6
T-89	I-06	Primary	5379045.921	637940.518	48.5493327	-103.1308503	N149-4.8 108M HH	2344.5	2344.14	2344.6
T-90	A-04	Primary	5379028.908	635270.108	48.5497613	-103.1670215	N149-4.8 108M HH	2385.4	2385.12	2385.6
T-93	C-05	Primary	5379144.551	632562.683	48.5513793	-103.2036527	N149-4.8 108M HH	2428.5	2424.06	2424.6
T-95	B-03	Primary	5379136.063	634001.414	48.5509972	-103.1841694	N149-4.8 108M HH	2427.0	2426.00	2426.5
T-96	A-05	Primary	5379604.791	634442.606	48.5551175	-103.1780427	N149-4.8 108M HH	2407.6	2404.10	2404.6
T-97	J-01	Primary	5380049.438	635297.723	48.5589317	-103.1663158	N149-4.8 108M HH	2390.8	2389.32	2389.8
T-98	C-06	Primary	5379814.331	631581.923	48.5576085	-103.2167244	N149-4.8 108M HH	2387.7	2383.55	2384.0
T-105	B-04	Primary	5380948.694	632585.309	48.5675972	-103.2027714	N149-4.8 108M HH	2405.7	2400.05	2400.5
T-107	J-02	Primary	5380904.916	634758.462	48.5667401	-103.1733434	N149-4.8 108M HH	2358.8	2358.62	2359.1
T-110	J-03	Primary	5380784.684	636220.218	48.5653430	-103.1535793	N149-4.8 108M HH	2350.9	2348.71	2349.2
T-120	B-05	Primary	5382201.359	633205.940	48.5787293	-103.1939617	N149-4.8 108M HH	2376.8	2375.19	2375.7
T-122	J-06	Primary	5382723.705	635698.781	48.5828911	-103.1600107	N149-4.8 108M HH	2327.8	2327.83	2328.3
T-124	J-05	Primary	5382673.292	636275.855	48.5823125	-103.1522067	N149-4.8 108M HH	2334.5	2331.38	2331.9
T-152	J-04	Primary	5381224.053	637149.006	48.5690911	-103.1408519	N149-4.8 108M HH	2310.1	2308.34	2308.8
T-153	H-04	Primary	5373605.121	644833.053	48.4988602	-103.0393991	N149-4.8 108M HH	2345.0	2343.12	2343.6
T-154	H-05	Primary	5373811.401	645462.261	48.5005696	-103.0308149	N149-4.8 108M HH	2391.4	2390.84	2391.3
T-155	H-06	Primary	5373838.335	645966.215	48.5006949	-103.0239874	N149-4.8 108M HH	2392.9	2392.38	2392.9
T-160	E-04	Primary	5366308.833	639890.236	48.4343754	-103.1087113	N149-4.8 108M HH	2325.8	2326.33	2326.8
T-161	E-03	Primary	5366239.339	639134.733	48.4339179	-103.1189428	N149-4.8 108M HH	2332.5	2328.40	2328.9
T-163	D-05	Primary	5365609.266	636191.341	48.4288958	-103.1589197	N149-4.8 108M HH	2341.3	2338.09	2338.6

Turb_Num	Alpha_Num	Pri_Alt	Northing	Easting	Latitude	Longitude	Size	Existing Grade Elev.	Finish Grade Elev.	Top Concrete Elevation
T-164	D-04	Primary	5366042.151	636639.765	48.4326911	-103.1527199	N149-4.8 108M HH	2337.8	2335.13	2335.6
T-165	D-03	Primary	5368163.526	636953.754	48.4516979	-103.1477836	N149-4.8 108M HH	2330.9	2330.72	2331.2
ALT-8		Alternate	5367252.352	641238.880	48.4425580	-103.0901703	N149-4.8 108M HH			N/A
ALT-11		Alternate	5368137.799	643024.354	48.4501162	-103.0657389	N149-4.8 108M HH			N/A
ALT-21		Alternate	5368643.896	638306.411	48.4557214	-103.1293412	N149-4.8 108M HH			N/A
ALT-22		Alternate	5368634.243	639997.850	48.4552605	-103.1064798	N149-4.8 108M HH			N/A
ALT-26		Alternate	5369527.234	638102.457	48.4637089	-103.1318067	N149-4.8 108M HH			N/A
ALT-38		Alternate	5373344.211	639157.200	48.4977970	-103.1162757	N149-4.8 108M HH			N/A
ALT-44		Alternate	5373456.910	638268.310	48.4990066	-103.1282643	N149-4.8 108M HH			N/A
ALT-60		Alternate	5375074.308	639383.610	48.5133030	-103.1126349	N149-4.8 108M HH			N/A
ALT-61		Alternate	5375099.972	639837.649	48.5134328	-103.1064818	N149-4.8 108M HH			N/A
ALT-63		Alternate	5375220.003	641252.049	48.5141955	-103.0873000	N149-4.8 108M HH			N/A
ALT-69		Alternate	5376446.847	633108.365	48.5270063	-103.1971238	N149-4.8 108M HH			N/A
ALT-71		Alternate	5376526.013	634798.408	48.5273575	-103.1742196	N149-4.8 108M HH			N/A
ALT-76		Alternate	5376488.847	639840.489	48.5259202	-103.1059777	N149-4.8 108M HH			N/A
ALT-79		Alternate	5376031.418	640648.811	48.5216267	-103.0951902	N149-4.8 108M HH			N/A
ALT-86		Alternate	5376389.252	634183.337	48.5262595	-103.1825901	N149-4.8 108M HH			N/A
ALT-88		Alternate	5379004.605	637208.175	48.5491218	-103.1407820	N149-4.8 108M HH			N/A
ALT-91		Alternate	5379448.251	635883.152	48.5533994	-103.1585820	N149-4.8 108M HH			N/A
ALT-92		Alternate	5379454.569	636364.158	48.5533518	-103.1520651	N149-4.8 108M HH			N/A
ALT-94		Alternate	5379161.965	633242.629	48.5513918	-103.1944379	N149-4.8 108M HH			N/A
ALT-99		Alternate	5379957.525	632089.051	48.5587894	-103.2098096	N149-4.8 108M HH			N/A
ALT-100		Alternate	5379854.734	632659.347	48.5577448	-103.2021171	N149-4.8 108M HH			N/A
ALT-106		Alternate	5380925.149	633072.291	48.5672822	-103.1961812	N149-4.8 108M HH			N/A
ALT-108		Alternate	5381271.315	635222.050	48.5699348	-103.1669437	N149-4.8 108M HH			N/A
ALT-109		Alternate	5380785.121	635678.419	48.5654644	-103.1609191	N149-4.8 108M HH			N/A
ALT-121		Alternate	5379748.775	634917.966	48.5563100	-103.1715574	N149-4.8 108M HH			N/A
ALT-123		Alternate	5379949.650	633253.456	48.5584722	-103.1940391	N149-4.8 108M HH			N/A
ALT-156		Alternate	5371764.772	644144.198	48.4824717	-103.0493534	N149-4.8 108M HH			N/A
ALT-157		Alternate	5371615.596	644659.743	48.4810120	-103.0424326	N149-4.8 108M HH			N/A
ALT-158		Alternate	5371723.813	645478.904	48.4817960	-103.0313167	N149-4.8 108M HH			N/A
ALT-159		Alternate	5371875.449	646126.978	48.4830091	-103.0224991	N149-4.8 108M HH			N/A

MET TOWER INDEX

ID_Num	Northing	Easting	Latitude	Longitude
PMM-N-120	5382571.612	633141.457	48.5820722	-103.1947170
PPT-N-165	5368520.648	636844.025	48.4549329	-103.1491501
PPT-S-163	5365299.943	636409.918	48.4260671	-103.1560671
PMM-S-9	5367711.407	642461.090	48.4464101	-103.0734971

RADAR TOWER INDEX

ID_Num	Northing	Easting	Latitude	Longitude
RT-158	5371723.813	645478.904	48.481796	-130.0313167

EXHIBIT C

REGISTERED PROFESSIONAL ENGINEER
ROBERT S. COPOULS
PE-10
DATE 3/25/20
NORTH DAKOTA

REV.	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED
1	09/18/19	IFC REV 1	DC -	CH -	RC -
2	12/18/19	IFC REV 2	DC -	CH -	RC -
3	01/30/20	IFC REV 3	DC -	CH -	RC -
4	02/13/20	IFC REV 4	DC -	CH -	RC -

CONTRACTOR'S LOGO

res power for good®

enel Green Power

Engineering

Westwood

Westwood Professional Services, Inc.
westwoodps.com
Phone: (952) 937-5150

PROJECT:
Aurora Wind Project
Williams County, North Dakota

FILE NAME: N:\0014603.01\dwg\Civil\0014603-DT-01.dwg

CLASSIFICATION:	FORMAT:	SCALE:	PLOT SCALE:	SHEET:
	ANSI D	As Noted		003

UTILIZATION SCOPE:

TITLE: Turbine Index

EGP CODE

GROUP	FUNCTION	TYPE	ISSUER	COUNTRY	TEC.	PLANT	SYSTEM	PROGRESSIVE	REVISION
GRE	EEC	D	25	US	SW	118300	000	030	4

N:\0014603.01\dwg\Civil\0014603-DT-01.dwg

EXHIBIT D

Aurora Wind Project Sound and Shadow Flicker Addendum

November 21st, 2019

On behalf of Aurora Wind Project, LLC (Aurora), Tradewind Energy, Inc. (Tradewind Energy) conducted a sound and shadow flicker analysis for the proposed Aurora Wind Project (Project) located in Williams County, North Dakota. The analysis presented here is in supplement to the original sound and shadow study submitted, and is specific to the wind turbine array Aurora plans to construct. The array analyzed, referenced as A057, includes 15 Vestas V110-2.0 on 80 meter (m) hub height (HH), and 56 Nordex N149-4.8 on 106.9m HH. All modeling assumptions for sound and shadow flicker are consistent with the original analysis submitted. In conjunction with the Project wind turbines being modeled, wind turbines from the nearby Lindahl Wind Project located northeast of the Project were modeled to provide a comprehensive analysis.

Shadow Flicker Analysis

Shadow flicker, the effect seen when turbine blades pass between an observer and the sun, is not regulated by Williams County nor the State of North Dakota. While there is no existing permitting threshold with regards to shadow flicker, thirty hours per year of shadow flicker is the standard that has been utilized by the Commission in the past and is the goal of the Project.

A shadow flicker analysis was completed for all known occupied residences within 1.5 miles of any proposed wind turbine locations in array A031 (a total of 61 receptors) using the windPRO software. Array A031 was used as the reference to ensure all receptors presented in the original analysis were also presented within this addendum. Only the primary proposed turbine locations have been modeled, which includes 15 Vestas V110-2.0 on 80m HH, and 56 Nordex N149-4.8 on 106.9m HH. The Lindahl Wind Project wind turbines were also incorporated in the modeling. Each residence was modeled in greenhouse mode, which assumes flicker from any direction is visible up to a distance of 2,000 m (6,562 ft) from a wind turbine, and sunshine probability data was incorporated, along with wind speed and direction information. The statistical reduction on the shadow flicker hours from the worst case scenario (i.e., the wind turbine always facing the sun, always operating, and no cloudy days), referred to as realistic shadow flicker or anticipated shadow flicker, assumes reductions based on probability of the sun shining and the wind turbine operating in a direction to cause flicker at the house.

Table 1 shows results for the six locations with realistic shadow flicker hours above 20 hours per year for array A057. Results for the other 55 modeled receptors fell below this arbitrary threshold.

Table 1: Modeled shadow flicker parameters for homes within 1.5 miles of proposed turbines in A031 and have realistic shadow flicker hours above 20 hours in a year for A057. Location projections are in UTM NAD83 zone 13.

Receptor - Property Status	Easting	Northing	N149/V110 106.9/80m HH (hours/year)
57 - Participating	633480	5378691	22:47
8 - Non-Participating	638435	5378666	23:15
6 - Non-Participating	637411	5365868	24:42
45 - Participating	633554	5377057	25:17
64 - Participating	639268	5377996	26:01
10 - Non-Participating	643279	5372615	28:29

A detailed map and the windPRO shadow flicker report are included for reference.

Sound Analysis

The Commission has a wind turbine sound level limit of 50 dBA within 100 feet of an inhabited residence or community building, unless a written waiver is obtained from the owner of the occupied residence or community building. A sound analysis was completed for all known occupied residences and community buildings within 1.5 miles of any proposed wind turbine locations in array A031 (a total of 61 receptors) using the windPRO software. Array A031 was used as the reference to ensure all receptors presented in the original analysis were also presented within this addendum. Each residence was modeled assuming the ISO 9613-2 General sound model with a 0.5 general ground attenuation factor, commonly used and accepted model and settings for wind turbine sound analyses. These model settings simulate typical atmospheric and ground attenuation for sound propagation. Only the primary proposed turbine locations have been modeled, which includes 15 Vestas V110-2.0 on 80m HH, and 56 Nordex N149-4.8 on 106.9m HH. The Lindahl Wind Project wind turbines were also modeled to ensure residences between the two projects would be properly represented.

Table 2 shows results for those receptors modeled as potentially having sound levels above 40 dBA. All other receptors were modeled at levels below the arbitrary 40 dBA threshold.

Table 2: Modeled sound results for homes within 1.5 miles of proposed wind turbines in A031 above 40.0 dBA for A057. Location projections are in UTM NAD83 zone 13.

Receptor - Property Status	Easting	Northing	N149/V110 106.9/80m HH Sound (dBA)	Distance to 50 dBA from Receptor (m/ft)
27 - Non-Participating	646,754	5,372,213	40.4	778/2552
2 - Non-Participating	647,930	5,371,801	40.7	889/2917
10 - Non-Participating	643,279	5,372,615	40.8	527/1729
47 - Participating	634,615	5,381,825	40.9	680/2231
6 - Non-Participating	637,411	5,365,868	41.1	538/1765
53 - Participating	642,413	5,373,644	41.3	534/1752
51 - Participating	637,621	5,371,070	41.5	657/2156
11 - Non-Participating	643,282	5,373,088	41.7	450/1476
55 - Participating	635,760	5,381,775	42.3	684/2244
9 - Non-Participating	640,413	5,369,191	42.4	383/1257
61 - Participating	633,645	5,373,895	42.8	403/1322
52 - Participating	640,276	5,365,862	43.0	339/1112
5 - Non-Participating	636,328	5,376,974	43.1	621/2037
63 - Participating	641,300	5,368,154	43.2	547/1795
50 - Participating	636,416	5,382,006	43.4	424/1391
64 - Participating	639,268	5,377,996	43.8	300/984
66 - Participating	638,244	5,370,747	43.9	305/1001
57 - Participating	633,480	5,378,691	44.0	423/1388
49 - Participating	636,455	5,380,259	44.2	324/1063
8 - Non-Participating	638,435	5,378,666	44.3	368/1207
67 - Participating	637,448	5,370,698	44.7	261/856
45 - Participating	633,554	5,377,057	45.0	350/1148
48 - Participating	634,891	5,378,584	45.5	316/1037

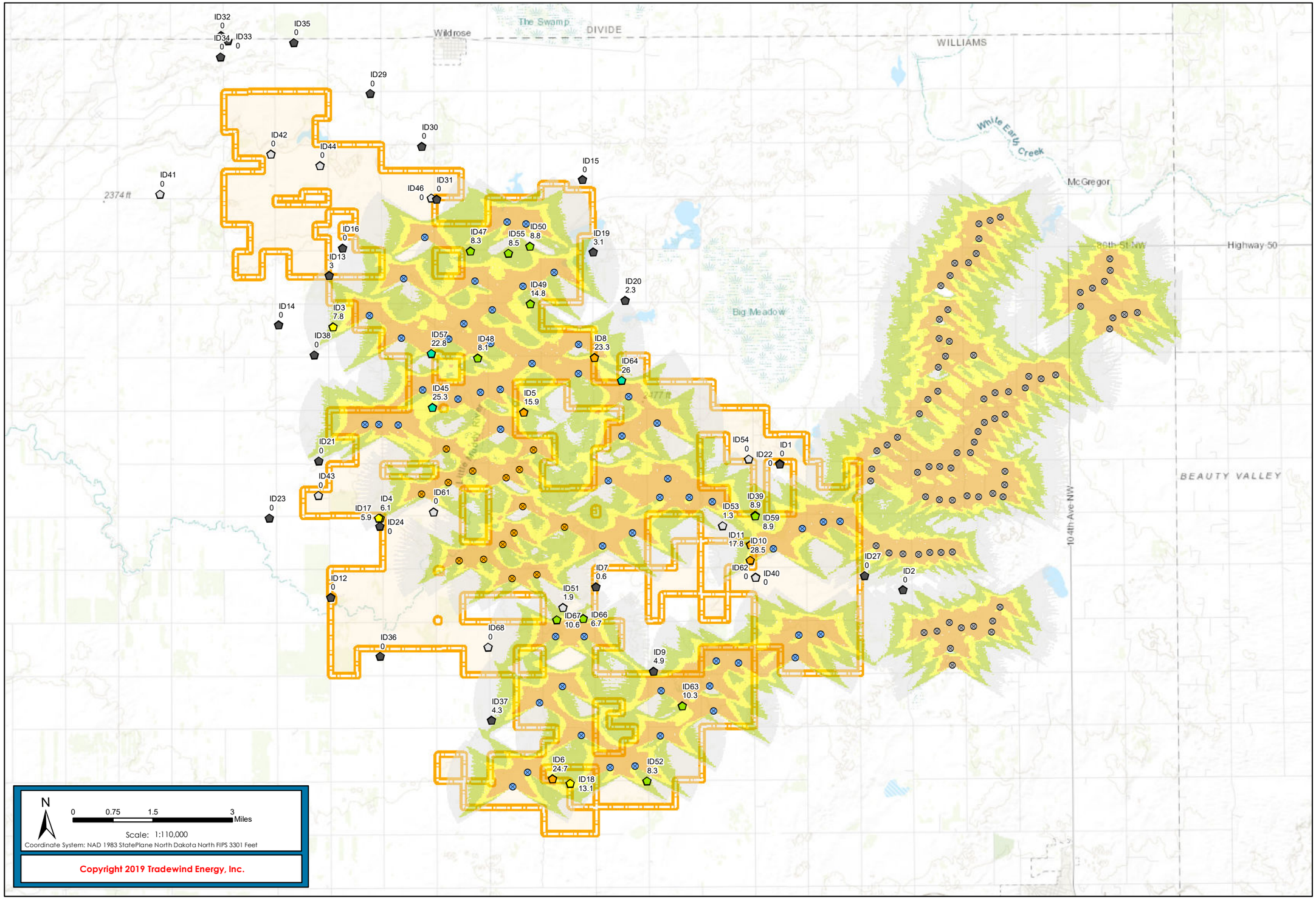
All receptors were modeled at sound levels below the 50 dBA limit within 100 ft, even with the 2 dBA uncertainty factor added to the wind turbine emission.

A detailed map and the windPRO sound report are included for reference.

Shadow Flicker Map

Aurora Wind Project - Anticipated Realistic Shadow Flicker (Hours/Year)
N149 4.8 106.9m HH/V110 2.0 80m HH

tradewind energy



N

0 0.75 1.5 3 Miles

Scale: 1:110,000

Coordinate System: NAD 1983 StatePlane North Dakota North FIPS 3301 Feet

Legend

- Aurora Wind Project
- Lindahl Wind Project Turbine

Aurora Wind Project Turbine (A057)

- N149-4.8 106.9m HH
- V110-2.0 80m HH

Shadow Receptors (Non-Participating)

- 0.00 - 5.00
- 5.01 - 15.00
- 15.01 - 30.00
- 30.01+

Shadow Receptors (Participating)

- 0.00 - 5.00
- 5.01 - 15.00
- 15.01 - 30.00
- 30.01+

Realistic Shadow Flicker

- 0.01 - 5.00
- 5.01 - 15.00
- 15.01 - 30.00
- 30.01+

Label Key

IDXX - Receptor ID
XX.XX - Result (Hours/Year)

The following companies and organizations provided data that contributed to the production of this map.

U.S. Geological Survey (USGS)
Environmental Systems Research Institute (ESRI)
U.S. Department of Agriculture (USDA)
U.S. Federal Aviation Administration (FAA)
WhiteStar Corporation
CoreLogic
Ventyx Inc.

windPRO Shadow Flicker Report

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+1 913 424 5308
Kevin Walter / kwalter@tradewindenergy.com
Calculated:
11/21/2019 11:04 AM/3.0.654

SHADOW - Main Result

Calculation: A057 N149/V110 Shadow

Assumptions for shadow calculations

Maximum distance for influence	2,000	m
Minimum sun height over horizon for influence	3	°
Day step for calculation	1	days
Time step for calculation	1	minutes

Sunshine probability S (Average daily sunshine hours) [BISMARCK]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4.92	5.13	7.45	8.03	10.20	11.21	11.69	10.35	8.68	5.69	4.02	3.69

Operational hours are calculated from WTGs in calculation and wind distribution:
0162 3/18 SDO

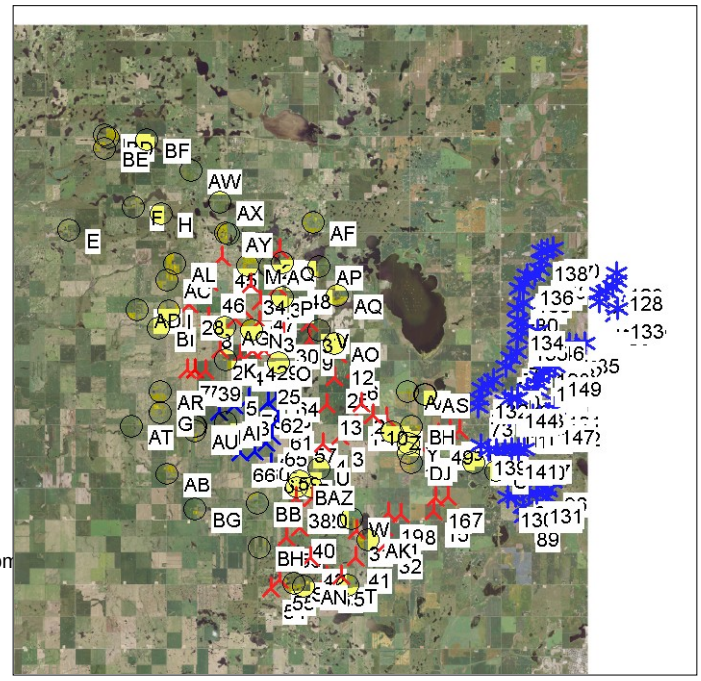
Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
721	457	307	340	523	950	723	581	733	1,008	1,128	1,175	8,646

Idle start wind speed: Cut in wind speed from power curve

A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:
Height contours used: Height Contours: 150921_TWE_LindahlWest_10ftHCLsfrom
Obstacles used in calculation
Eye height: 1.5 m
Grid resolution: 10.0 m

All coordinates are in
UTM WGS84 Zone: 13



Scale 1:400,000

New WTG
Existing WTG
Shadow receptor

WTGs

	X(East)	Y(North)	Z [m]	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	RPM [RPM]
1	642,085	5,374,363	728.5	T-41	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
2	640,729	5,375,038	740.7	T-62	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
3	639,692	5,373,363	740.7	T-39	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
4	638,790	5,372,951	734.6	T-37	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
5	633,988	5,375,810	737.6	T-70	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	14.9
6	640,372	5,376,713	738.1	T-77	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
7	631,510	5,376,507	731.5	T-66	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
8	632,563	5,379,145	737.6	T-93	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
9	637,951	5,378,169	715.2	T-80	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
10	641,389	5,374,486	743.7	T-58	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
11	643,972	5,372,967	712.3	T-28	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
12	639,495	5,377,499	738.7	T-78	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
13	638,928	5,374,941	737.6	T-59	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
14	640,492	5,374,466	743.6	T-40	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
15	644,695	5,369,685	736.0	T-15	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
16	644,792	5,370,371	743.7	T-16	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
17	645,456	5,370,405	735.1	T-17	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
18	642,975	5,369,494	737.6	T-12	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
19	642,303	5,369,536	734.9	T-13	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
20	638,282	5,370,192	712.5	T-25	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
21	642,122	5,368,780	734.6	T-10	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
22	634,001	5,379,136	737.6	T-95	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
23	634,443	5,379,605	731.5	T-96	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
24	635,699	5,382,724	710.2	T-122	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
25	635,628	5,376,434	728.5	T-72	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
26	639,307	5,376,310	731.5	T-75	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
27	633,243	5,377,581	731.5	T-81	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7

To be continued on next page...

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Kevin Walter / kwalter@tradewindenergy.com

SHADOW - Main Result

Calculation: A057 N149/V110 Shadow

...continued from previous page

	X(East)	Y(North)	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	RPM
			[m]					[kW]	[m]	[m]	[RPM]
28	631,582	5,379,814	726.8	T-98	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
29	635,586	5,377,640	725.5	T-85	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
30	636,542	5,378,452	715.1	T-87	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
31	640,641	5,368,602	728.5	T-23	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
32	642,243	5,368,015	730.6	T-9	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
33	635,270	5,379,029	725.4	T-90	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
34	634,758	5,380,905	718.9	T-107	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
35	636,220	5,380,785	716.3	T-110	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
36	636,276	5,382,673	710.2	T-124	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
37	637,941	5,379,046	713.2	T-89	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
38	637,408	5,370,185	701.0	T-24	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
39	632,509	5,376,501	722.8	T-68	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
40	637,648	5,368,666	713.2	T-20	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
41	640,643	5,367,238	719.3	T-19	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
42	638,242	5,367,207	710.2	T-18	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
43	634,318	5,377,326	731.6	T-83	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
44	634,979	5,377,549	725.3	T-84	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
45	633,206	5,382,201	722.4	T-120	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
46	632,585	5,380,949	731.5	T-105	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
47	635,298	5,380,049	728.5	T-97	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
48	637,149	5,381,224	704.1	T-152	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
49	644,833	5,373,605	713.9	T-153	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
50	645,462	5,373,811	728.5	T-154	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
51	645,966	5,373,838	730.1	T-155	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
52	639,890	5,366,309	710.2	T-160	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
53	639,135	5,366,239	709.0	T-161	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
54	636,191	5,365,609	711.4	T-163	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
55	636,640	5,366,042	710.2	T-164	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
56	636,954	5,368,164	711.3	T-165	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
57	637,619	5,373,512	727.5	T-43	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	14.9
58	635,764	5,372,945	724.6	T-45	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	14.9
59	636,817	5,372,047	728.5	T-35	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	14.9
60	635,193	5,372,473	710.2	T-47	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	14.9
61	636,346	5,374,109	734.6	T-56	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	14.9
62	635,830	5,374,972	728.5	T-55	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	14.9
63	634,074	5,374,798	721.2	T-53	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	14.9
64	636,640	5,375,835	734.6	T-73	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	14.9
65	636,095	5,373,292	733.9	T-46	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	14.9
66	634,438	5,372,432	701.0	T-57	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	14.9
67	636,056	5,371,908	719.3	T-34	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	14.9
68	636,215	5,375,218	731.5	T-74	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	14.9
69	633,261	5,374,418	716.3	T-51	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	14.9
70	634,798	5,375,163	713.2	T-54	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	14.9
71	631,934	5,376,511	729.8	T-67	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	10.7
72	646,913	5,375,455	745.7	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
73	646,888	5,375,080	743.7	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
74	648,328	5,377,151	749.8	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
75	648,570	5,377,592	749.8	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
76	648,872	5,377,853	752.9	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
77	648,872	5,378,572	753.8	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
78	649,189	5,379,368	749.8	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
79	648,868	5,380,034	743.7	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
80	649,124	5,380,328	729.4	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
81	651,007	5,377,868	748.7	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
82	651,525	5,378,000	750.5	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
83	651,616	5,378,348	758.5	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
84	651,987	5,378,290	755.6	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
85	652,436	5,378,405	749.8	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9

To be continued on next page...

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SHADOW - Main Result

Calculation: A057 N149/V110 Shadow

...continued from previous page

	X(East)	Y(North)	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	RPM
			[m]					[kW]	[m]	[m]	[RPM]
86	654,047	5,379,834	743.7	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
87	654,478	5,380,290	740.6	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
88	654,876	5,380,346	731.4	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
89	649,468	5,369,552	735.9	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
90	649,403	5,370,046	745.1	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
91	648,989	5,370,563	740.7	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
92	649,348	5,370,846	749.8	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
93	649,714	5,370,690	746.8	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
94	650,635	5,370,574	746.1	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
95	650,667	5,370,918	744.2	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
96	650,882	5,371,340	743.7	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
97	649,309	5,375,532	733.1	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
98	649,484	5,375,990	732.8	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
99	649,889	5,375,994	741.6	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
100	650,008	5,376,322	740.0	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
101	650,956	5,375,465	750.7	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
102	648,982	5,374,557	737.6	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
103	648,553	5,374,643	733.0	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
104	648,903	5,381,054	722.4	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
105	649,170	5,381,363	721.8	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
106	649,950	5,382,038	713.3	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
107	650,030	5,382,496	712.9	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
108	650,267	5,377,632	746.8	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
109	650,119	5,376,640	740.5	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
110	650,663	5,383,159	707.1	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
111	650,947	5,375,049	753.6	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
112	650,911	5,374,694	758.6	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
113	650,163	5,374,664	746.8	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
114	649,378	5,374,555	741.2	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
115	649,818	5,374,694	743.7	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
116	650,613	5,377,049	737.7	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
117	649,406	5,372,982	725.6	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
118	647,909	5,372,903	716.3	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
119	647,487	5,372,910	715.5	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
120	647,672	5,376,428	744.3	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
121	647,365	5,376,192	740.8	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
122	649,728	5,381,758	721.2	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
123	650,599	5,377,842	746.4	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
124	653,143	5,380,511	713.2	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
125	653,130	5,380,927	710.2	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
126	653,497	5,381,062	704.6	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
127	653,850	5,381,276	700.8	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
128	654,022	5,381,604	696.2	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
129	654,011	5,381,966	694.9	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
130	648,594	5,370,523	731.5	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
131	650,092	5,370,737	743.7	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
132	647,056	5,376,002	741.1	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
133	654,134	5,380,179	733.9	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
134	648,870	5,379,452	759.0	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
135	649,079	5,378,913	759.0	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
136	649,308	5,381,738	716.7	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
137	650,346	5,383,045	709.6	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
138	650,021	5,382,956	710.0	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
139	647,090	5,373,129	713.2	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
140	649,061	5,372,960	722.4	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
141	648,724	5,372,961	720.7	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
142	648,383	5,372,886	719.3	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
143	648,975	5,375,560	735.2	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9

To be continued on next page...

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SHADOW - Main Result

Calculation: A057 N149/V110 Shadow

...continued from previous page

	X(East)	Y(North)	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	RPM
			[m]					[kW]	[m]	[m]	[RPM]
144	648,641	5,375,554	726.1	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
145	648,297	5,375,376	728.5	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
146	649,928	5,378,956	741.8	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
147	650,591	5,374,779	748.5	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
148	650,301	5,376,922	735.1	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9
149	650,917	5,377,197	740.0	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	14.9

Shadow receptor-Input

No.	Name	X(East)	Y(North)	Z	Width	Height	Height a.g.l.	Degrees from south cw	Slope of window	Direction mode
				[m]	[m]	[m]	[m]	[°]	[°]	
A	1 - Non-Participating	644,116	5,375,554	701.3	1.0	11.0	1.0	0.0	90.0	"Green house mode"
B	39 - Participating	643,400	5,373,971	711.5	1.0	11.0	1.0	0.0	90.0	"Green house mode"
C	2 - Non-Participating	647,930	5,371,801	718.0	1.0	11.0	1.0	0.0	90.0	"Green house mode"
D	40 - Participating	643,453	5,372,099	716.3	1.0	11.0	1.0	0.0	90.0	"Green house mode"
E	41 - Participating	625,162	5,383,364	711.9	1.0	11.0	1.0	0.0	90.0	"Green house mode"
F	42 - Participating	628,500	5,384,644	704.1	1.0	11.0	1.0	0.0	90.0	"Green house mode"
G	43 - Participating	630,148	5,374,326	691.9	1.0	11.0	1.0	0.0	90.0	"Green house mode"
H	44 - Participating	629,997	5,384,325	711.4	1.0	11.0	1.0	0.0	90.0	"Green house mode"
I	3 - Non-Participating	630,488	5,379,437	722.7	1.0	11.0	1.0	0.0	90.0	"Green house mode"
J	4 - Non-Participating	632,031	5,373,676	696.3	1.0	11.0	1.0	0.0	90.0	"Green house mode"
K	45 - Participating	633,554	5,377,057	735.4	1.0	11.0	1.0	0.0	90.0	"Green house mode"
L	46 - Participating	633,395	5,383,413	715.7	1.0	11.0	1.0	0.0	90.0	"Green house mode"
M	47 - Participating	634,615	5,381,825	716.9	1.0	11.0	1.0	0.0	90.0	"Green house mode"
N	48 - Participating	634,891	5,378,584	728.5	1.0	11.0	1.0	0.0	90.0	"Green house mode"
O	5 - Non-Participating	636,328	5,376,974	731.5	1.0	11.0	1.0	0.0	90.0	"Green house mode"
P	49 - Participating	636,455	5,380,259	709.9	1.0	11.0	1.0	0.0	90.0	"Green house mode"
Q	50 - Participating	636,416	5,382,006	707.4	1.0	11.0	1.0	0.0	90.0	"Green house mode"
R	51 - Participating	637,621	5,371,070	716.6	1.0	11.0	1.0	0.0	90.0	"Green house mode"
S	6 - Non-Participating	637,411	5,365,868	713.2	1.0	11.0	1.0	0.0	90.0	"Green house mode"
T	52 - Participating	640,276	5,365,862	710.2	1.0	11.0	1.0	0.0	90.0	"Green house mode"
U	7 - Non-Participating	638,615	5,371,717	720.3	1.0	11.0	1.0	0.0	90.0	"Green house mode"
V	8 - Non-Participating	638,435	5,378,666	709.4	1.0	11.0	1.0	0.0	90.0	"Green house mode"
W	9 - Non-Participating	640,413	5,369,191	728.5	1.0	11.0	1.0	0.0	90.0	"Green house mode"
X	10 - Non-Participating	643,279	5,372,615	722.4	1.0	11.0	1.0	0.0	90.0	"Green house mode"
Y	11 - Non-Participating	643,282	5,373,088	726.9	1.0	11.0	1.0	0.0	90.0	"Green house mode"
Z	53 - Participating	642,413	5,373,644	734.1	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AA	54 - Participating	643,167	5,375,685	714.9	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AB	12 - Non-Participating	630,584	5,371,240	682.8	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AC	13 - Non-Participating	630,347	5,380,996	717.6	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AD	14 - Non-Participating	628,838	5,379,465	705.2	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AE	55 - Participating	635,760	5,381,775	711.0	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AF	15 - Non-Participating	637,972	5,384,054	715.8	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AG	57 - Participating	633,480	5,378,691	739.8	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AH	59 - Participating	643,400	5,373,968	711.4	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AI	61 - Participating	633,645	5,373,895	713.7	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AJ	62 - Participating	643,453	5,372,097	716.3	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AK	63 - Participating	641,300	5,368,154	725.4	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AL	16 - Non-Participating	630,734	5,381,835	710.2	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AM	17 - Non-Participating	631,989	5,373,670	695.8	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AN	18 - Non-Participating	637,954	5,365,740	710.2	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AO	64 - Participating	639,268	5,377,996	720.6	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AP	19 - Non-Participating	638,331	5,381,857	701.5	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AQ	20 - Non-Participating	639,333	5,380,415	707.1	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AR	21 - Non-Participating	630,142	5,375,377	701.9	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AS	22 - Non-Participating	644,117	5,375,554	701.3	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AT	23 - Non-Participating	628,666	5,373,611	682.8	1.0	11.0	1.0	0.0	90.0	"Green house mode"

To be continued on next page...

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SHADOW - Main Result

Calculation: A057 N149/V110 Shadow

...continued from previous page

No.	Name	X(East)	Y(North)	Z	Width	Height	Height a.g.l.	Degrees from south cw	Slope of window	Direction mode
				[m]	[m]	[m]	[m]	[°]	[°]	
AU	24 - Non-Participating	632,030	5,373,428	696.5	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AV	27 - Non-Participating	646,754	5,372,213	713.2	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AW	29 - Non-Participating	631,486	5,386,533	696.9	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AX	30 - Non-Participating	633,067	5,384,963	707.0	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AY	31 - Non-Participating	633,553	5,383,375	714.8	1.0	11.0	1.0	0.0	90.0	"Green house mode"
AZ	66 - Participating	638,244	5,370,747	710.8	1.0	11.0	1.0	0.0	90.0	"Green house mode"
BA	67 - Participating	637,448	5,370,698	712.2	1.0	11.0	1.0	0.0	90.0	"Green house mode"
BB	68 - Participating	635,378	5,369,828	692.6	1.0	11.0	1.0	0.0	90.0	"Green house mode"
BC	32 - Non-Participating	626,925	5,388,203	701.4	1.0	11.0	1.0	0.0	90.0	"Green house mode"
BD	33 - Non-Participating	627,137	5,388,066	701.0	1.0	11.0	1.0	0.0	90.0	"Green house mode"
BE	34 - Non-Participating	626,921	5,387,556	704.1	1.0	11.0	1.0	0.0	90.0	"Green house mode"
BF	35 - Non-Participating	629,137	5,388,039	693.3	1.0	11.0	1.0	0.0	90.0	"Green house mode"
BG	36 - Non-Participating	632,118	5,369,480	691.6	1.0	11.0	1.0	0.0	90.0	"Green house mode"
BH	37 - Non-Participating	635,531	5,367,600	699.2	1.0	11.0	1.0	0.0	90.0	"Green house mode"
BI	38 - Non-Participating	629,941	5,378,583	713.2	1.0	11.0	1.0	0.0	90.0	"Green house mode"

Calculation Results

Shadow receptor

		Shadow, worst case			Shadow, expected values
No.	Name	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]
A	1 - Non-Participating	0:00	0	0:00	0:00
B	39 - Participating	20:20	74	0:27	8:51
C	2 - Non-Participating	4:06	28	0:14	1:25
D	40 - Participating	0:00	0	0:00	0:00
E	41 - Participating	0:00	0	0:00	0:00
F	42 - Participating	0:00	0	0:00	0:00
G	43 - Participating	0:00	0	0:00	0:00
H	44 - Participating	0:00	0	0:00	0:00
I	3 - Non-Participating	18:53	52	0:32	7:47
J	4 - Non-Participating	14:40	62	0:19	6:04
K	45 - Participating	65:04	153	0:46	25:17
L	46 - Participating	0:00	0	0:00	0:00
M	47 - Participating	19:50	99	0:24	8:20
N	48 - Participating	18:34	90	0:20	8:04
O	5 - Non-Participating	49:12	132	0:42	15:53
P	49 - Participating	42:01	127	0:31	14:48
Q	50 - Participating	27:36	78	0:33	8:45
R	51 - Participating	3:42	35	0:10	1:51
S	6 - Non-Participating	56:08	119	0:47	24:42
T	52 - Participating	17:28	53	0:30	8:19
U	7 - Non-Participating	1:22	14	0:09	0:36
V	8 - Non-Participating	87:55	124	0:57	23:15
W	9 - Non-Participating	14:03	67	0:22	4:53
X	10 - Non-Participating	68:01	96	0:58	28:29
Y	11 - Non-Participating	42:21	94	0:51	17:50
Z	53 - Participating	3:39	23	0:15	1:17
AA	54 - Participating	0:00	0	0:00	0:00
AB	12 - Non-Participating	0:00	0	0:00	0:00
AC	13 - Non-Participating	9:27	36	0:19	2:59
AD	14 - Non-Participating	0:00	0	0:00	0:00
AE	55 - Participating	29:21	109	0:29	8:28
AF	15 - Non-Participating	0:00	0	0:00	0:00
AG	57 - Participating	48:13	145	0:38	22:47
AH	59 - Participating	20:26	73	0:27	8:55
AI	61 - Participating	0:00	0	0:00	0:00
AJ	62 - Participating	0:00	0	0:00	0:00

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11/21/2019 11:04 AM/3.0.654

SHADOW - Main Result

Calculation: A057 N149/V110 Shadow

...continued from previous page

No.	Name	Shadow, worst case Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow, expected values Shadow hours per year [h/year]
AK	63 - Participating	23:35	69	0:38	10:15
AL	16 - Non-Participating	0:00	0	0:00	0:00
AM	17 - Non-Participating	14:15	65	0:19	5:55
AN	18 - Non-Participating	30:28	102	0:28	13:06
AO	64 - Participating	77:53	110	1:06	26:01
AP	19 - Non-Participating	10:31	38	0:27	3:06
AQ	20 - Non-Participating	9:25	40	0:17	2:20
AR	21 - Non-Participating	0:00	0	0:00	0:00
AS	22 - Non-Participating	0:00	0	0:00	0:00
AT	23 - Non-Participating	0:00	0	0:00	0:00
AU	24 - Non-Participating	0:00	0	0:00	0:00
AV	27 - Non-Participating	14:21	81	0:17	5:58
AW	29 - Non-Participating	0:00	0	0:00	0:00
AX	30 - Non-Participating	0:00	0	0:00	0:00
AY	31 - Non-Participating	0:00	0	0:00	0:00
AZ	66 - Participating	23:55	69	0:37	6:41
BA	67 - Participating	32:17	83	0:38	10:36
BB	68 - Participating	0:00	0	0:00	0:00
BC	32 - Non-Participating	0:00	0	0:00	0:00
BD	33 - Non-Participating	0:00	0	0:00	0:00
BE	34 - Non-Participating	0:00	0	0:00	0:00
BF	35 - Non-Participating	0:00	0	0:00	0:00
BG	36 - Non-Participating	0:00	0	0:00	0:00
BH	37 - Non-Participating	10:19	40	0:24	4:18
BI	38 - Non-Participating	0:00	0	0:00	0:00

Total amount of flickering on the shadow receptors caused by each WTG

No.	Name	Worst case [h/year]	Expected [h/year]
1	T-41	13:45	6:25
2	T-62	0:00	0:00
3	T-39	0:00	0:00
4	T-37	0:00	0:00
5	T-70	0:00	0:00
6	T-77	0:00	0:00
7	T-66	0:00	0:00
8	T-93	39:10	19:28
9	T-80	91:03	25:16
10	T-58	0:00	0:00
11	T-28	103:11	43:09
12	T-78	71:38	22:44
13	T-59	0:00	0:00
14	T-40	0:00	0:00
15	T-15	0:00	0:00
16	T-16	0:00	0:00
17	T-17	0:00	0:00
18	T-12	0:00	0:00
19	T-13	3:29	1:24
20	T-25	27:43	9:26
21	T-10	4:23	1:40
22	T-95	10:48	5:23
23	T-96	0:00	0:00
24	T-122	0:00	0:00
25	T-72	37:05	10:12
26	T-75	0:00	0:00
27	T-81	3:54	1:04
28	T-98	28:20	10:47

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SHADOW - Main Result

Calculation: A057 N149/V110 Shadow

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
29	T-85	0:00	0:00
30	T-87	6:59	3:00
31	T-23	8:51	3:06
32	T-9	20:55	8:56
33	T-90	14:50	4:29
34	T-107	33:10	10:18
35	T-110	4:47	1:40
36	T-124	5:44	2:24
37	T-89	19:39	5:27
38	T-24	28:29	7:53
39	T-68	12:37	3:44
40	T-20	0:00	0:00
41	T-19	0:00	0:00
42	T-18	0:00	0:00
43	T-83	48:27	20:15
44	T-84	25:35	11:04
45	T-120	9:19	4:13
46	T-105	0:00	0:00
47	T-97	13:48	5:31
48	T-152	40:30	13:02
49	T-153	22:28	9:01
50	T-154	0:00	0:00
51	T-155	0:00	0:00
52	T-160	0:00	0:00
53	T-161	37:51	16:56
54	T-163	13:53	5:26
55	T-164	41:53	19:08
56	T-165	10:19	4:18
57	T-43	0:00	0:00
58	T-45	0:00	0:00
59	T-35	1:22	0:36
60	T-47	0:00	0:00
61	T-56	0:00	0:00
62	T-55	0:00	0:00
63	T-53	0:00	0:00
64	T-73	0:00	0:00
65	T-46	0:00	0:00
66	T-57	0:00	0:00
67	T-34	3:42	1:51
68	T-74	0:00	0:00
69	T-51	16:04	6:40
70	T-54	0:00	0:00
71	T-67	4:00	1:18
72	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (1)	0:00	0:00
73	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (2)	0:00	0:00
74	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (3)	0:00	0:00
75	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (4)	0:00	0:00
76	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (5)	0:00	0:00
77	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (6)	0:00	0:00
78	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (7)	0:00	0:00
79	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (8)	0:00	0:00
80	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (9)	0:00	0:00
81	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (10)	0:00	0:00
82	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (11)	0:00	0:00
83	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (12)	0:00	0:00
84	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (13)	0:00	0:00
85	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (14)	0:00	0:00
86	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (15)	0:00	0:00
87	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (16)	0:00	0:00
88	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (17)	0:00	0:00

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SHADOW - Main Result

Calculation: A057 N149/V110 Shadow

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
89	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (18)	0:00	0:00
90	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (19)	0:00	0:00
91	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (20)	0:00	0:00
92	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (21)	4:06	1:25
93	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (22)	0:00	0:00
94	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (23)	0:00	0:00
95	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (24)	0:00	0:00
96	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (25)	0:00	0:00
97	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (26)	0:00	0:00
98	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (27)	0:00	0:00
99	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (28)	0:00	0:00
100	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (29)	0:00	0:00
101	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (30)	0:00	0:00
102	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (31)	0:00	0:00
103	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (32)	0:00	0:00
104	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (33)	0:00	0:00
105	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (34)	0:00	0:00
106	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (35)	0:00	0:00
107	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (36)	0:00	0:00
108	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (37)	0:00	0:00
109	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (38)	0:00	0:00
110	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (39)	0:00	0:00
111	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (40)	0:00	0:00
112	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (41)	0:00	0:00
113	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (42)	0:00	0:00
114	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (43)	0:00	0:00
115	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (44)	0:00	0:00
116	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (45)	0:00	0:00
117	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (46)	0:00	0:00
118	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (47)	12:37	5:14
119	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (48)	0:00	0:00
120	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (49)	0:00	0:00
121	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (50)	0:00	0:00
122	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (51)	0:00	0:00
123	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (52)	0:00	0:00
124	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (53)	0:00	0:00
125	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (54)	0:00	0:00
126	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (55)	0:00	0:00
127	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (56)	0:00	0:00
128	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (57)	0:00	0:00
129	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (58)	0:00	0:00
130	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (59)	0:00	0:00
131	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (60)	0:00	0:00
132	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (61)	0:00	0:00
133	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (62)	0:00	0:00
134	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (63)	0:00	0:00
135	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (64)	0:00	0:00
136	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (65)	0:00	0:00
137	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (66)	0:00	0:00
138	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (67)	0:00	0:00
139	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (68)	0:00	0:00
140	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (69)	0:00	0:00
141	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (70)	0:00	0:00
142	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (71)	1:44	0:43
143	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (72)	0:00	0:00
144	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (73)	0:00	0:00
145	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (74)	0:00	0:00
146	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (75)	0:00	0:00
147	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (76)	0:00	0:00
148	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (77)	0:00	0:00
149	VESTAS V100 2000 100.0 !O! hub: 80.0 m (TOT: 130.0 m) (78)	0:00	0:00

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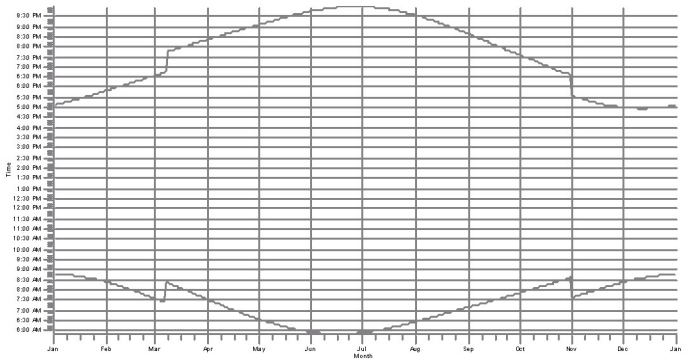
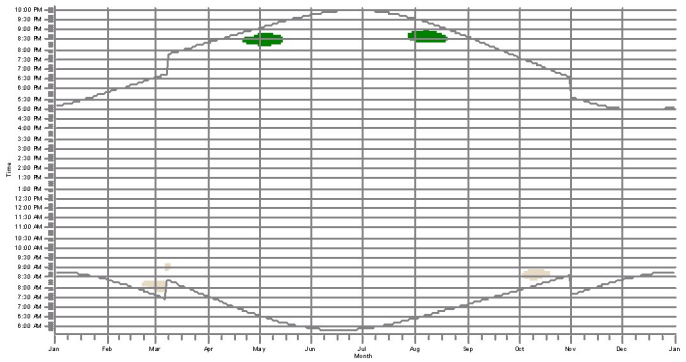
SHADOW - Calendar, graphical

Calculation: A057 N149/V110 Shadow

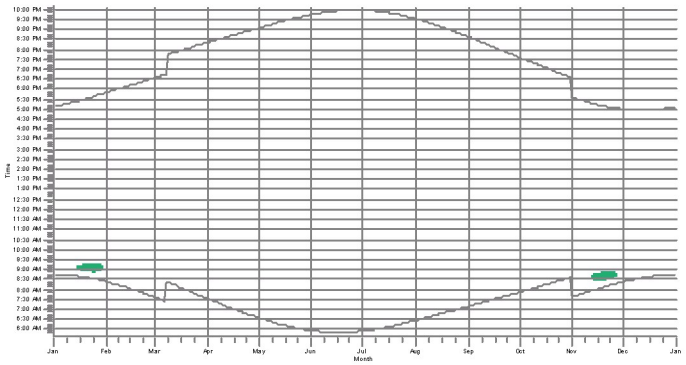
A: 1 - Non-Participating



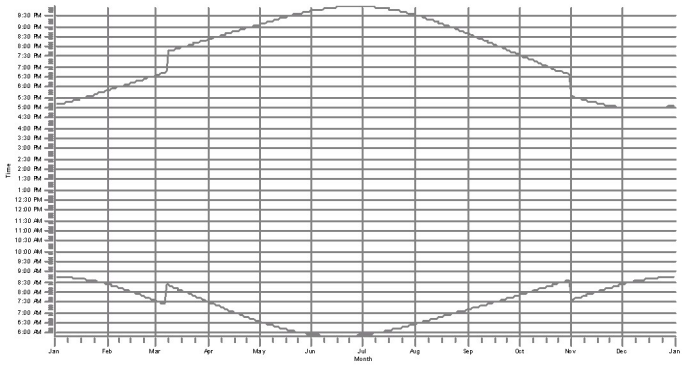
B: 39 - Participating



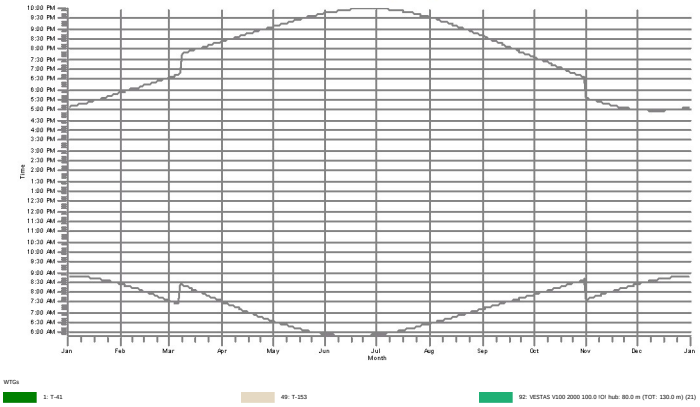
C: 2 - Non-Participating



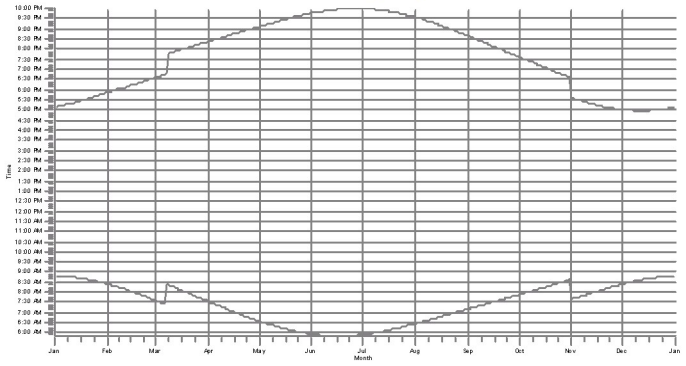
D: 40 - Participating



E: 41 - Participating



F: 42 - Participating



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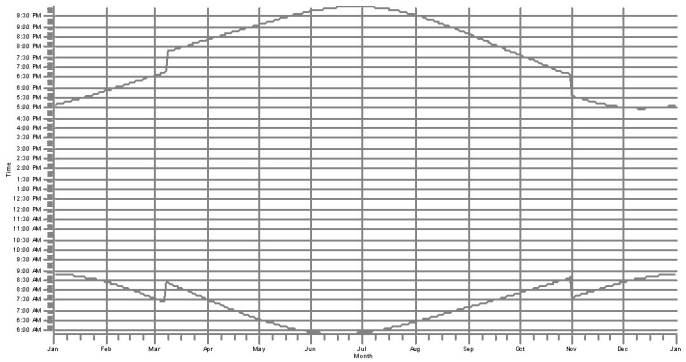
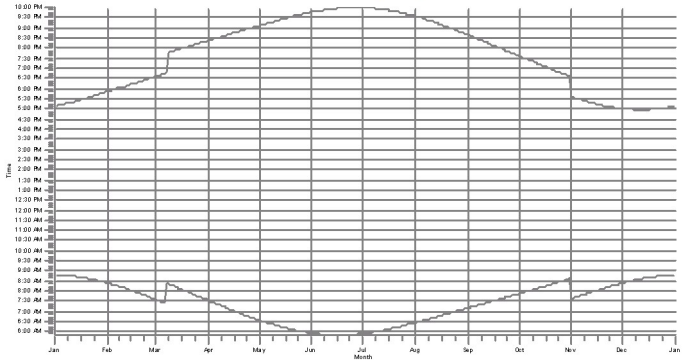
Calculation: A057 N149/V110 Shadow

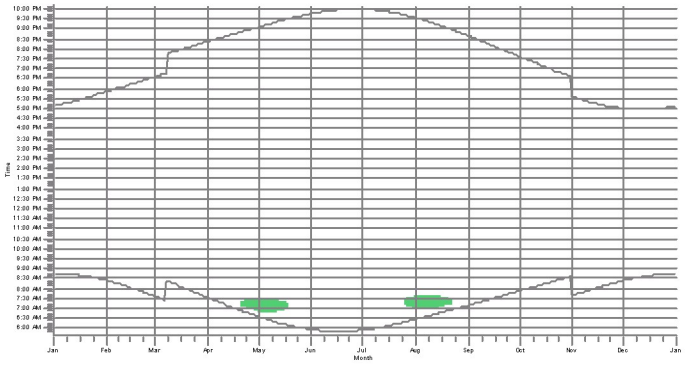
G: 43 - Participating



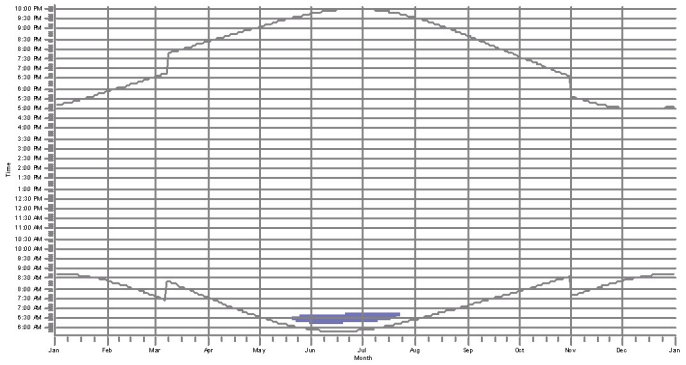
H: 44 - Participating



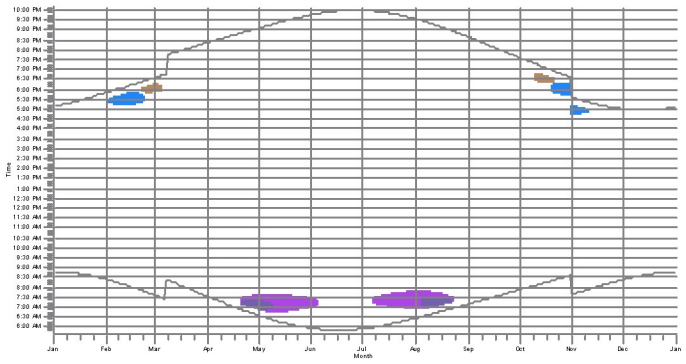
I: 3 - Non-Participating



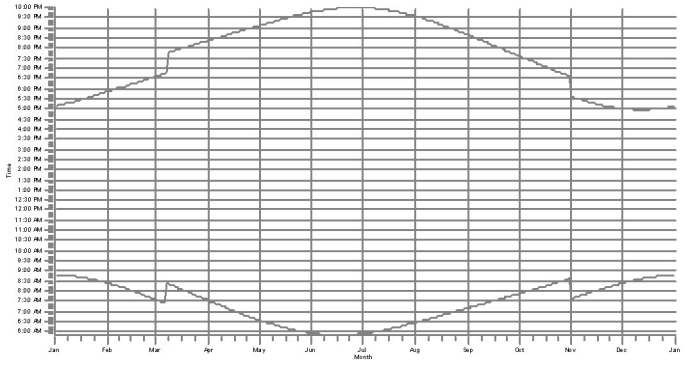
J: 4 - Non-Participating



K: 45 - Participating



L: 46 - Participating



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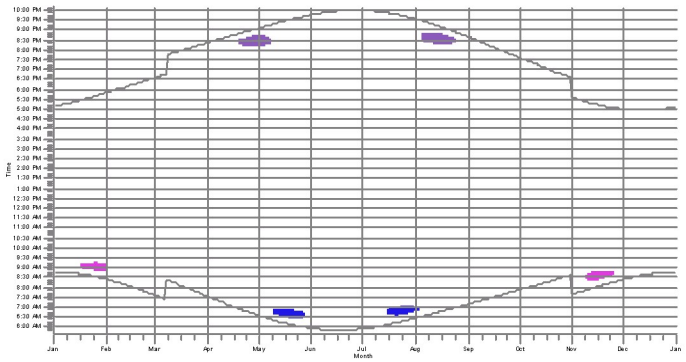
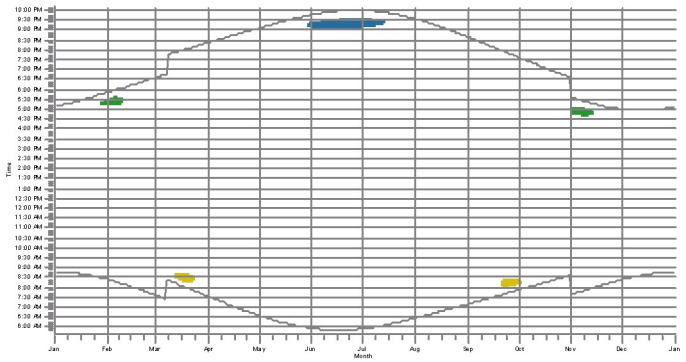
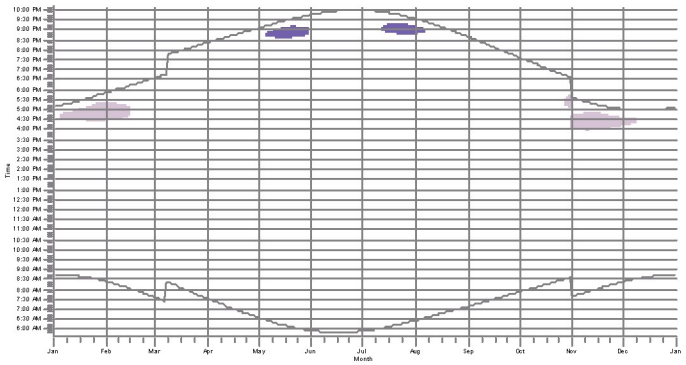
M: 47 - Participating



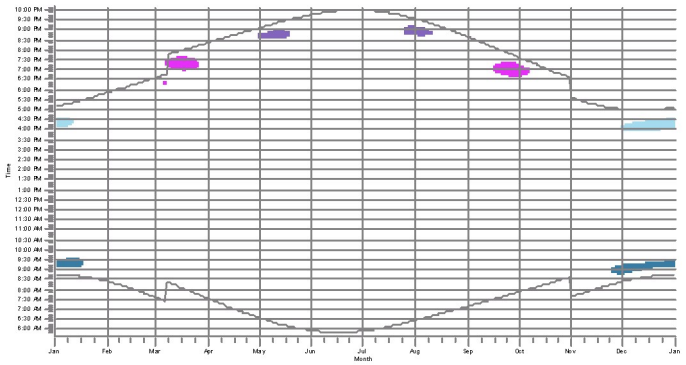
N: 48 - Participating



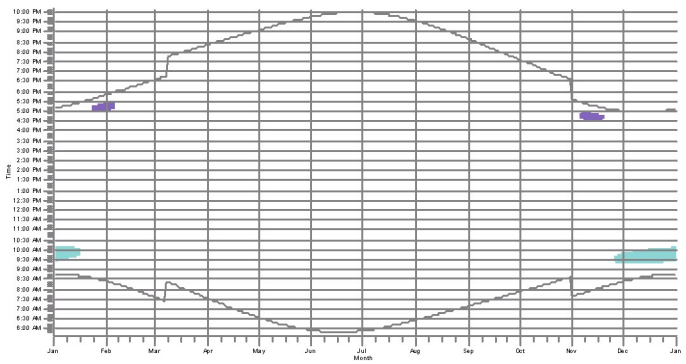
O: 5 - Non-Participating



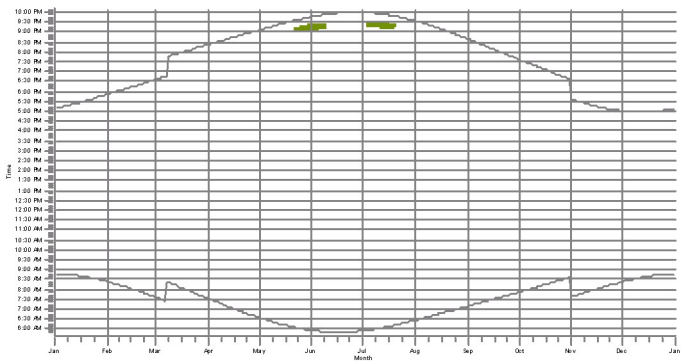
P: 49 - Participating

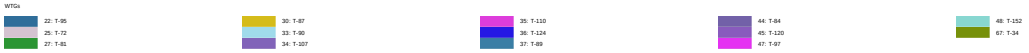


Q: 50 - Participating



R: 51 - Participating





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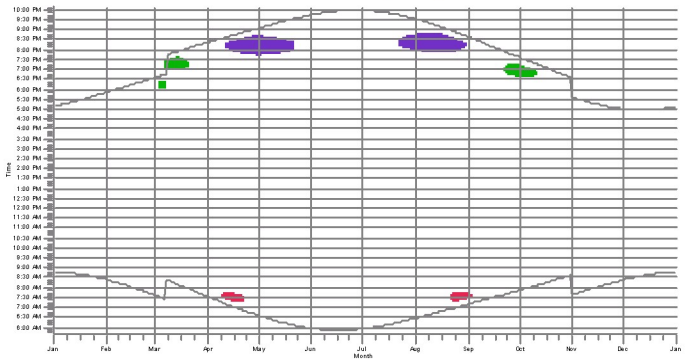
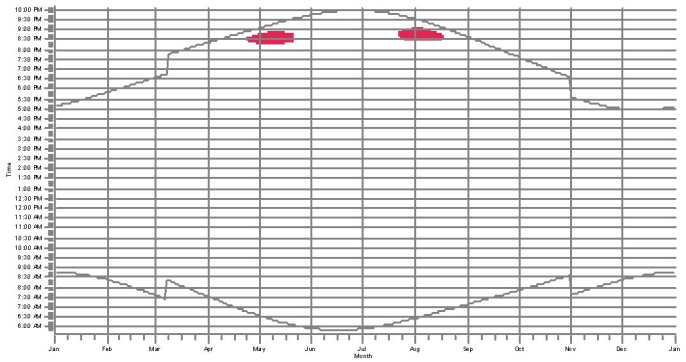
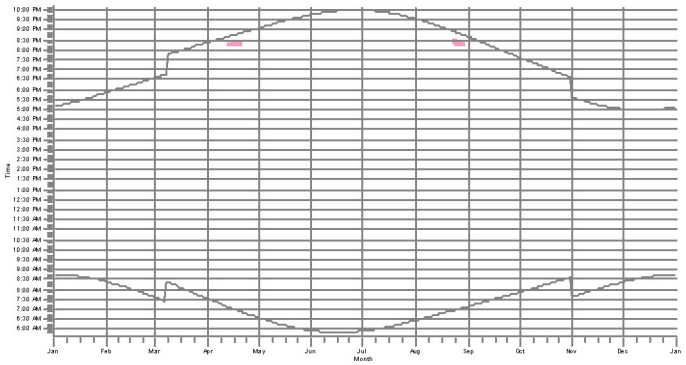
S: 6 - Non-Participating



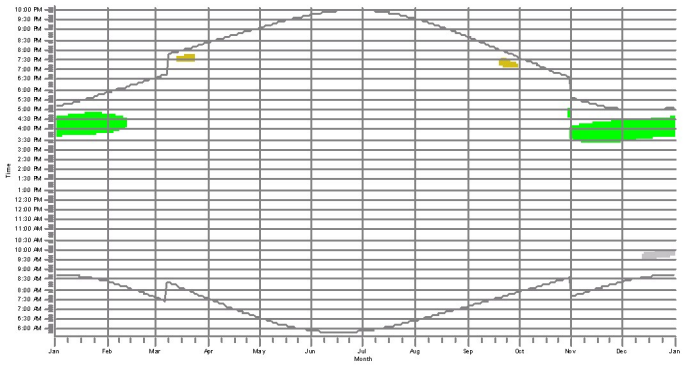
T: 52 - Participating



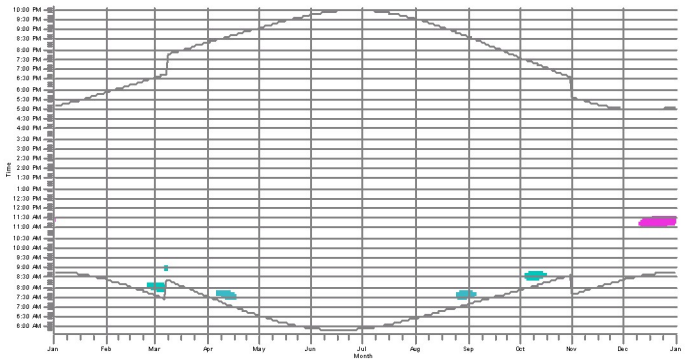
U: 7 - Non-Participating



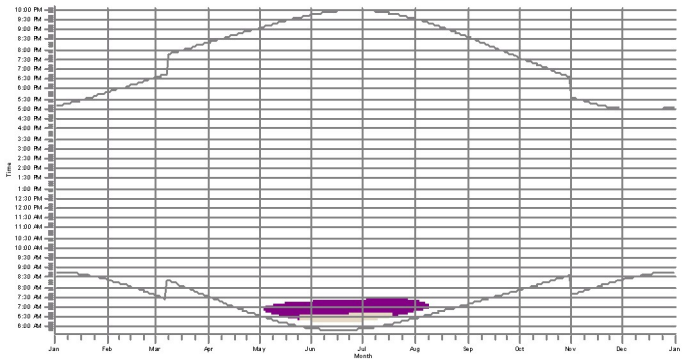
V: 8 - Non-Participating



W: 9 - Non-Participating



X: 10 - Non-Participating



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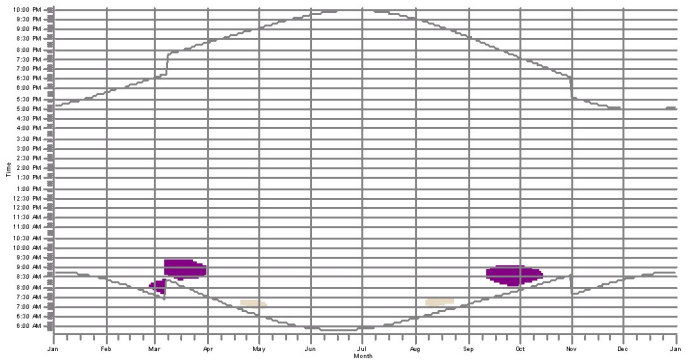
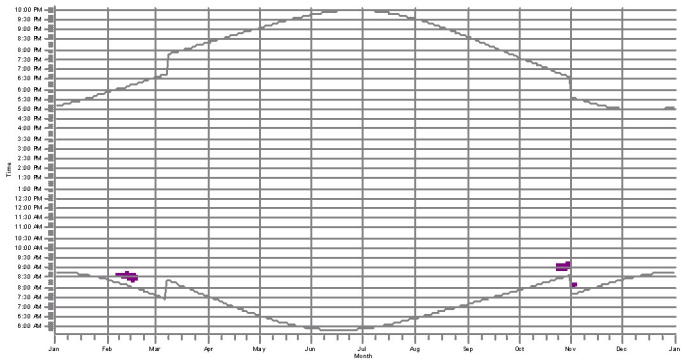
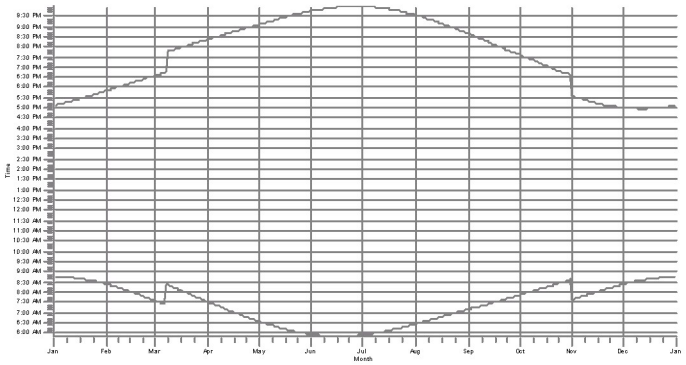
Y: 11 - Non-Participating



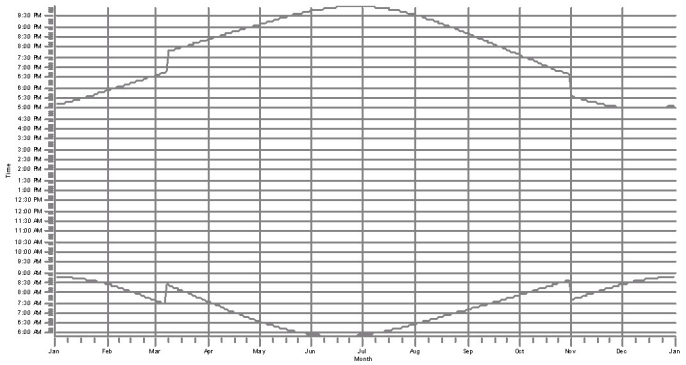
Z: 53 - Participating



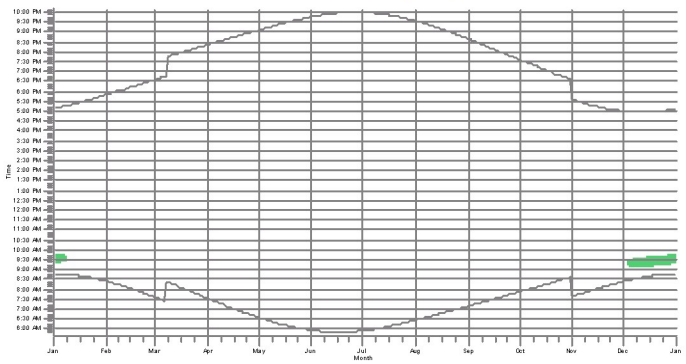
AA: 54 - Participating



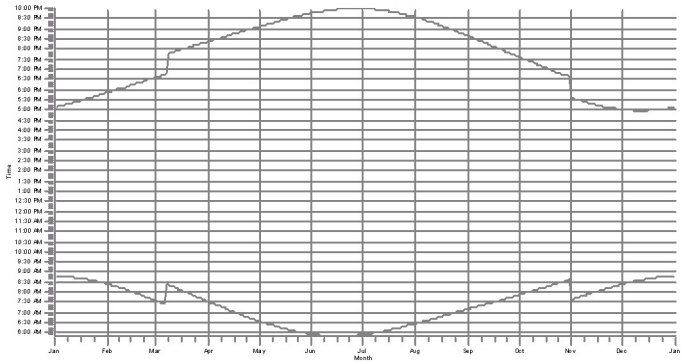
AB: 12 - Non-Participating



AC: 13 - Non-Participating



AD: 14 - Non-Participating



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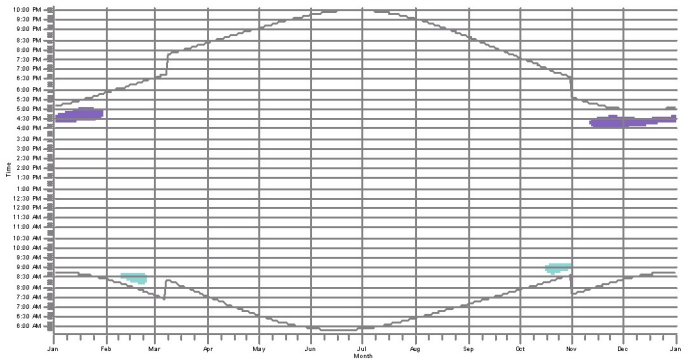
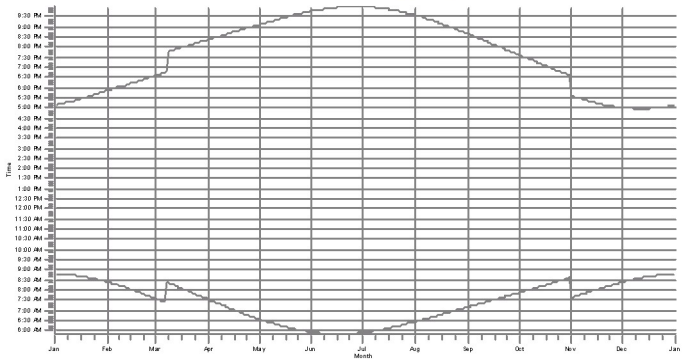
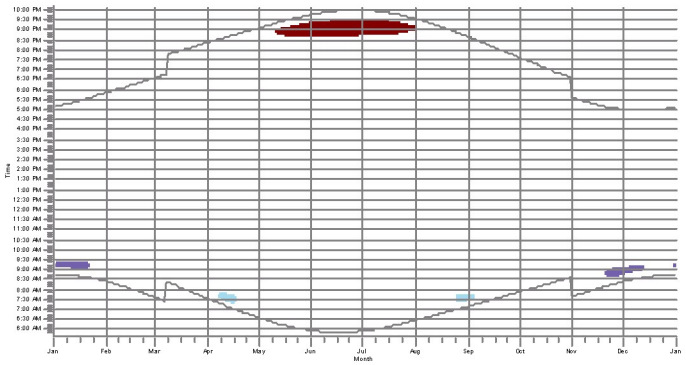
AE: 55 - Participating



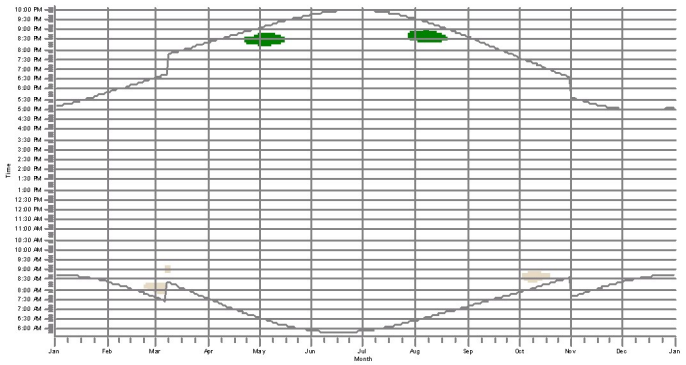
AF: 15 - Non-Participating



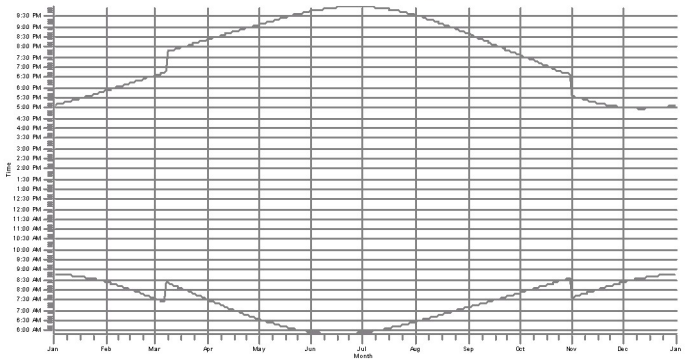
AG: 57 - Participating



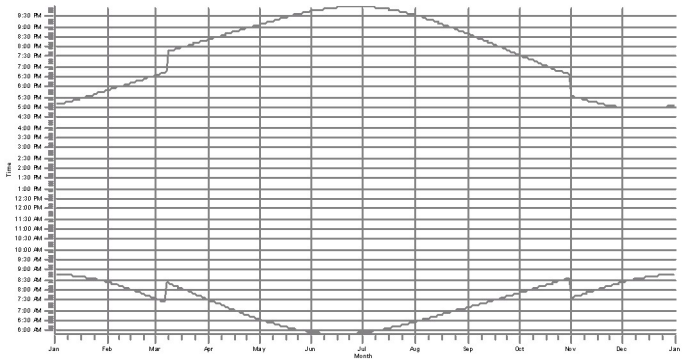
AH: 59 - Participating



AI: 61 - Participating



AJ: 62 - Participating



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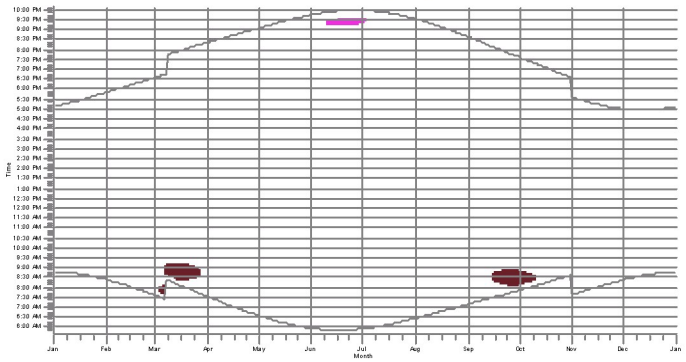
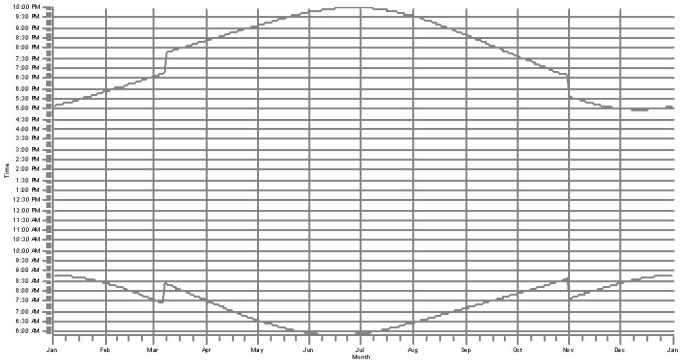
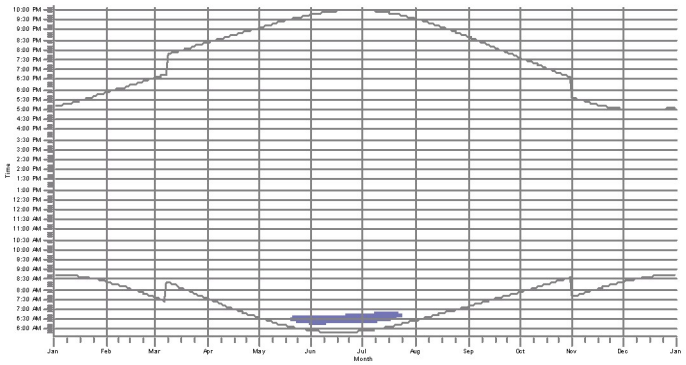
AK: 63 - Participating



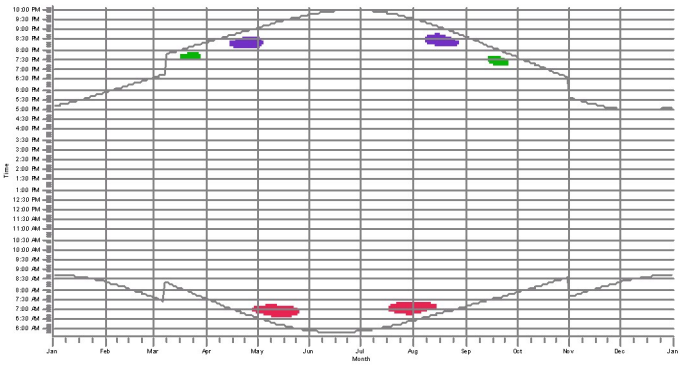
AL: 16 - Non-Participating



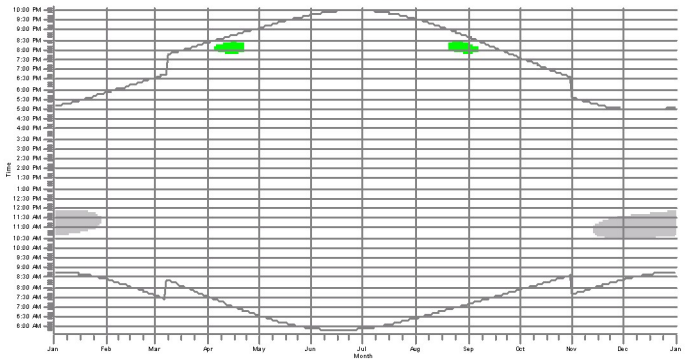
AM: 17 - Non-Participating



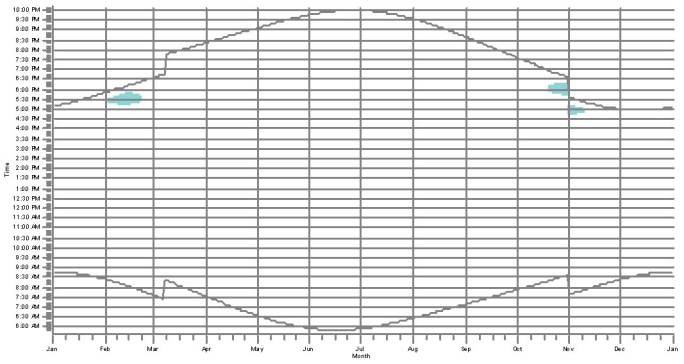
AN: 18 - Non-Participating



AO: 64 - Participating



AP: 19 - Non-Participating



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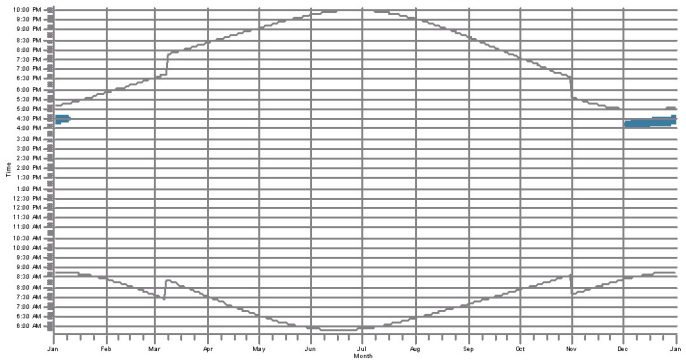
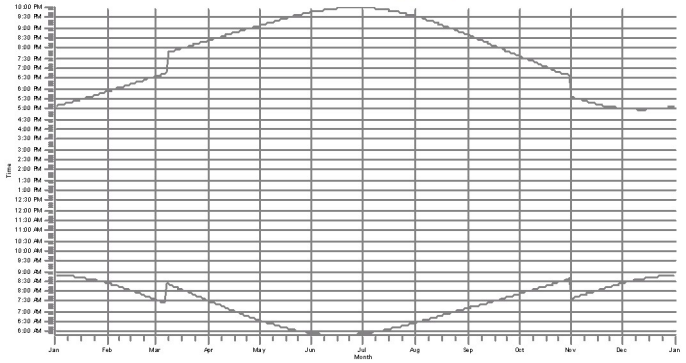
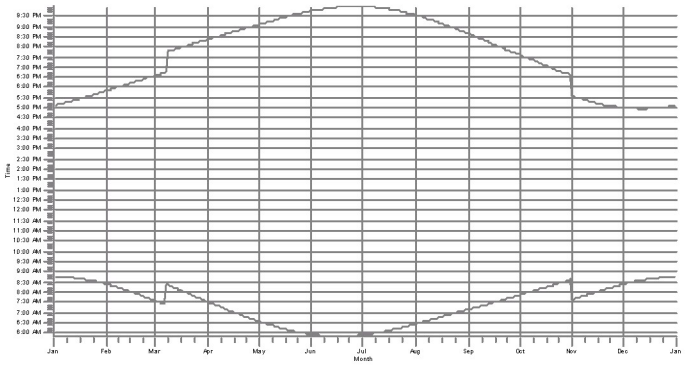
AQ: 20 - Non-Participating



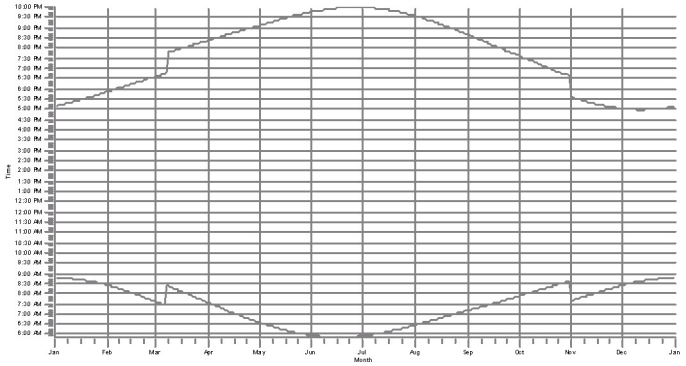
AR: 21 - Non-Participating



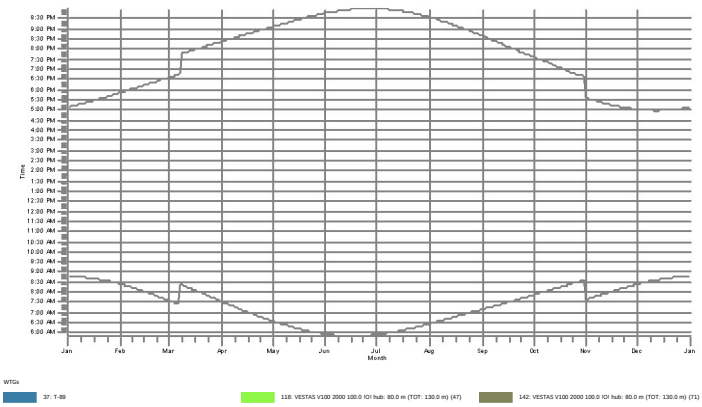
AS: 22 - Non-Participating



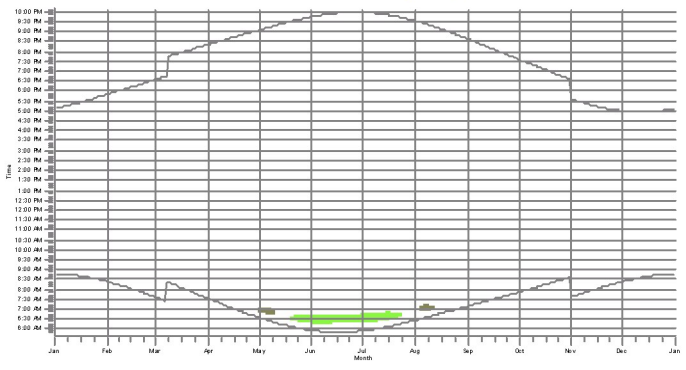
AT: 23 - Non-Participating



AU: 24 - Non-Participating



AV: 27 - Non-Participating



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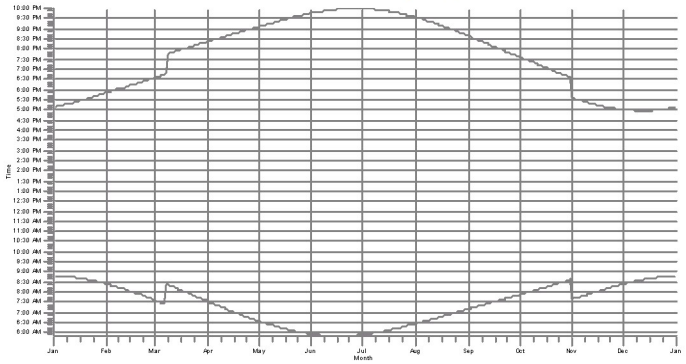
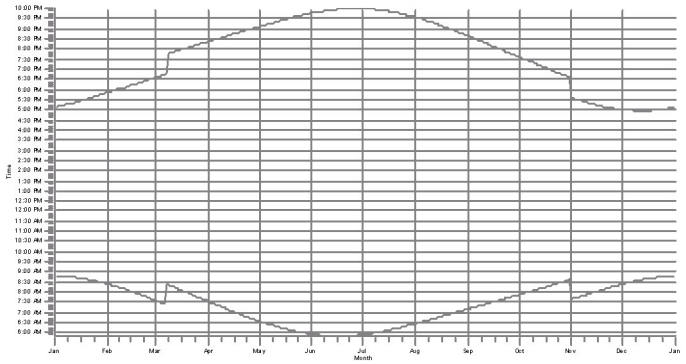
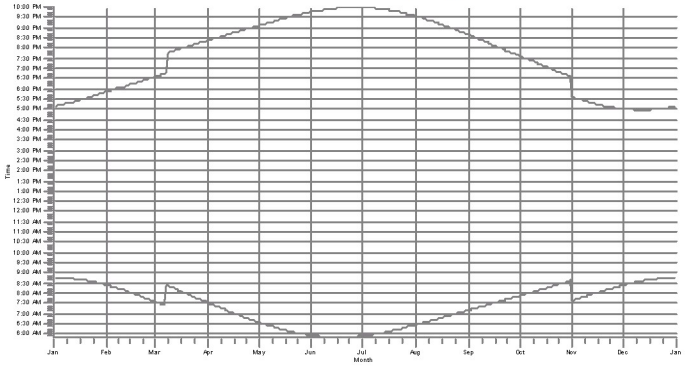
AW: 29 - Non-Participating



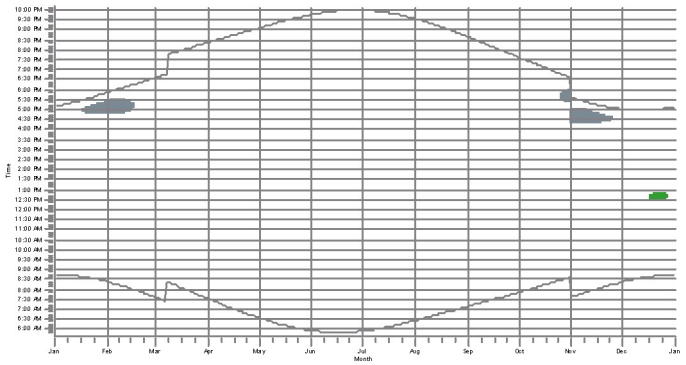
AX: 30 - Non-Participating



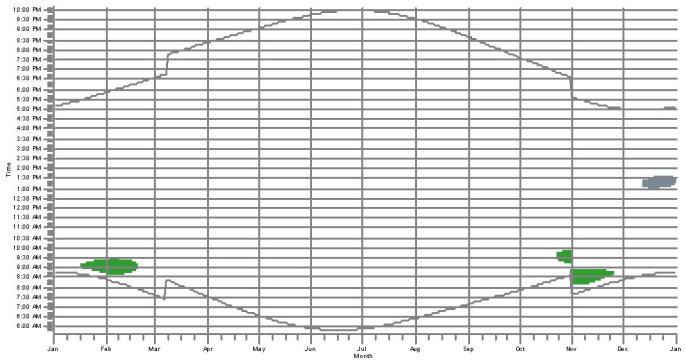
AY: 31 - Non-Participating



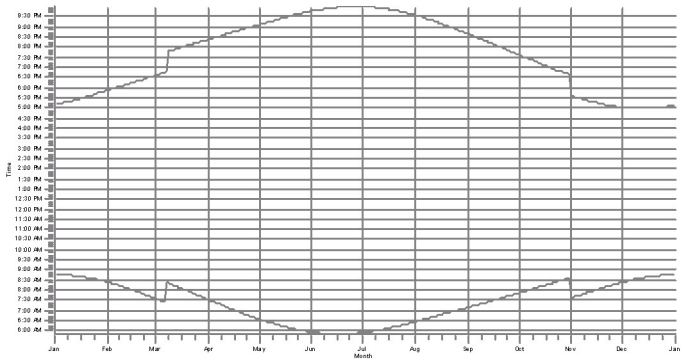
AZ: 66 - Participating



BA: 67 - Participating



BB: 68 - Participating



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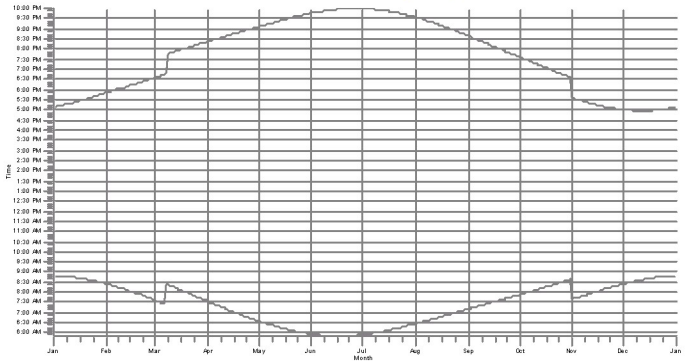
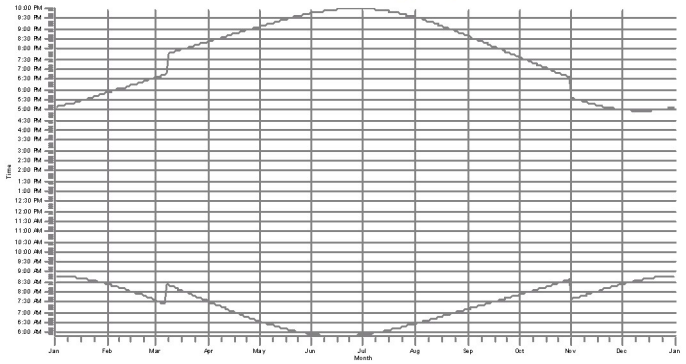
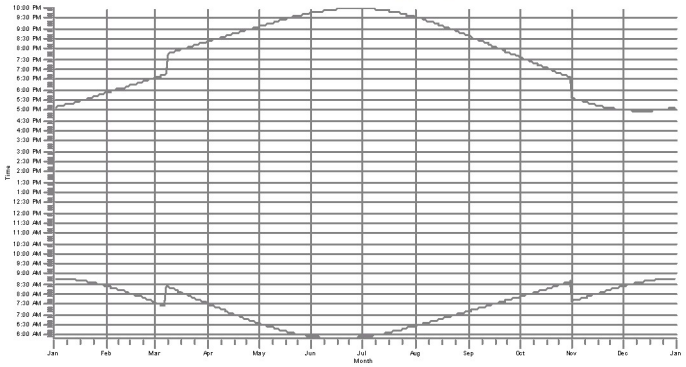
BC: 32 - Non-Participating



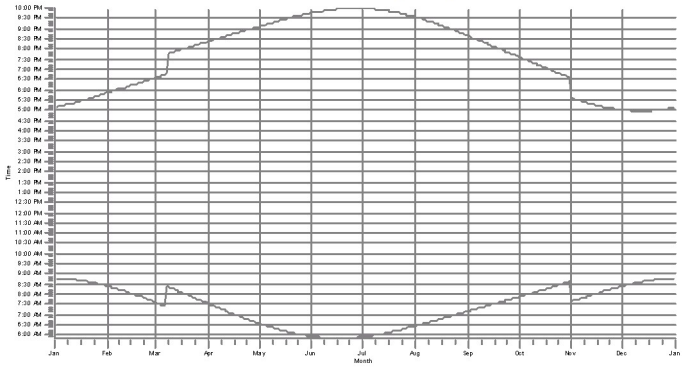
BD: 33 - Non-Participating



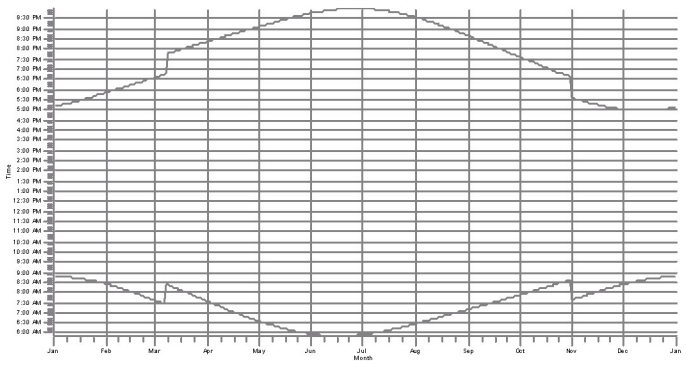
BE: 34 - Non-Participating



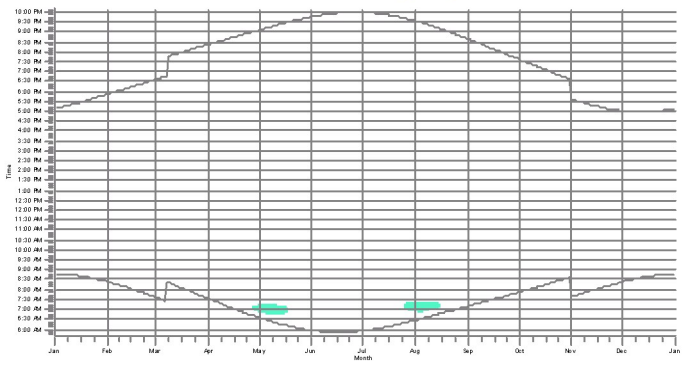
BF: 35 - Non-Participating



BG: 36 - Non-Participating



BH: 37 - Non-Participating



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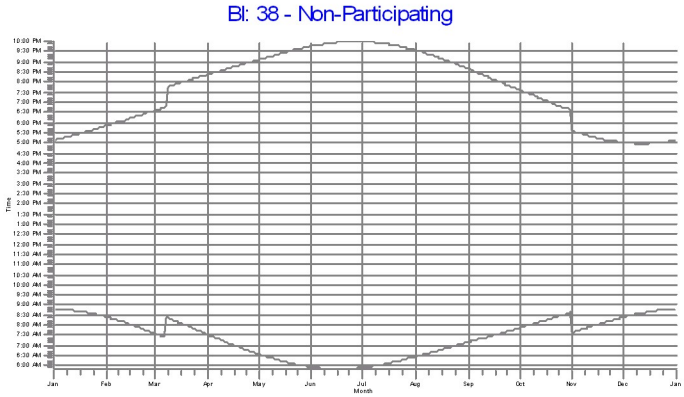
SHADOW - Calendar, graphical

Calculation: A057 N149/V110 Shadow



WTGs

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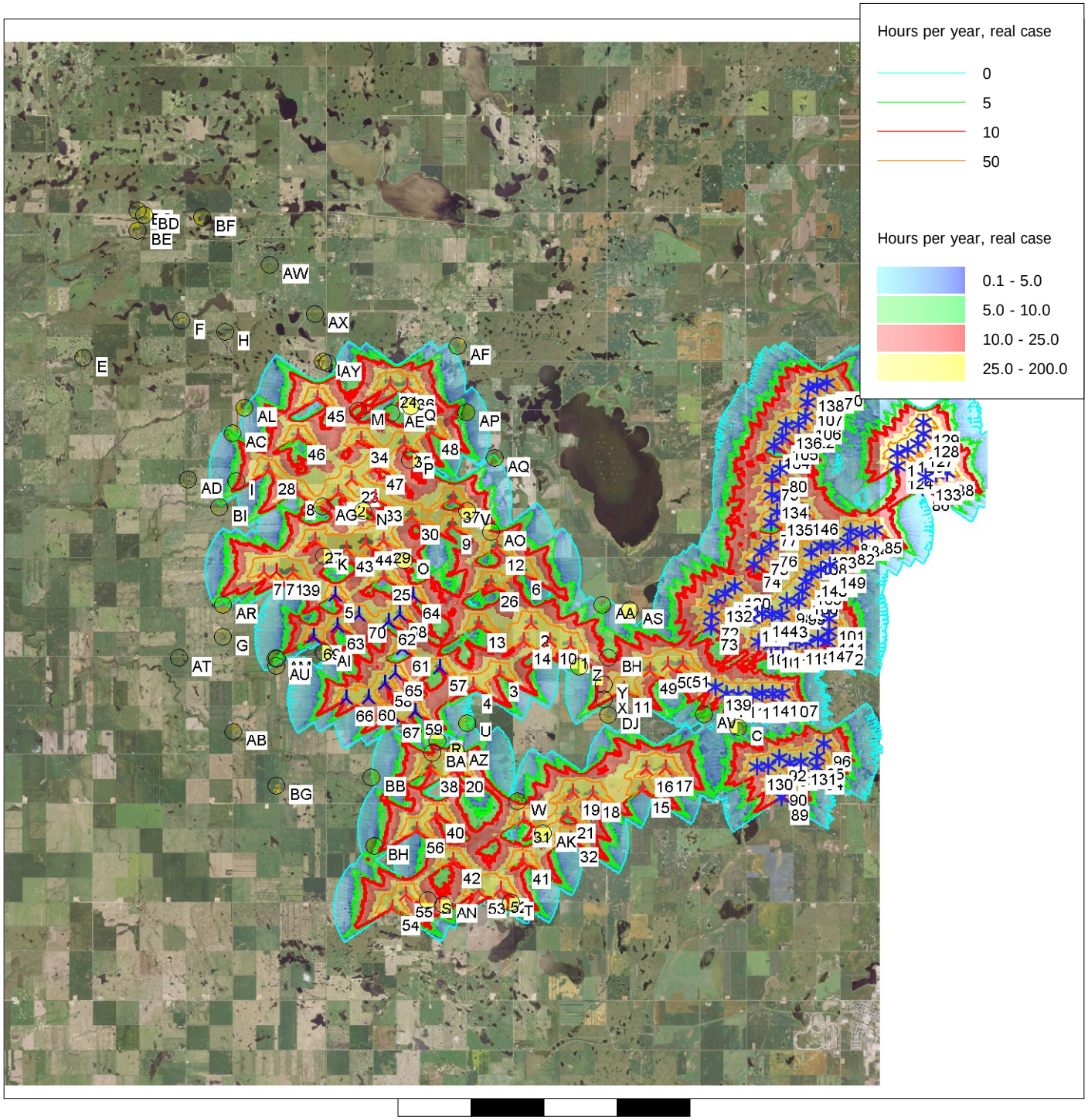
SHADOW - Map

Calculation: A057 N149/V110 Shadow



Map: US Naval Research Laboratory , Print scale 1:200,000, Map center UTM WGS84 Zone: 13 East: 640,676 North: 5,375,910

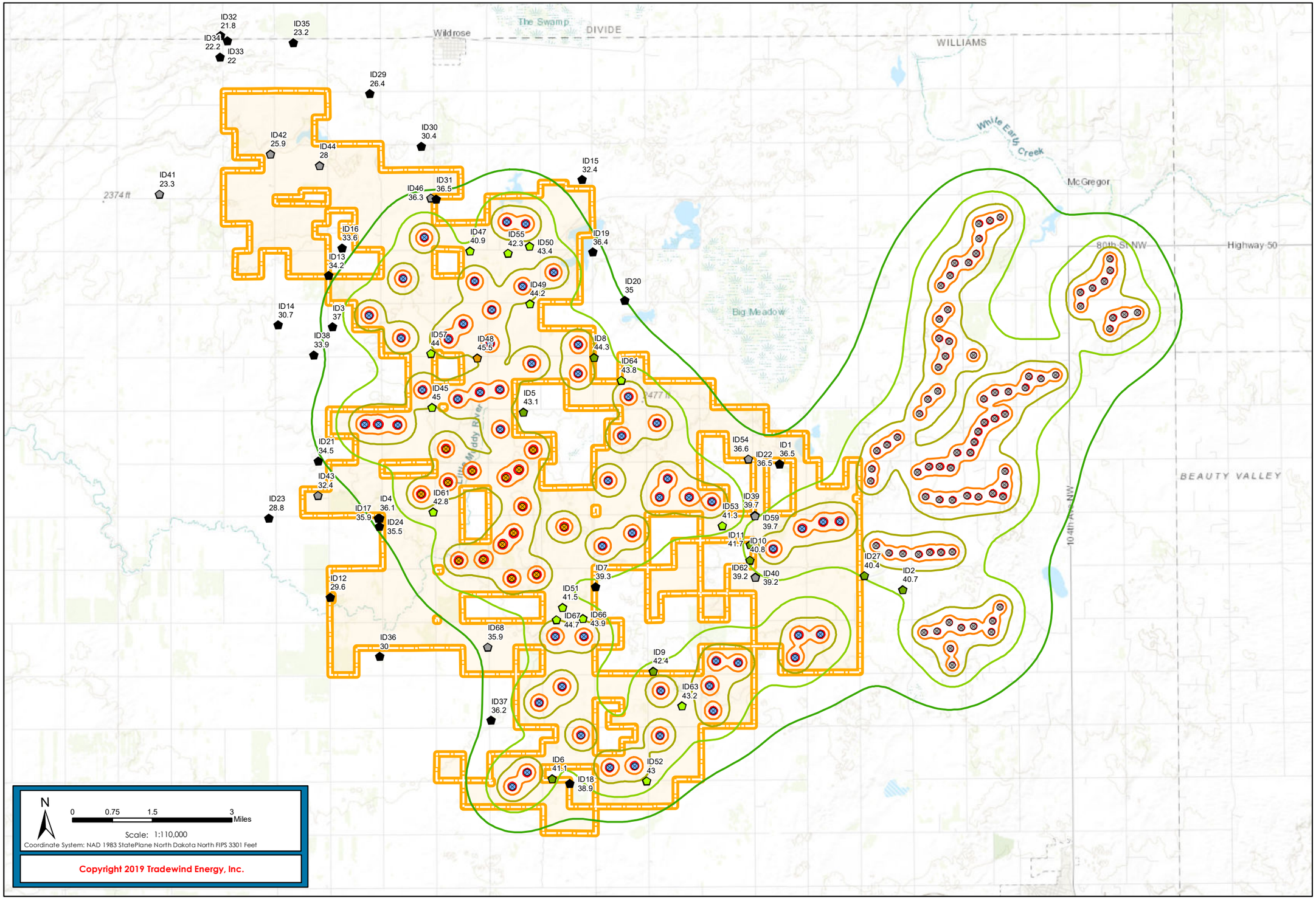
New WTG Existing WTG Shadow receptor

Flicker map level: Height Contours: 150921_TWE_LindahlWest_10ftHCLsfrom10mNED.wpo (3)

Sound Map

Aurora Wind Project - Anticipated Maximum Sound Levels
N149 4.8 106.9m HH/V110 2.0 80m HH

tradewind energy



N

0 0.75 1.5 3 Miles

Scale: 1:110,000

Coordinate System: NAD 1983 StatePlane North Dakota North FIPS 3301 Feet

Legend

- Aurora Wind Project
- Lindahl Wind Project Turbine

Aurora Wind Project Turbine (A057)

- N149-4.8 106.9m HH
- V110-2.0 80m HH

Sound Receptor (Non-Participating)

Sound Level (dBA)

- Below 39.99
- 40.00-45.00
- 45.01+

Sound Receptor (Participating)

Sound Level (dBA)

- Below 39.99
- 40.00-45.00
- 45.01+

Sound Isolines

Sound Level (dBA)

- 35
- 40
- 45
- 50
- 55

The following companies and organizations provided data that contributed to the production of this map.

U.S. Geological Survey (USGS)
Environmental Systems Research Institute (ESRI)
U.S. Department of Agriculture (USDA)
U.S. Federal Aviation Administration (FAA)
WhiteStar Corporation
CoreLogic
Ventyx Inc.

windPRO Sound Report

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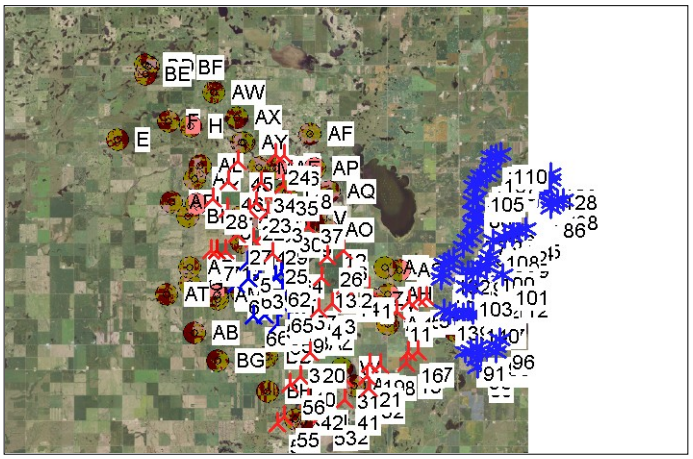
11/21/2019 9:56 AM/3.0.654

DECIBEL - Main Result

Calculation: A057 N149/V110

Noise calculation model:
ISO 9613-2 General
Wind speed:
95% rated power
Ground attenuation:
General, fixed, Ground factor: 0.5
Meteorological coefficient, C0:
0.0 dB
Type of demand in calculation:
1: WTG noise is compared to demand (DK, DE, SE, NL etc.)
Noise values in calculation:
All noise values are mean values (Lwa) (Normal)
Pure tones:
Pure and Impulse tone penalty are added to WTG source noise
Height above ground level, when no value in NSA object:
1.5 m Don't allow override of model height with height from NSA object
Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.:
0.0 dB(A)



Scale 1:500,000
New WTG
Existing WTG
Noise sensitive area

WTGs

	X(East)	Y(North)	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Noise data Creator	Name	Wind speed	LwA,ref	Pure tones
			[m]					[kW]	[m]	[m]			[m/s]	[dB(A)]	
1	642,085	5,374,363	728.5	T-41	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
2	640,729	5,375,038	740.7	T-62	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
3	639,692	5,373,363	740.7	T-39	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
4	638,790	5,372,951	734.6	T-37	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
5	633,988	5,375,810	737.6	T-70	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	USER	+2dB Mode 0 Std. Blade 109.6 dB (@ 95% Rated Power)	(95%)	109.6	No
6	640,372	5,376,713	738.1	T-77	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
7	631,510	5,376,507	731.5	T-66	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
8	632,563	5,379,145	737.6	T-93	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
9	637,951	5,378,169	715.2	T-80	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
10	641,389	5,374,486	743.7	T-58	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
11	643,972	5,372,967	712.3	T-28	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
12	639,495	5,377,499	738.7	T-78	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
13	638,928	5,374,941	737.6	T-59	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
14	640,492	5,374,466	743.6	T-40	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
15	644,695	5,369,685	736.0	T-15	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
16	644,792	5,370,371	743.7	T-16	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
17	645,456	5,370,405	735.1	T-17	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
18	642,975	5,369,494	737.6	T-12	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
19	642,303	5,369,536	734.9	T-13	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
20	638,282	5,370,192	712.5	T-25	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
21	642,122	5,368,780	734.6	T-10	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
22	634,001	5,379,136	737.6	T-95	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
23	634,443	5,379,605	731.5	T-96	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
24	635,699	5,382,724	710.2	T-122	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
25	635,628	5,376,434	728.5	T-72	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
26	639,307	5,376,310	731.5	T-75	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
27	633,243	5,377,581	731.5	T-81	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
28	631,582	5,379,814	726.8	T-98	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
29	635,586	5,377,640	725.5	T-85	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
30	636,542	5,378,452	715.1	T-87	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
31	640,641	5,368,602	728.5	T-23	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
32	642,243	5,368,015	730.6	T-9	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
33	635,270	5,379,029	725.4	T-90	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
34	634,758	5,380,905	718.9	T-107	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
35	636,220	5,380,785	716.3	T-110	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
36	636,276	5,382,673	710.2	T-124	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
37	637,941	5,379,046	713.2	T-89	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
38	637,408	5,370,185	701.0	T-24	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
39	632,509	5,376,501	722.8	T-68	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
40	637,648	5,368,666	713.2	T-20	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
41	640,643	5,367,238	719.3	T-19	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
42	638,242	5,367,207	710.2	T-18	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
43	634,318	5,377,326	731.6	T-83	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
44	634,979	5,377,549	725.3	T-84	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
45	633,206	5,382,201	722.4	T-120	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
46	632,585	5,380,949	731.5	T-105	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
47	635,298	5,380,049	728.5	T-97	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
48	637,149	5,381,224	704.1	T-152	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
49	644,833	5,373,605	713.9	T-153	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
50	645,462	5,373,811	728.5	T-154	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
51	645,966	5,373,838	730.1	T-155	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
52	639,890	5,366,309	710.2	T-160	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
53	639,135	5,366,239	709.0	T-161	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
54	636,191	5,365,609	711.4	T-163	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
55	636,640	5,366,042	710.2	T-164	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
56	636,954	5,368,164	711.3	T-165	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
57	637,619	5,373,512	727.5	T-43	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	USER	+2dB Mode 0 Std. Blade 109.6 dB (@ 95% Rated Power)	(95%)	109.6	No

To be continued on next page...

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Calculated:
11/21/2019 9:56 AM/3.0.654

DECIBEL - Main Result

Calculation: A057 N149/V110

...continued from previous page

					WTG type							Noise data				
	X(East)	Y(North)	Z	Row data/Description	Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Creator	Name	Wind speed [m/s]	LwA,ref [dB(A)]	Pure tones
			[m]												
58	635,764	5,372,945	724.6	T-45	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	USER	+2dB Mode 0 Std. Blade 109.6 dB (@ 95% Rated Power)	(95%)	109.6	No
59	636,817	5,372,047	728.5	T-35	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	USER	+2dB Mode 0 Std. Blade 109.6 dB (@ 95% Rated Power)	(95%)	109.6	No
60	635,193	5,372,473	710.2	T-47	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	USER	+2dB Mode 0 Std. Blade 109.6 dB (@ 95% Rated Power)	(95%)	109.6	No
61	636,346	5,374,109	734.6	T-56	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	USER	+2dB Mode 0 Std. Blade 109.6 dB (@ 95% Rated Power)	(95%)	109.6	No
62	635,830	5,374,972	728.5	T-55	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	USER	+2dB Mode 0 Std. Blade 109.6 dB (@ 95% Rated Power)	(95%)	109.6	No
63	634,074	5,374,798	721.2	T-53	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	USER	+2dB Mode 0 Std. Blade 109.6 dB (@ 95% Rated Power)	(95%)	109.6	No
64	636,640	5,375,835	734.6	T-73	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	USER	+2dB Mode 0 Std. Blade 109.6 dB (@ 95% Rated Power)	(95%)	109.6	No
65	636,095	5,373,292	733.9	T-46	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	USER	+2dB Mode 0 Std. Blade 109.6 dB (@ 95% Rated Power)	(95%)	109.6	No
66	634,438	5,372,432	701.0	T-57	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	USER	+2dB Mode 0 Std. Blade 109.6 dB (@ 95% Rated Power)	(95%)	109.6	No
67	636,056	5,371,908	719.3	T-34	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	USER	+2dB Mode 0 Std. Blade 109.6 dB (@ 95% Rated Power)	(95%)	109.6	No
68	636,215	5,375,218	731.5	T-74	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	USER	+2dB Mode 0 Std. Blade 109.6 dB (@ 95% Rated Power)	(95%)	109.6	No
69	633,261	5,374,418	716.3	T-51	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	USER	+2dB Mode 0 Std. Blade 109.6 dB (@ 95% Rated Power)	(95%)	109.6	No
70	634,798	5,375,163	713.2	T-54	Yes	VESTAS	V110-2,000	2,000	110.0	80.0	USER	+2dB Mode 0 Std. Blade 109.6 dB (@ 95% Rated Power)	(95%)	109.6	No
71	631,934	5,376,511	729.8	T-67	Yes	NORDEX	N149-4.8-4,800	4,800	149.0	106.9	USER	Mode 00 - 108.1 dB(A) + 2dB (110.1)- octave - all hub heights 95% rated	(95%)	110.1	No
72	646,913	5,375,455	745.7	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
73	646,888	5,375,080	743.7	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
74	648,328	5,377,151	749.8	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
75	648,570	5,377,592	749.8	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
76	648,872	5,377,853	752.9	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
77	648,872	5,378,572	753.8	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
78	649,189	5,379,368	749.8	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
79	648,868	5,380,034	743.7	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
80	649,124	5,380,328	729.4	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
81	651,007	5,377,868	748.7	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
82	651,525	5,378,000	750.5	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
83	651,616	5,378,348	758.5	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
84	651,987	5,378,290	755.6	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
85	652,436	5,378,405	749.8	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
86	654,047	5,379,834	743.7	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
87	654,478	5,380,290	740.6	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
88	654,876	5,380,346	731.4	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
89	649,468	5,369,552	735.9	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
90	649,403	5,370,046	745.1	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
91	648,989	5,370,563	740.7	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
92	649,348	5,370,846	749.8	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
93	649,714	5,370,690	746.8	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
94	650,635	5,370,574	746.1	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
95	650,667	5,370,918	744.2	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
96	650,882	5,371,340	743.7	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
97	649,309	5,375,532	733.1	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
98	649,484	5,375,990	732.8	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
99	649,889	5,375,994	741.6	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
100	650,008	5,376,322	740.0	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
101	650,956	5,375,465	750.7	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
102	648,982	5,374,557	737.6	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
103	648,553	5,374,643	733.0	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
104	648,903	5,381,054	722.4	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
105	649,170	5,381,363	721.8	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
106	649,950	5,382,038	713.3	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
107	650,030	5,382,496	712.9	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
108	650,267	5,377,632	746.8	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
109	650,119	5,376,640	740.5	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
110	650,663	5,383,159	707.1	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
111	650,947	5,375,049	753.6	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
112	650,911	5,374,694	758.6	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
113	650,163	5,374,664	746.8	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
114	649,378	5,374,555	741.2	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
115	649,818	5,374,694	743.7	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
116	650,613	5,377,049	737.7	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
117	649,406	5,372,982	725.6	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
118	647,909	5,372,903	716.3	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
119	647,487	5,372,910	715.5	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
120	647,672	5,376,428	744.3	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
121	647,365	5,376,192	740.8	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
122	649,728	5,381,758	721.2	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
123	650,599	5,377,842	746.4	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
124	653,143	5,380,511	713.2	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
125	653,130	5,380,927	710.2	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
126	653,497	5,381,062	704.6	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
127	653,850	5,381,276	700.8	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
128	654,022	5,381,604	696.2	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
129	654,011	5,381,966	694.9	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
130	648,594	5,370,523	731.5	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
131	650,092	5,370,737	743.7	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
132	647,056	5,376,002	741.1	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
133	654,134	5,380,179	733.9	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
134	648,870	5,379,452	759.0	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
135	649,079	5,378,913	759.0	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
136	649,308	5,381,738	716.7	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
137	650,346	5,383,045	709.6	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
138	650,021	5,382,956	710.0	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
139	647,090	5,373,129	713.2	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
140	649,061	5,372,960	722.4	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
141	648,724	5,372,961	720.7	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
142	648,383	5,372,886	719.3	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
143	648,975	5,375,560	735.2	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
144	648,641	5,375,554	726.1	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
145	648,297	5,375,376	728.5	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
146	649,928	5,378,956	741.8	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
147	650,591	5,374,779	748.5	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
148	650,301	5,376,922	735.1	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No
149	650,917	5,377,197	740.0	VESTAS V100 2000 100.0 !O! hu...	Yes	VESTAS	V100-2,000	2,000	100.0	80.0	USER	Mode 0 (105) + 2dB	(95%)	107.0	No

Calculation Results

Licensed user:
TradeWind Energy, Inc
16105 W. 113th Street, Suite 105
US-LENEXA, KS 66219
+1 913 424 5308
Kevin Walter / kwalter@tradewindenergy.com
Calculated:
11/21/2019 9:56 AM/3.0.654

DECIBEL - Main Result

Calculation: A057 N149/V110

Sound Level

Noise sensitive area					Demands	Sound Level		Demands fulfilled ?
No.	Name	X(East)	Y(North)	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Distance to noise demand [m]	Noise
A	1 - Non-Participating	644,116	5,375,554	701.3	1.5	50.0	36.5	1,814	Yes
B	39 - Participating	643,400	5,373,971	711.5	1.5	50.0	39.7	907	Yes
C	2 - Non-Participating	647,930	5,371,801	718.0	1.5	50.0	40.7	889	Yes
D	40 - Participating	643,453	5,372,099	716.3	1.5	50.0	39.2	762	Yes
E	41 - Participating	625,162	5,383,364	711.9	1.5	50.0	23.3	7,094	Yes
F	42 - Participating	628,500	5,384,644	704.1	1.5	50.0	25.9	5,059	Yes
G	43 - Participating	630,148	5,374,327	691.9	1.5	50.0	32.4	2,308	Yes
H	44 - Participating	629,997	5,384,325	711.4	1.5	50.0	28.0	3,606	Yes
I	3 - Non-Participating	630,488	5,379,437	722.7	1.5	50.0	37.0	913	Yes
J	4 - Non-Participating	632,031	5,373,676	696.3	1.5	50.0	36.1	1,196	Yes
K	45 - Participating	633,554	5,377,057	735.4	1.5	50.0	45.0	350	Yes
L	46 - Participating	633,395	5,383,413	715.7	1.5	50.0	36.3	983	Yes
M	47 - Participating	634,615	5,381,825	716.9	1.5	50.0	40.9	680	Yes
N	48 - Participating	634,891	5,378,584	728.5	1.5	50.0	45.5	316	Yes
O	5 - Non-Participating	636,328	5,376,974	731.5	1.5	50.0	43.1	621	Yes
P	49 - Participating	636,455	5,380,259	709.9	1.5	50.0	44.2	324	Yes
Q	50 - Participating	636,416	5,382,006	707.4	1.5	50.0	43.4	424	Yes
R	51 - Participating	637,621	5,371,070	716.6	1.5	50.0	41.5	657	Yes
S	6 - Non-Participating	637,411	5,365,868	713.2	1.5	50.0	41.1	538	Yes
T	52 - Participating	640,276	5,365,862	710.2	1.5	50.0	43.0	339	Yes
U	7 - Non-Participating	638,615	5,371,717	720.3	1.5	50.0	39.3	996	Yes
V	8 - Non-Participating	638,435	5,378,666	709.4	1.5	50.0	44.3	368	Yes
W	9 - Non-Participating	640,413	5,369,191	728.5	1.5	50.0	42.4	383	Yes
X	10 - Non-Participating	643,279	5,372,615	722.4	1.5	50.0	40.8	527	Yes
Y	11 - Non-Participating	643,282	5,373,088	726.9	1.5	50.0	41.7	450	Yes
Z	53 - Participating	642,413	5,373,644	734.1	1.5	50.0	41.3	534	Yes
AA	54 - Participating	643,167	5,375,685	714.9	1.5	50.0	36.6	1,458	Yes
AB	12 - Non-Participating	630,584	5,371,240	682.8	1.5	50.0	29.6	3,792	Yes
AC	13 - Non-Participating	630,347	5,380,996	717.6	1.5	50.0	34.2	1,468	Yes
AD	14 - Non-Participating	628,838	5,379,465	705.2	1.5	50.0	30.7	2,523	Yes
AE	55 - Participating	635,760	5,381,775	711.0	1.5	50.0	42.3	684	Yes
AF	15 - Non-Participating	637,972	5,384,054	715.8	1.5	50.0	32.4	1,935	Yes
AG	57 - Participating	633,480	5,378,691	739.8	1.5	50.0	44.0	423	Yes
AH	59 - Participating	643,400	5,373,968	711.4	1.5	50.0	39.7	904	Yes
AI	61 - Participating	633,645	5,373,895	713.7	1.5	50.0	42.8	403	Yes
AJ	62 - Participating	643,453	5,372,097	716.3	1.5	50.0	39.2	764	Yes
AK	63 - Participating	641,300	5,368,154	725.4	1.5	50.0	43.2	547	Yes
AL	16 - Non-Participating	630,734	5,381,835	710.2	1.5	50.0	33.6	1,808	Yes
AM	17 - Non-Participating	631,989	5,373,670	695.8	1.5	50.0	35.9	1,235	Yes
AN	18 - Non-Participating	637,954	5,365,740	710.2	1.5	50.0	38.9	1,031	Yes
AO	64 - Participating	639,268	5,377,996	720.6	1.5	50.0	43.8	300	Yes
AP	19 - Non-Participating	638,331	5,381,857	701.5	1.5	50.0	36.4	1,094	Yes
AQ	20 - Non-Participating	639,333	5,380,415	707.1	1.5	50.0	35.0	1,705	Yes
AR	21 - Non-Participating	630,142	5,375,377	701.9	1.5	50.0	34.5	1,515	Yes
AS	22 - Non-Participating	644,117	5,375,554	701.3	1.5	50.0	36.5	1,813	Yes
AT	23 - Non-Participating	628,666	5,373,611	682.8	1.5	50.0	28.8	3,799	Yes
AU	24 - Non-Participating	632,030	5,373,428	696.5	1.5	50.0	35.5	1,341	Yes
AV	27 - Non-Participating	646,754	5,372,213	713.2	1.5	50.0	40.4	778	Yes
AW	29 - Non-Participating	631,486	5,386,533	696.9	1.5	50.0	26.4	4,418	Yes
AX	30 - Non-Participating	633,067	5,384,963	707.0	1.5	50.0	30.4	2,522	Yes
AY	31 - Non-Participating	633,553	5,383,375	714.8	1.5	50.0	36.5	982	Yes
AZ	66 - Participating	638,244	5,370,747	710.8	1.5	50.0	43.9	305	Yes
BA	67 - Participating	637,448	5,370,698	712.2	1.5	50.0	44.7	261	Yes
BB	68 - Participating	635,378	5,369,828	692.6	1.5	50.0	35.9	1,811	Yes
BC	32 - Non-Participating	626,925	5,388,203	701.4	1.5	50.0	21.8	8,446	Yes
BD	33 - Non-Participating	627,137	5,388,066	701.0	1.5	50.0	22.0	8,198	Yes
BE	34 - Non-Participating	626,921	5,387,556	704.1	1.5	50.0	22.2	8,014	Yes
BF	35 - Non-Participating	629,137	5,388,039	693.3	1.5	50.0	23.2	6,874	Yes
BG	36 - Non-Participating	632,118	5,369,480	691.6	1.5	50.0	30.0	3,511	Yes

To be continued on next page...

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11/21/2019 9:56 AM/3.0.654

DECIBEL - Main Result

Calculation: A057 N149/V110

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Noise sensitive area					Demands	Sound Level		Demands fulfilled ?
No.	Name	X(East)	Y(North)	Z [m]	Imission height [m]	Noise [dB(A)]	From WTGs [dB(A)]	Distance to noise demand [m]	Noise
BH	37 - Non-Participating	635,531	5,367,600	699.2	1.5	50.0	36.2	1,284	Yes
BI	38 - Non-Participating	629,941	5,378,583	713.2	1.5	50.0	33.9	1,807	Yes

Distances (m)

WTG	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
1	2355	1372	6382	2645	19168	17037	11937	15664	12659	10077	8946	12547	10558	8341	6322	8153	9516	5546	9696	8691	4363	5643
2	3426	2876	7896	4008	17654	15551	10605	14192	11146	8804	7453	11132	9134	6830	4808	6747	8195	5040	9752	9188	3937	4293
3	4937	3758	8385	3968	17639	15891	9592	14634	11028	7667	7164	11860	9868	7093	4935	7618	9243	3089	7834	7524	1967	5450
4	5928	4721	9212	4740	17151	15577	8751	14377	10536	6798	6654	11771	9807	6851	4717	7673	9362	2214	7216	7243	1246	5727
5	10131	9590	14507	10166	11618	10400	4117	9404	5041	2896	1320	7626	6047	2917	2613	5087	6655	5972	10515	11769	6178	5285
6	3919	4084	9014	5548	16601	14278	10499	12869	10253	8877	6827	9673	7699	5792	4053	5284	6609	6278	11242	10852	5296	2752
7	12642	12158	17082	12731	9344	8676	2570	7963	3104	2878	2118	7159	6159	3969	4841	6208	7370	8180	12166	13790	8569	7254
8	12098	12009	17033	12971	8519	6837	5389	5781	2095	5495	2311	4349	3376	2395	4346	4049	4800	9529	14134	15360	9582	5892
9	6696	6878	11838	8193	13804	11457	8699	10058	7570	7433	4536	6946	4949	3088	2016	2570	4133	7107	12313	12526	6487	693
10	2928	2075	7071	3156	18497	16411	11243	15053	11973	9394	8246	11983	9987	7683	5640	7595	9016	5086	9492	8696	3920	5119
11	2591	1156	4127	1011	21493	19385	13891	18009	14956	11962	11192	14866	12885	10678	8631	10473	11782	6628	9666	8009	5501	7947
12	5014	5263	10180	6696	15486	13113	9871	11696	9213	8386	5957	8496	6521	4730	3210	4106	5458	6697	11816	11664	5849	1577
13	5224	4576	9535	5344	16138	14244	8801	12955	9563	7012	5775	10119	8123	5438	3301	5865	7499	4085	9198	9179	3239	3758
14	3784	2950	7902	3791	17725	15729	10345	14400	11171	8498	7406	11420	9417	6952	4861	7061	8571	4447	9133	8607	3329	4677
15	5898	4478	3866	2715	23847	22047	15270	20746	17232	13278	13359	17781	15779	13241	11097	13406	14845	7208	8224	5844	6410	10948
16	5227	3860	3449	2186	23541	21660	15169	20337	16935	13182	13076	17320	15322	12864	10735	12933	14336	7204	8646	6382	6322	10451
17	5321	4117	2841	2623	24079	22142	15802	20803	17482	13818	13635	17739	15746	13361	11246	13346	14708	7863	9236	6890	6965	10842
18	6166	4497	5466	2648	22576	20954	13707	19708	15962	11716	12081	16897	14898	12165	10007	12586	14127	5581	6642	4526	4894	10234
19	6285	4569	6066	2809	22024	20465	13066	19240	15416	11075	11538	16490	14496	11697	9541	12214	13790	4927	6115	4197	4285	9916
20	7923	6362	9781	5511	18592	17452	9125	16383	12092	7157	8336	14095	12197	9051	7058	10232	11961	1099	4411	4767	1561	8476
21	7061	5346	6547	3576	22368	20910	13196	19714	15777	11216	11913	17037	15050	12182	10035	12802	14404	5049	5539	3453	4574	10551
22	10730	10724	15743	11784	9798	7785	6163	6554	3526	5805	2127	4319	2758	1047	3176	2699	3751	8841	13699	14683	8737	4458
23	10487	10582	15583	11727	10013	7792	6805	6484	3958	6401	2698	3949	2227	1115	3237	2116	3108	9108	14054	14930	8924	4101
24	11057	11658	16399	13154	10556	7451	10066	5923	6161	9763	6059	2405	1408	4218	5784	2578	1015	11811	16943	17472	11387	4894
25	8534	8153	13146	8946	12552	10873	5871	9694	5953	4532	2165	7327	5485	2273	884	3914	5628	5722	10715	11549	5584	3586
26	4868	4714	9731	5909	15807	13648	9371	12285	9357	7738	5801	9242	7241	4967	3052	4872	6388	5504	10612	10493	4645	2513
27	11060	10780	15784	11589	9937	8508	4491	7484	3322	4089	610	5834	4460	1930	3144	4182	5445	7846	12432	13668	7953	5304
28	13238	13184	18207	14158	7336	5729	5672	4781	1157	6155	3390	4029	3639	3531	5531	4894	5308	10627	15115	16440	10726	6949
29	8781	8632	13656	9622	11892	9964	6369	8714	5406	5325	2114	6174	4296	1172	997	2759	4444	6878	11913	12678	6653	3027
30	8110	8192	13189	9388	12395	10150	7609	8794	6133	6569	3297	5875	3884	1656	1493	1810	3557	7460	12614	13132	7047	1905
31	7773	6037	7961	4488	21390	20119	11953	18987	14849	9994	11032	16488	14531	11520	9418	12386	14055	3900	4231	2764	3715	10303
32	7769	6068	6832	4260	22965	21574	13643	20396	16391	11677	12541	17760	15777	12875	10736	13544	15157	5540	5288	2916	5183	11312
33	9504	9575	14579	10723	10999	8796	6953	7474	4799	6257	2614	4768	2871	584	2311	1708	3190	8299	13334	14087	8041	3185
34	10779	11079	16012	12375	9906	7291	8033	5863	4515	7727	4032	2854	931	2325	4233	1816	1990	10243	15269	16023	9965	4304
35	9471	9898	14760	11303	11355	8631	8865	7160	5888	8251	4583	3859	1912	2571	3812	576	1237	9815	14964	15465	9379	3065
36	10590	11246	15939	12780	11135	8022	10355	6493	6631	9949	6241	2974	1865	4317	5700	2421	682	11681	16844	17281	11204	4552
37	7094	7454	12341	8869	13488	10976	9110	9538	7463	7985	4816	6303	4334	3084	2626	1918	3330	7982	13189	13390	7360	623
38	8592	7088	10646	6341	17991	16983	8358	15965	11554	6411	7879	13823	11970	8769	6875	10120	11863	911	4317	5188	1951	8543
39	11646	11181	16122	11796	10054	9076	3210	8217	3564	2866	1184	6968	5725	3165	3848	5449	6750	7459	11709	13173	7758	6309
40	9448	7825	10749	6744	19286	18412	9397	17428	12934	7527	9337	15348	13504	10294	8412	11655	13397	2404	2808	3843	3200	10031
41	9012	7276	8598	5615	22355	21224	12665	20133	15873	10753	12111	17725	15784	12722	10650	13679	15362	4881	3511	1424	4917	11640
42	10207	8507	10723	7148	20788	19974	10779	19000	14481	8968	10909	16915	15061	11861	9953	13174	14912	3913	1576	2439	4525	11461
43	9957	9682	14692	10525	10967	9349	5137	8225	4373	4307	809	6156	4509	1383	2041	3630	5129	7075	11868	12920	7067	4330
44	9352	9149	14170	10075	11410	9609	5807	8411	4872	4867	1507	6074	4292	1039	1466	3086	4683	6997	11931	12831	6873	3632
45	12776	13102	18028	14390	8127	5302	8448	3848	3876	8606	5156	1226	1459	3991	6089	3786	3216	11975	16866	17804	11798	6312
46	12730	12870	17865	14015	7806	5509	7057	4254	2585	7294	4011	2594	2211	3303	5460	3931	3974	11089	15834	16934	11027	6279
47	9898	10129	15088	11390	10664	8205	7699	6810	4848	7162	3463	3864	1902	1521	3244	1176	2254	9275	14338	15036	8969	3429
48	8983	9575	14319	11091	12177	9301	9828	7796	6896	9120	5503	4345	2604	3474	4329	1188	1072	10165	15358	15678	9620	2863
49	2077	1479	3584	2043	21959	19714	14703	18304	15485	12802	11795	15067	13114	11119	9148	10699	11892	7644	10722	8985	6498	8158
50	2202	2069	3183	2640	22436	20127	15323	18701	15996	13432	12343	15421	13486	11599	9667	11077	12206	8306	11310	9492	7160	8542
51	2524	2570	2830	3057	22882	20539	15826	19105	16460	13936	12823	15802	13879	12049	10136	11476	12567	8792	11693	9798	7651	8946
52	10165	8428	9737	6798	22535	21586	12617	20554	16148	10773	12477	18296	16388	13255	11245	14367	16078	5274	2518	590	5556	12443
53	10563	8831	10407	7279	22102	21257	12090	20263	15778	10284	12173	18108	16228	13054	11096	14274	16000	5062	1763	1202	5502	12447
54	12716	11041	13272	9739	20902	20530	10607	19714	14958	9077	11748	18022	16292	13040	11366	14653	16399	5645	1247	4092	6571	13249
55	12099	10420	12675	9116	20780	20305	10525	19452	14740	8917	11439	17671	15912	12664	10936	14219	15966	5123	790	3641	6009	12751
56	10292	8677	11564	7598	19238	18523	9182	17595	12996	7391	9521	15659	13860	10623	8833	12106	13853	2982	2340	4042	3923	10607
57	6810	5799	10452	6003	15882	14390	7516	13229	9271	5591	5393	10764	8839	5759	3695	6847	8579	2442	7647	8099	2053	5218
58	8751	7705	12221	7736	14865	13771	5783	12758	8366	3804	4668	10733	8954	5707	4069	7347	9085	2639	7266	8398	3105	6315
59	8098	6859	11117	6637	16245	15095	7047	14045	9730	5055	5978	11870	10023	6815	4951	8220	9967	1266	6207	7087	1829	6814

To be continued on next page...

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Calculated:
11/21/2019 9:56 AM/3.0.654

DECIBEL - Main Result

Calculation: A057 N149/V110

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WTG	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
60	9440	8343	12755	8269	14807	13890	5375	12941	8404	3383	4868	11086	9369	6119	4642	7888	9611	2805	6968	8340	3505	6990
61	7903	7055	11812	7386	14517	13136	6202	12028	7919	4337	4060	9760	7907	4706	2865	6151	7897	3296	8310	9136	3297	5013
62	8306	7636	12509	8146	13573	12136	5719	11023	6962	4014	3086	8785	6960	3732	2063	5324	7059	4294	9240	10137	4284	4520
63	10070	9362	14177	9760	12361	11314	3955	10362	5863	2331	2318	8641	7047	3873	3132	5957	7579	5146	9533	10878	5488	5829
64	7481	7012	11989	7770	13728	11995	6665	10781	7129	5090	3319	8244	6323	3259	1181	4429	6176	4865	9996	10615	4567	3352
65	8334	7337	11929	7454	14865	13659	6036	12606	8319	4082	4542	10475	8660	5428	3690	6977	8720	2696	7539	8526	2972	5862
66	10169	9093	13507	9021	14338	13579	4690	12695	8042	2710	4709	11030	9395	6169	4919	8083	9776	3462	7206	8789	4238	7405
67	8846	7628	11875	7399	15809	14809	6384	13817	9365	4397	5725	11809	10021	6777	5073	8361	10105	1775	6190	7373	2566	7165
68	7908	7292	12204	7882	13731	12181	6132	11027	7113	4459	3234	8666	6798	3617	1760	5047	6791	4380	9426	10200	4245	4101
69	10914	10149	14901	10452	12068	11280	3115	10431	5734	1437	2655	8996	7530	4474	3992	6658	8218	5497	9504	11064	5997	6694
70	9326	8684	13556	9181	12654	11383	4725	10344	6070	3141	2266	8369	6665	3423	2371	5359	7032	4972	9655	10794	5143	5050
71	12220	11744	16676	12335	9635	8829	2821	8051	3264	2836	1710	7055	5953	3612	4418	5873	7092	7871	11969	13528	8224	6849
72	2799	3814	3793	4820	23145	20579	16803	19101	16901	14988	13455	15687	13850	12423	10694	11509	12374	10274	13498	11665	9101	9066
73	2813	3660	3441	4548	23252	20727	16757	19256	16969	14923	13480	15859	14004	12498	10729	11648	12556	10097	13217	11345	8930	9183
74	4505	5865	5365	7021	23985	21197	18399	19685	17986	16664	14774	16193	14488	13513	12002	12273	12864	12313	15700	13867	11130	10009
75	4899	6312	5827	7508	24109	21274	18710	19756	18176	16997	15026	16253	14583	13715	12258	12405	12931	12744	16186	14367	11560	10192
76	5283	6709	6125	7904	24343	21475	19054	19955	18453	17352	15339	16446	14800	14000	12575	12648	13131	13137	16583	14754	11952	10469
77	5633	7149	6837	8442	24190	21258	19200	19733	18405	17539	15393	16217	14623	13981	12646	12531	12921	13523	17110	15345	12337	10438
78	6347	7915	7672	9260	24357	21352	19698	19822	18701	18078	15805	16304	14780	14320	13083	12765	13043	14236	17916	16183	13052	10777
79	6531	8164	8287	9607	23939	20884	19571	19353	18390	17997	15600	15838	14365	14052	12908	12415	12607	14382	18219	16573	13202	10523
80	6919	8554	8610	9994	24154	21071	19903	19541	18657	18342	15910	16029	14586	14339	13229	12669	12819	14766	18609	16958	13586	10818
81	7270	8548	6803	9506	26424	23506	21158	21981	20579	19434	17472	18465	16863	16132	14707	14748	15167	15013	18135	16104	13835	12598
82	7803	9069	7167	10000	26903	23965	21691	22438	21086	19968	17996	18921	17337	16644	15232	15238	15631	15535	18612	16550	14358	13107
83	8004	9309	7513	10281	26925	23959	21842	22430	21156	20135	18108	18912	17353	16726	15350	15281	15634	15774	18909	16867	14594	13185
84	8334	9612	7653	10544	27301	24333	22196	22804	21530	20483	18475	19286	17728	17099	15715	15657	16009	16078	19152	17077	14900	13558
85	8796	10066	7995	10976	27722	24737	22659	23208	21973	20946	18930	19689	18146	17546	16172	16089	16420	16531	19569	17471	15355	14004
86	10815	12155	10097	13118	29101	25997	24526	24467	23563	22862	20681	20961	19534	19197	17949	17598	17765	18618	21722	19619	17437	15657
87	11394	12754	10722	13736	29478	26342	25051	24813	24006	23402	21173	21314	19923	19662	18452	18024	18144	19214	22346	20246	18032	16126
88	11780	13128	11013	14090	29868	26725	25451	25196	24406	23800	21575	21700	20315	20063	18853	18422	18535	19591	22687	20567	18409	16528
89	8042	7507	2724	6533	27957	25836	19902	24442	21401	17919	17595	21225	19268	17149	15092	16852	18041	11944	12608	9906	11067	14312
90	7635	7173	2291	6295	27659	25497	19726	24094	21119	17748	17331	20855	18906	16838	14798	16492	17656	11827	12700	10041	10917	13951
91	6976	6547	1629	5745	27048	24862	19214	23455	20519	17242	16746	20207	18261	16220	14192	15847	17001	11379	12494	9901	10438	13307
92	7039	6719	1709	6027	27234	25001	19513	23583	20725	17547	16971	20309	18374	16398	14390	15964	17082	11729	12934	10351	10768	13426
93	7417	7116	2102	6418	27631	25393	19902	23973	21123	17934	17370	20693	18761	16794	14788	16352	17462	12099	13215	10602	11147	13815
94	8204	7993	2970	7343	28504	26229	20828	24800	22011	18861	18270	21496	19576	17665	15674	17172	18245	13023	14037	11381	12074	14640
95	8026	7882	2875	7310	28380	26073	20800	24638	21904	18839	18181	21318	19407	17540	15566	17007	18057	13046	14185	11556	12078	14480
96	7972	7932	2988	7468	28392	26038	20948	24593	21943	18996	18247	21250	19353	17556	15607	16962	17974	13264	14540	11938	12273	14444
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98	5386	6411	4468	7178	25416	22699	19408	21195	19306	17606	15966	17719	15973	14822	13193	13711	14387	12843	15755	13689	11679	11369
99	5790	6797	4628	7523	25803	23073	19812	21567	19705	18008	16370	18086	16349	15220	13597	14095	14754	13219	16070	13967	12058	11762
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101	6841	7703	4753	8224	26977	24261	20840	22756	20851	19010	17475	19277	17535	16366	14707	15274	15944	14041	16601	14363	12898	12925
102	4968	5613	2950	6051	25397	22832	18836	21352	19128	16974	15630	17928	16101	14656	12884	13764	14609	11884	14471	12305	10749	11320
103	4529	5197	2910	5700	24964	22409	18408	20930	18690	16550	15192	17512	15679	14219	12445	13338	14196	11501	14183	12068	10360	10889
104	7291	8969	9304	10483	23853	20717	19925	19187	18486	18415	15861	15686	14309	14228	13221	12473	12523	15065	19044	17471	13893	10737
105	7700	9377	9642	10886	24091	20929	20282	19401	18781	18784	16199	15908	14562	14547	13572	12763	12770	15470	19452	17872	14299	11069
106	8723	10391	10435	11875	24824	21609	21251	20084	19635	19774	17136	16612	15337	15450	14533	13612	13534	16501	20462	18849	15330	11999
107	9120	10800	10900	12303	24883	21637	21495	20117	19780	20044	17350	16660	15429	15636	14773	13758	13623	16868	20874	19284	15700	12212
108	6493	7782	6283	8778	25751	22869	20389	21347	19861	18661	16723	17835	16204	15405	13955	14060	14525	14247	17427	15440	13068	11878
109	6101	7229	5311	8066	25847	23054	20105	21540	19829	18329	16570	18044	16348	15351	13795	14135	14717	13682	16659	14596	12513	11859
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111	6850	7624	4433	8054	27093	24412	20812	22912	20924	18966	17508	19443	17682	16440	14745	15400	16111	13907	16356	14081	12774	13025
112	6850	7546	4154	7897	27170	24521	20767	23026	20967	18908	17517	19566	17788	16486	14761	15490	16235	13775	16130	13825	12652	13094
113	6112	6798	3631	7184	26472	23852	20018	22361	20246	18159	16780	18913	17118	15767	14027	14806	15585	13046	15491	13238	11918	12392
114	5357	6007	3112	6415	25769	23189	19232	21705	19511	17370	16021	18274	16456	15037	13273	14126	14952	12263	14788	12587	11131	11691
115	5767	6459	3455	6874	26136	23526	19674	22038	19904	17817	16435	18594	16792	15426	13682	14476	15267	12724	15227	13003	11592	12057
116	6667	7843	5895	8705	26223	23382	20646	21863	20266	18886	17059	18357	16696	15797	14286	14518	15038	14302	17301	15232	13130	12286
117	5883	6088	1890	6019	26374	23940	19306	22482	19990	17390	16368	19110	17233	15559	13675	14856	15818	11939	13946	11579	10865	12357
118	4628	4634	1102	4529	25038	22685	17819	21245	18607	15897	14944	17920	16011	14204	12276	13613	14662	10450	12638	10385	9370	11090
119	4284	4223	1195	4115	24652	22321	17397	20886	18209	15475	14537	17576	15658	13815	11877	13256	14329	10036	12294	10084	8952	10728
120	3662	4928	4634	6045	23555	20859	17650	19360	17446	15881	14132	15894	14128	12962	11358	11853	12563	11390	14724	12898	10209	9505
121	3311	4545	4428	5662	23333	20672	17318	19178	17186	15539	13838	15726	13938	12701	11065	11643	12397	11008	14341	12529	9828	9267
122	8366	10034	10119	11519	24619	21424	20943	19898	19380	19456	16843	16417	15113	15173	14229	13357	13315	16150	20105	18495	14978	11709
123	6875	8174	6605	9168	26030	23123	20752	21599	20175	19030	17063	18084	16473	15726	14298	14349	14782	14639	17813	15815	13459	12193
124	10299	11735	10151	12832	28126	24988	23813	23459	22681	22191	19891	19960	18575	18353	17184	16690	16794	18168	21493	19498	16983	14824
125	10494	11961	10504	13099	28074	24910	23911	23382	22691	22310	19955	19891	18537	18389	17261	16688	16749	18376	21769	19804	17190	14868
126	10879	12338	10806	13462	28428	25253	24301	23726	23066	22701	20341	20239	18897	18770	17649	17061	17107	18758	22128	20146	17573	15252
127	11292	12750	11173	13869	28764	25573	24700	24048	23434	23105	20730	20566	19243	19149	18043	17425	17449	19171	22532	20540	17986	15635
128	11608	13081	11542	14215	28915	25704	24960	24180	23634	23377	20968	20707	19409	19368	18291	17619	17612	19493	22882	20900	18307	15863

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11/21/2019 9:56 AM/3.0.654

DECIBEL - Main Result

Calculation: A057 N149/V110

...continued from previous page

WTG	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
129	11791	13286	11845	14451	28883	25652	25056	24130	23658	23491	21038	20667	19396	19417	18374	17639	17595	19681	23124	21166	18495	15922
130	6735	6235	1439	5377	26720	24560	18834	23159	20181	16861	16398	19929	17976	15898	13859	15561	16738	10986	12114	9536	10050	13020
131	7676	7433	2409	6777	27946	25684	20265	24258	21448	18299	17705	20964	19039	17107	15112	16633	17721	12475	13584	10960	11519	14099
132	2974	4182	4291	5312	23099	20470	16991	18982	16921	15204	13543	15542	13736	12436	10772	11424	12218	10646	13990	12198	9466	9024
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134	6148	7744	7709	9133	24029	21022	19412	19493	18383	17803	15503	15975	14452	14006	12785	12442	12714	14028	17772	16080	12845	10465
135	5993	7528	7204	8837	24328	21363	19479	19835	18598	17835	15636	16317	14754	14192	12898	12696	13036	13885	17502	15743	12700	10647
136	8075	9759	10033	11279	24201	21011	20544	19484	18961	19066	16435	16002	14694	14758	13828	12938	12895	15824	19835	18266	14655	11299
137	9744	11427	11501	12936	25187	21906	22000	20390	20184	20573	17828	16956	15779	16086	15277	14168	13969	17474	21503	19917	16308	12691
138	9469	11161	11350	12690	24863	21588	21666	20071	19848	20243	17492	16633	15447	15749	14943	13832	13638	17177	21237	19677	16013	12355
139	3838	3785	1572	3781	24200	21868	16985	20434	17760	15069	14095	17127	15207	13363	11429	12804	13883	9690	12100	9963	8592	10275
140	5584	5751	1620	5674	26065	23649	18962	22195	19670	17045	16039	18833	16949	15245	13351	14567	15548	11595	13639	11295	10520	12061
141	5288	5420	1406	5342	25757	23357	18627	21906	19352	16709	15714	18554	16663	14933	13030	14276	15275	11263	13354	11036	10186	11766
142	5033	5100	1175	4992	25476	23100	18292	21654	19056	16371	15404	18316	16415	14646	12730	14023	15046	10913	13024	10726	9837	11506
143	4860	5798	3902	6518	25060	22401	18868	20905	18890	17049	15494	17448	15668	14406	12727	13373	14118	12210	15089	13028	11050	10989
144	4525	5475	3820	6233	24744	22098	18534	20605	18564	16716	15162	17153	15364	14080	12395	13063	13824	11897	14830	12803	10735	10671
145	4185	5095	3594	5849	24476	21860	18180	20372	18267	16355	14839	16932	15126	13785	12076	12810	13606	11512	14454	12445	10351	10397
146	6735	8214	7429	9431	25155	22170	20315	20642	19446	18660	16483	17123	15579	15041	13744	13536	13852	14616	18110	16268	13431	11497
147	6521	7236	3993	7625	26839	24194	20448	22699	20636	18593	17188	19242	17461	16154	14431	15161	15911	13489	15910	13635	12361	12763
148	6335	7506	5643	8376	25952	23129	20320	21612	19972	18557	16748	18110	16435	15500	13974	14243	14787	13965	16981	14928	12793	11994
149	6997	8180	6168	9039	26484	23623	20967	22102	20552	19212	17364	18593	16946	16086	14592	14783	15278	14640	17629	15548	13468	12569

WTG	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
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2	5856	3518	3213	2186	2523	10833	11971	12688	8372	9428	8117	2877	7176	4009	6908	12087	8846	9703	3299	7229	5555	10592
3	4234	3664	3601	2736	4180	9353	12067	12452	9286	10829	8184	3757	6071	3969	5452	12330	7709	7818	4653	8603	7062	9760
4	4096	4501	4494	3688	5161	8383	11663	11895	9331	11134	7820	4720	5232	4740	5414	11993	6839	7259	5068	8919	7484	8982
5	9225	9825	9684	8699	9180	5699	6337	6315	6223	9156	2925	9590	1946	10167	10587	6848	2929	10823	5715	7445	7055	3870
6	7523	5024	4648	3685	2978	11215	10903	11859	6849	7724	7171	4087	7294	5550	8609	10915	8919	11236	1693	5535	3845	10317
7	11524	12396	12259	11273	11687	5348	4638	3986	6770	9937	2942	12158	3373	12732	12870	5385	2877	12548	7901	8669	8746	1774
8	12677	12549	12312	11282	11155	8149	2888	3739	4141	7306	1024	12010	5360	12972	14041	3253	5505	14448	6803	6374	6889	4479
9	9310	7697	7365	6355	5778	10115	8113	9205	4220	5885	4502	6880	6068	8194	10561	8095	7470	12430	1328	3707	2637	8294
10	5385	2660	2353	1325	2144	11283	12819	13503	9210	10160	8958	2076	7768	3157	6333	12944	9436	9397	4101	7981	6275	11283
11	5189	777	701	1700	2835	13500	15816	16470	12043	12607	11952	1153	10369	1013	5505	15934	12003	9404	6886	10530	8775	14038
12	8360	6179	5814	4835	4096	10890	9794	10837	5678	6730	6132	5265	6871	6697	9519	9775	8426	11860	546	4511	2920	9591
13	5939	4934	4732	3719	4305	9128	10503	11058	7533	9164	6614	4577	5386	5345	7190	10709	7054	9252	3075	6943	5490	8796
14	5276	3346	3112	2089	2940	10421	12066	12681	8708	9914	8186	2950	6871	3792	6364	12228	8540	9088	3736	7701	6061	10390
15	4311	3254	3685	4570	6191	14197	18271	18631	15034	15864	14384	4474	11826	2713	3725	18508	13316	7810	9926	13736	11995	15626
16	4536	2706	3108	4046	5556	14235	17932	18364	14548	15288	14042	3856	11691	2184	4137	18140	13221	8259	9415	13179	11431	15481
17	5187	3102	3453	4445	5755	14896	18452	18927	14944	15567	14563	4114	12316	2622	4726	18639	13857	8834	9794	13488	11734	16100
18	2580	3135	3607	4188	6194	12514	17082	17300	14244	15396	13219	4494	10317	2646	2146	17383	11753	6269	9275	13207	11512	14117
19	1922	3229	3685	4110	6209	11843	16562	16730	13879	15151	12715	4565	9694	2807	1708	16886	11112	5773	8988	12946	11277	13491
20	2354	5553	5778	5383	7351	7770	13406	13236	11855	13866	9762	6359	5935	5511	3642	13876	7190	4464	7866	11666	10277	9651
21	1758	4005	4461	4873	6983	11798	16968	17048	14469	15828	13149	5342	9901	3574	1034	17324	11251	5159	9648	13616	11964	13676
22	11833	11341	11078	10046	9794	8604	4101	5174	3172	6321	686	10726	5253	11785	13187	4238	5825	13967	5389	5114	5483	5388
23	12004	11267	10982	9953	9565	9212	4326	5607	2539	5680	1328	10584	5765	11729	13348	4328	6422	14303	5087	4493	4957	6031
24	14331	12636	12262	11293	10263	12572	5624	7596	950	2634	4603	11661	9065	13155	15610	5044	9785	17133	5924	2771	4306	9212
25	8681	8552	8354	7336	7577	7240	6979	7436	5343	7973	3116	8154	3222	8947	10037	7289	4569	10944	3962	6060	5439	5587
26	7205	5425	5117	4093	3911	10090	10112	10934	6516	7859	6295	4716	6156	5911	8396	10200	7779	10656	1687	5633	4105	9212
27	11037	11198	10999	9980	10104	6876	4478	4791	4892	8017	1135	10781	3708	11590	12402	4939	4107	12744	6040	6646	6718	3804
28	13815	13736	13496	12465	12300	8633	1710	2766	4615	7669	2206	13185	6268	14160	15180	2191	6158	15450	7899	7051	7775	4666
29	9731	9189	8941	7910	7829	8124	6223	6991	4139	6843	2354	8634	4219	9624	11074	6414	5358	12134	3699	5031	4663	5896
30	10038	8914	8614	7589	7180	9355	6697	7770	3414	5782	3071	8194	5400	9389	11344	6721	6602	12790	2765	3847	3413	7100
31	631	4803	5206	5345	7520	10398	16112	16041	14049	15681	12372	6034	8773	4486	797	16531	10026	3925	9494	13456	11886	12495
32	2176	4715	5179	5632	7726	12098	17609	17630	15212	16599	13812	6065	10417	4258	953	17985	11710	4855	10416	14385	12738	14165
33	11102	10261	9974	8945	8576	9090	5302	6447	2790	5706	1822	9577	5385	10725	12435	5334	6284	13558	4130	4167	4293	6296
34	13008	11888	11565	10550	9898	10528	4413	6093	1327	4500	2557	11082	7098	12377	14332	4131	7747	15498	5367	3697	4601	7202
35	12329	10797	10446	9452	8618	11085	5878	7500	1092	3709	3449	9901	7355	11305	13614	5586	8278	15145	4131	2367	3135	8136
36	14104	12257	11873	10917	9815	12772	6162	8101	1036	2187	4866	11249	9164	12782	15365	5605	9972	17017	5553	2211	3801	9532
37	10161	8358	8002	7013	6214	10727	7841	9112	3494	5008	4475	7456	6707	8870	11399	7728	8020	13306	1693	2838	1953	8619
38	3165	6354	6553	6084	7964	6906	12914	12632	11707	13881	9369	7086	5285	6341	4390	13427	6443	4478	8030	11709	10410	8930
39	10767	11450	11301	10308	10690	5603	4988	4718	6196	9322	2395	11182	2843	11797	12123	5621	2879	12061	6923	7911	7867	2620
40	2814	6877	7162	6891	8929	7519	14330	13937	13245	15392	10857	7822	6586	6743	3687	14874	7554	2942	9470	13209	11869	10068
41	1966	5988	6418	6647	8816	10827	17185	16996	15336	17028	13509	7273	9660	5613	1127	17643	10783	3078	10846	14802	13243	13286
42	2941	7390	7746	7671	9805	8655	15890	15450	14779	16850	12432	8504	8116	7147	3201	16442	8992	1495	10838	14651	13253	11504
43	10166	10125	9916	8893	9001	7140	5408	5882	4677	7657	1601	9683	3496	10526	11528	5760	4335	12144	4996	6053	5891	4608
44	9969	9656	9425	8397	8398	7689	5775	6433	4298	7161	1885	9150	3890	10076	11324	6033	4898	12178	4312	5459	5213	5302
45	14874	13906	13586	12570	11904	11271	3103	5155	2589	5114	3521	13104	8318	14391	16213	2499	8618	17133	7378	5136	6383	7481
46	14126	13558	13275	12245	11819	9913	2239	4031	3281	6218	2429	12872	7133	14017	15481	2053	7304	16129	7306	5817	6769	6084

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11/21/2019 9:56 AM/3.0.654

DECIBEL - Main Result

Calculation: A057 N149/V110

...continued from previous page

WTG	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
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48	12469	10569	10189	9228	8180	11950	6806	8496	1495	2947	4459	9578	8124	11093	13714	6444	9148	15505	3861	1341	2329	9126
49	6247	1843	1635	2421	2665	14445	16264	17035	12210	12501	12440	1479	11193	2044	6496	16326	12844	10449	7089	10507	8754	14797
50	6845	2490	2297	3054	2963	15100	16737	17560	12553	12690	12938	2069	11818	2641	7024	16773	13474	11024	7475	10752	9010	15400
51	7242	2953	2787	3559	3353	15601	17182	18029	12930	12972	13396	2570	12322	3058	7355	17204	13978	11392	7884	11073	9341	15899
52	2929	7159	7581	7757	9932	10533	17516	17183	16009	17849	13943	8425	9827	6797	2322	18025	10799	2018	11704	15627	14118	13314
53	3216	7604	8007	8098	10271	9906	17176	16761	15899	17853	13676	8827	9421	7278	2890	17715	10309	1282	11758	15639	14177	12820
54	5536	9966	10306	10162	12255	7947	16460	15686	16172	18531	13360	11038	8669	9738	5707	17119	9090	1768	12764	16389	15136	11489
55	4914	9342	9684	9546	11645	7981	16225	15526	15758	18062	13038	10417	8405	9115	5116	16861	8934	1349	12240	15906	14623	11373
56	3608	7735	8019	7736	9756	7074	14434	13914	13664	15924	11086	8674	6619	7597	4346	15020	7414	2622	10102	13763	12481	9921
57	5146	5731	5679	4796	5958	7394	10436	10609	8470	10548	6629	5798	3993	6003	6501	10802	5632	7780	4778	8375	7112	7706
58	5976	7523	7520	6686	7895	5453	9705	9512	8831	11327	6183	7704	2323	7736	7322	10215	3843	7530	6149	9275	8280	6125
59	4593	6487	6549	5820	7319	6285	11043	10894	9786	12063	7434	6858	3671	6637	5938	11524	5093	6409	6435	9927	8738	7459
60	6167	8087	8113	7315	8597	4772	9805	9448	9320	11910	6449	8342	2102	8269	7480	10369	3420	7278	6864	9895	8956	5826
61	6382	7092	7011	6085	7001	6438	9134	9223	7689	10077	5404	7055	2710	7386	7747	9549	4379	8522	4863	7998	6978	6332
62	7378	7813	7687	6716	7372	6439	8146	8311	6804	9332	4399	7636	2436	8147	8741	8548	4056	9473	4579	7325	6473	5702
63	8463	9460	9365	8418	9136	4985	7233	7014	7178	10043	3937	9362	1000	9760	9817	7789	2371	9855	6100	8243	7695	3974
64	7641	7378	7187	6174	6529	7603	8140	8606	6006	8327	4260	7012	3569	7771	8984	8420	5130	10180	3403	6256	5313	6514
65	5956	7216	7190	6328	7467	5881	9613	9527	8490	10925	5999	7336	2523	7455	7314	10086	4123	7777	5675	8853	7825	6307
66	6797	8843	8868	8066	9315	4035	9492	8990	9437	12148	6332	9092	1665	9021	8086	10106	2744	7560	7368	10198	9364	5208
67	5135	7257	7322	6590	8052	5514	10733	10451	9872	12297	7256	7627	3125	7399	6449	11264	4432	6453	6884	10206	9117	6856
68	7345	7529	7381	6395	6968	6895	8236	8512	6573	9009	4420	7293	2891	7883	8704	8592	4500	9636	4128	6968	6061	6075
69	8858	10179	10109	9184	9987	4156	7195	6711	7770	10726	4278	10148	648	10453	10191	7836	1476	9866	6992	9003	8534	3263
70	8197	8855	8734	7765	8385	5758	7338	7351	6682	9441	3766	8684	1714	9182	9560	7813	3181	9937	5293	7570	6939	4661
71	11202	11996	11853	10864	11264	5441	4758	4279	6508	9663	2673	11745	3125	12336	12553	5458	2841	12339	7484	8337	8367	2120
72	9028	4612	4334	4851	3753	16865	17469	18515	12820	12405	13818	3815	13360	4821	9210	17392	15030	13215	8056	10708	9059	16771
73	8753	4371	4119	4700	3770	16751	17568	18575	12987	12650	13886	3661	13297	4549	8900	17510	14965	12925	8159	10916	9249	16749
74	11226	6788	6478	6877	5365	18704	18389	19627	13392	12446	14928	5867	15040	7022	11417	18207	16706	15422	9099	11050	9569	18272
75	11710	7265	6946	7314	5730	19076	18539	19821	13476	12413	15130	6314	15377	7509	11914	18334	17039	15912	9311	11093	9659	18561
76	12108	7663	7345	7709	6103	19448	18791	20100	13687	12541	15415	6712	15734	7905	12305	18571	17394	16307	9605	11277	9877	18893
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78	13439	8975	8622	8870	7059	20304	18913	20352	13644	12157	15724	7917	16480	9261	13712	18620	18119	17662	10015	11140	9911	19461
79	13750	9289	8913	9083	7170	20290	18547	20038	13223	11614	15447	8167	16415	9608	14086	18224	18039	17984	9814	10694	9542	19296
80	14140	9678	9303	9472	7553	20648	18790	20305	13442	11758	15730	8557	16763	9996	14472	18452	18383	18373	10128	10901	9791	19617
81	13695	9345	9085	9576	8139	21473	20897	22227	15741	14429	17547	8549	17812	9507	13734	20658	19476	17818	11740	13290	11949	21014
82	14181	9849	9596	10100	8673	22006	21390	22735	16211	14844	18059	9071	18346	10001	14196	21142	20010	18289	12257	13747	12429	21543
83	14470	10118	9855	10335	8858	22201	21434	22806	16222	14789	18139	9311	18515	10281	14503	21172	20177	18591	12353	13741	12455	21678
84	14723	10395	10141	10642	9197	22535	21810	23180	16598	15155	18512	9614	18862	10544	14730	21548	20525	18826	12723	14115	12832	22039
85	15149	10835	10586	11097	9660	22998	22242	23623	17014	15528	18959	10068	19326	10977	15137	21972	20988	19239	13175	14522	13257	22499
86	17297	12965	12704	13179	11645	24989	23730	25213	18391	16620	20600	12157	21250	13119	17290	23400	22904	21393	14893	15847	14726	24318
87	17918	13578	13313	13775	12213	25552	24143	25655	18778	16930	21060	12756	21794	13737	17916	23795	23444	22018	15383	16224	15146	24828
88	18266	13939	13679	14151	12603	25944	24539	26054	19170	17307	21461	13130	22191	14091	18248	24189	23841	22354	15784	16615	15544	25229
89	9063	6906	7126	8157	8793	18961	22285	22889	18367	18506	18416	7505	16410	6532	8288	22403	17958	12129	13242	16598	14857	20185
90	9032	6641	6836	7862	8408	18858	21979	22620	17993	18081	18119	7171	16223	6294	8322	22081	17787	12233	12881	16190	14454	19985
91	8685	6068	6241	7262	7754	18418	21364	22030	17342	17418	17510	6545	15702	5745	8058	21455	17282	12043	12237	15530	13795	19452
92	9088	6322	6467	7479	7850	18769	21543	22248	17439	17432	17702	6718	15997	6026	8487	21616	17587	12486	12359	15577	13852	19733
93	9422	6717	6865	7877	8235	19139	21940	22646	17822	17790	18099	7115	16387	6418	8789	22011	17974	12760	12748	15947	14225	20126
94	10316	7634	7771	8777	9049	20063	22810	23541	18621	18495	18979	7992	17313	7342	9644	22867	18901	13571	13576	16695	14986	21048
95	10399	7580	7697	8693	8886	20086	22683	23443	18442	18268	18863	7881	17281	7309	9766	22727	18879	13727	13418	16488	14787	21003
96	10688	7709	7799	8777	8854	20299	22693	23494	18374	18120	18891	7931	17426	7468	10098	22718	19036	14089	13386	16376	14688	21129
97	10925	6699	6504	7150	6143	19211	19734	20845	14918	14183	16141	6113	15750	6789	10890	19615	17420	14994	10338	12670	11106	19167
98	11337	7064	6847	7450	6324	19489	19782	20937	14894	14056	16231	6412	15978	7178	11331	19641	17648	15428	10411	12603	11074	19352
99	11666	7424	7218	7837	6729	19883	20173	21336	15267	14387	16630	6799	16380	7524	11630	20027	18050	15735	10808	12961	11445	19757
100	11955	7683	7463	8053	6870	20079	20210	21403	15257	14306	16697	7015	16543	7798	11940	20048	18213	16040	10870	12923	11433	19888
101	12270	8190	8034	8736	7793	20807	21340	22478	16455	15568	17772	7704	17383	8225	12113	21203	19052	16237	11959	14152	12634	20815
102	10111	6025	5887	6633	5924	18696	19718	20734	15065	14541	16044	5614	15352	6052	10001	19647	17016	14119	10305	12914	11289	18858
103	9798	5651	5495	6221	5485	18289	19283	20296	14647	14160	15607	5197	14927	5700	9733	19216	16592	13842	9871	12511	10877	18425
104	14589	10142	9749	9850	7857	20783	18557	20128	13163	11335	15603	8972	16854	10485	14974	18186	18455	18825	10108	10603	9591	19601
105	14995	10547	10156	10259	8263	21165	18827	20421	13416	11517	15916	9380	17228	10888	15376	18442	18825	19232	10458	10851	9882	19947
106	16001	11546	11161	11281	9294	22174	19632	21269	14193	12147	16807	10394	18226	11876	16359	19218	19815	20237	11421	11621	10740	20898
107	16418	11968	11578	11678	9669	22470	19741	21408	14288	12158	16982	10803	18506	12305	16791	19308	20084	20654	11665	11717	10897	21124
108	12976	8603	8333	8809	7362	20696	20203	21508	15087	13871	16821	7784	17038	8779	13049	19981	18703	17119	11005	12662	11282	20251
109	12235	7936	7704	8268	7017	20268	20247	21468	15250	14231	16765	7231	16702	8067	12239	20070	18371	16334	10935	12892	11427	20017
110	17327	12874	12487	12594	10586	23351	20432	22136	14968	12723	17755	11716	19377	13205	17688	19974	20947	21563	12510	12401	11658	21948
111	12054	8045	7912	8649	7806	20717	21442	22546	16610	15794	17843	7624	17341	8054	11858	21322	19008	15983	12045	14336	12793	20807
112	11854	7911	7797	8563	7807	20620	21509	22583	16725	15970	17884	7547	17286	7898	11626	21404	18950	15750	12102	14477	12914	20780
113	11181	7182	7059	7817	7070	19877	20804	21859	16063	15388	17162	6799	16536	7184	10997	20710	18201	15123	11393	13847	12262	20033
114	10448	6401	6270	7025	6313	19085	20093	21119	15414	14844	16428	6008	15748	6415	10307	20016	17412	14430	10680	13243	11630	19254
115	10897	6862	6731	7479	6724	19543	20467	21516	15741	15098	16820	6460	16194	6875	10740	20377	17859	14864	11055	13538	11944	19688

To be continued on next page...

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Calculated:
11/21/2019 9:56 AM/3.0.654

DECIBEL - Main Result

Calculation: A057 N149/V110

...continued from previous page

WTG	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
116	12877	8571	8333	8879	7570	20856	20648	21909	15587	14452	17212	7844	17260	8706	12879	20448	18928	16975	11385	13190	11772	20539
117	9760	6139	6125	7025	6800	18904	20677	21566	16235	15917	16919	6087	15789	6019	9436	20666	17431	13550	11311	14194	12519	19413
118	8366	4640	4631	5546	5498	17406	19338	20169	15045	14937	15547	4634	14300	4529	8139	19360	15939	12264	10031	13113	11401	17939
119	7993	4219	4209	5127	5134	16986	18953	19768	14701	14654	15153	4222	13878	4115	7805	18983	15517	11929	9665	12802	11082	17520
120	10251	5817	5516	5950	4566	17859	17918	19078	13058	12339	14372	4930	14255	6046	10444	17781	15924	14445	8549	10805	9243	17561
121	9867	5431	5129	5569	4228	17497	17684	18814	12878	12249	14108	4547	13912	5663	10070	17562	15581	14065	8295	10664	9074	17242
122	15644	11190	10804	10925	8941	21844	19397	21016	13968	11978	16535	10037	17903	11521	16004	18995	19496	19880	11116	11398	10481	20600
123	13365	8995	8726	9200	7739	21077	20497	21822	15352	14073	17141	8176	17408	9169	13429	20263	19072	17503	11332	12909	11556	20605
124	17036	12636	12343	12740	11082	24391	22802	24328	17429	15579	19747	11737	20591	12833	17117	22449	22233	21187	14101	14874	13810	23567
125	17305	12890	12587	12958	11258	24540	22784	24336	17391	15477	19777	11963	20716	13100	17410	22415	22352	21470	14168	14829	13806	23649
126	17668	13258	12959	13337	11646	24930	23151	24711	17752	15811	20157	12341	21107	13463	17760	22776	22743	21826	14555	15187	14179	24037
127	18073	13667	13369	13750	12058	25339	23505	25078	18097	16119	20534	12753	21512	13869	18158	23123	23147	22228	14946	15530	14542	24431
128	18421	14009	13707	14076	12364	25629	23684	25276	18264	16237	20749	13083	21788	14216	18515	23290	23419	22580	15189	15694	14738	24679
129	18658	14235	13926	14275	12531	25766	23685	25297	18252	16174	20791	13288	21907	14452	18771	23278	23533	22828	15268	15681	14759	24762
130	8289	5712	5899	6925	7490	18025	21040	21686	17069	17202	17180	6233	15325	5376	7670	21141	16900	11666	11951	15291	13550	19080
131	9802	7067	7205	8211	8511	19515	22252	22977	18091	18007	18418	7432	16748	6777	9164	22314	18339	13126	13033	16187	14472	20482
132	9515	5073	4768	5207	3902	17147	17440	18545	12686	12139	13840	4184	13576	5313	9733	17334	15246	13717	8039	10508	8895	16926
133	17579	13231	12964	13420	11852	25191	23802	25307	18444	16620	20708	12402	21432	13394	17588	23459	23082	21686	15025	15893	14803	24468
134	13298	8833	8469	8685	6835	20046	18589	20033	13315	11830	15410	7746	16208	9135	13600	18293	17844	17527	9712	10811	9586	19167
135	13024	8562	8218	8497	6736	20024	18848	20249	13624	12239	15601	7531	16230	8838	13277	18577	17876	17242	9854	11145	9861	19264
136	15381	10936	10542	10633	8623	21467	18977	20597	13549	11571	16119	9762	17518	11280	15770	18575	19107	19618	10715	10979	10063	20195
137	17048	12599	12208	12301	10282	23021	20105	21805	14642	12415	17420	11431	19044	12938	17424	19650	20613	21285	12174	12075	11323	21611
138	16787	12345	11950	12025	9992	22696	19772	21469	14310	12099	17082	11164	18716	12691	17181	19320	20283	21024	11842	11742	10986	21275
139	7753	3846	3808	4706	4682	16615	18500	19321	14253	14230	14703	3785	13468	3781	7634	18529	15111	11750	9213	12366	10642	17097
140	9434	5792	5780	6683	6493	18558	20367	21244	15957	15686	16602	5750	15445	5674	9129	20363	17087	13248	11012	13939	12256	19073
141	9127	5457	5444	6349	6189	18223	20058	20923	15677	15449	16286	5419	15109	5342	8845	20060	16750	12967	10713	13681	11990	18739
142	8785	5111	5105	6018	5919	17875	19776	20623	15439	15268	15994	5099	14773	4992	8518	19789	16412	12642	10450	13474	11772	18410
143	10672	6413	6207	6837	5810	18893	19406	20513	14605	13901	15809	5799	15421	6518	10666	19291	17091	14762	10008	12368	10796	18834
144	10402	6115	5899	6514	5475	18566	19087	20186	14305	13642	15482	5476	15088	6234	10424	18977	16758	14509	9686	12085	10501	18500
145	10021	5728	5512	6134	5139	18191	18811	19885	14077	13488	15184	5096	14728	5850	10056	18714	16397	14136	9402	11889	10283	18155
146	13635	9188	8866	9203	7510	20827	19688	21096	14446	12997	16450	8216	17052	9433	13825	19409	18701	17834	10703	11955	10695	20107
147	11611	7626	7502	8256	7479	20318	21178	22252	16399	15661	17553	7237	16970	7625	11411	21074	18635	15537	11771	14157	12590	20458
148	12552	8238	7998	8542	7241	20520	20367	21614	15330	14244	16914	7507	16930	8377	12566	20175	18599	16658	11085	12949	11511	20218
149	13208	8908	8671	9217	7896	21189	20919	22196	15834	14650	17502	8182	17586	9040	13202	20710	19254	17301	11677	13422	12023	20855

WTG	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI
1	2356	13440	10098	5140	16139	13918	12411	5275	5910	8096	20528	20279	20101	18834	11098	9417	12857
2	3428	12147	8847	6655	14751	12539	11001	4959	5441	7468	19076	18827	18638	17419	10249	9074	11356
3	4938	11029	7662	7155	15518	13359	11745	2989	3484	5577	19577	19334	19094	18078	8511	7108	11061
4	5929	10146	6777	7998	15422	13306	11667	2270	2622	4625	19324	19086	18821	17913	7521	6265	10490
5	10133	5759	3084	13263	11011	9199	7578	6614	6173	6141	14265	14041	13709	13156	6601	8354	4907
6	3920	12111	8966	7809	13245	11020	9534	6334	6688	8506	17688	17438	17278	15954	10975	10319	10598
7	12644	4059	3122	15838	10027	8599	7166	8862	8308	7718	12563	12359	11965	11774	7053	9772	2603
8	12100	6768	5741	15794	7467	5840	4345	10139	9758	9733	10670	10442	10129	9532	9675	11920	2682
9	6698	10344	7586	10629	10572	8368	6816	7428	7489	8729	14909	14659	14484	13233	10466	10843	8022
10	2929	12754	9419	5826	15596	13381	11851	4886	5467	7605	19935	19686	19498	18271	10537	9041	12160
11	2591	15320	11951	2882	18438	16213	14728	6143	6907	9149	22864	22614	22441	21149	12356	10003	15114
12	5016	11506	8503	8980	12073	9851	8357	6867	7103	8706	16510	16260	16102	14778	10896	10663	9616
13	5226	10348	7062	8288	13776	11611	10002	4249	4493	6224	17888	17644	17416	16354	8729	8088	9697
14	3785	11857	8525	6655	15058	12858	11293	4345	4844	6904	19308	19061	18856	17697	9746	8471	11326
15	5897	16503	13207	3260	21409	19200	17652	6538	7317	9318	25666	25420	25206	24062	12579	9398	17230
16	5226	16448	13123	2691	20935	18719	17188	6559	7351	9429	25243	24996	24794	23606	12705	9667	16971
17	5320	17093	13762	2226	21338	19117	17605	7220	8013	10094	25694	25446	25254	24027	13370	10314	17539
18	6166	14890	11631	4655	20551	18371	16778	4894	5656	7604	24651	24408	24166	23140	10857	7681	15891
19	6285	14233	10986	5193	20148	17981	16374	4236	4992	6931	24186	23946	23693	22710	10185	7044	15320
20	7924	10206	7040	8709	17698	15665	14006	556	975	2927	21293	21064	20751	20054	6205	3780	11832
21	7061	14297	11111	5765	20696	18544	16925	4348	5052	6825	24662	24423	24158	23228	10028	6696	15636
22	10732	7681	6039	14511	7813	5902	4263	9401	9115	9409	11502	11263	11002	10146	9838	11637	4098
23	10489	8325	6631	14360	7533	5532	3874	9639	9401	9822	11421	11179	10946	9965	10388	12054	4617
24	11058	11512	9994	15255	5680	3456	2243	12244	12153	12900	10345	10092	10021	8445	13720	15125	7093
25	8535	7513	4688	11900	10916	8906	7245	6260	6018	6611	14638	14401	14125	13297	7789	8834	6080
26	4870	10978	7827	8500	12872	10669	9113	5663	5912	7579	17169	16921	16731	15525	9916	9493	9638
27	11062	6059	4327	14539	9123	7384	5803	8469	8067	8042	12359	12133	11810	11235	8179	10240	3451
28	13240	6855	6402	16970	6719	5359	4070	11252	10841	10684	9595	9372	9037	8581	10349	12837	2052
29	8783	8008	5513	12417	9793	7744	6085	7388	7188	7815	13660	13420	13169	12237	8867	10040	5724

To be continued on next page...

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DECIBEL - Main Result

Calculation: A057 N149/V110

...continued from previous page

WTG	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI
30	8111	9245	6752	11968	9533	7381	5760	7891	7807	8702	13696	13449	13246	12114	10003	10899	6602
31	7773	12980	9871	7100	20133	18030	16386	3216	3819	5403	23924	23690	23399	22587	8568	5207	14633
32	7769	14685	11559	6162	21417	19274	17649	4843	5494	7100	25343	25105	24833	23933	10230	6725	16219
33	9506	8543	6471	13355	8405	6330	4674	8800	8611	9202	12402	12158	11934	10900	10056	11432	5348
34	10781	9504	7959	14814	6511	4397	2749	10739	10556	11094	10707	10458	10280	9083	11726	13327	5348
35	9473	10418	8467	13581	7447	5235	3719	10240	10162	10989	11893	11641	11504	10139	12026	13203	6655
36	10592	11834	10174	14806	6152	3942	2812	12088	12033	12877	10864	10611	10553	8931	13833	15092	7541
37	7096	10750	8155	11152	9886	7666	6164	8305	8363	9567	14325	14074	13924	12585	11199	11697	8013
38	8593	9389	6280	9564	17388	15403	13743	1008	515	2061	20846	20621	20292	19678	5336	3194	11238
39	11647	4809	3110	14877	10084	8480	6953	8124	7621	7264	12966	12751	12387	12021	7032	9400	3306
40	9449	10254	7365	9772	18900	16929	15269	2165	2041	2550	22287	22065	21724	21161	5590	2371	12560
41	9013	13567	10607	7880	21359	19277	17627	4251	4710	5868	25055	24824	24519	23772	8815	5125	15597
42	10208	11520	8791	9875	20473	18495	16835	3540	3580	3882	23852	23631	23287	22735	6532	2739	14083
43	9959	6764	4520	13447	9633	7739	6098	7662	7331	7573	13152	12919	12624	11900	8149	9801	4554
44	9354	7441	5067	12928	9640	7657	5999	7545	7283	7731	13356	13119	12849	12008	8561	9964	5144
45	12777	9717	8852	16833	4661	2765	1224	12514	12261	12563	8688	8439	8257	7116	12768	14785	4874
46	12732	8319	7541	16646	5692	4043	2612	11666	11346	11466	9201	8963	8703	7885	11479	13670	3548
47	9900	9244	7384	13880	7521	5397	3756	9758	9596	10222	11687	11439	11249	10089	11038	12452	5554
48	8984	11399	9327	13171	7763	5536	4191	10534	10531	11533	12379	12127	12030	10519	12777	13720	7677
49	2076	16167	12805	2372	18582	16354	14924	7182	7937	10182	23105	22853	22705	21325	13368	11072	15703
50	2201	16798	13438	2055	18900	16674	15275	7842	8598	10843	23469	23217	23081	21656	14030	11714	16239
51	2522	17302	13943	1806	19258	17035	15655	8318	9079	11322	23853	23600	23472	22021	14518	12158	16714
52	10166	13391	10605	9054	21902	19864	18206	4734	5023	5722	25446	25220	24893	24246	8394	4547	15801
53	10564	12804	10107	9682	21688	19683	18023	4595	4767	5195	25130	24907	24569	23984	7729	3852	15392
54	12717	10984	8857	12457	21447	19605	17962	5533	5242	4297	24421	24214	23825	23514	5619	2098	14401
55	12099	10994	8707	11848	21130	19256	17607	4971	4725	3991	24197	23987	23608	23242	5680	1912	14218
56	10293	9918	7208	10604	19167	17244	15588	2888	2582	2292	22409	22192	21835	21358	5012	1530	12560
57	6812	8954	5590	9227	14393	12323	10669	2835	2820	4312	18171	17936	17655	16822	6821	6270	9202
58	8752	7129	3765	11015	14246	12318	10663	3314	2808	3140	17634	17409	17079	16485	5029	5349	8106
59	8100	8299	4982	9939	15436	13450	11789	1931	1490	2644	18944	18716	18398	17741	5354	4629	9487
60	9441	6625	3304	11564	14541	12670	11025	3506	2871	2652	17771	17551	17203	16703	4291	4885	8057
61	7905	7697	4370	10579	13341	11339	9678	3861	3585	4389	16953	16721	16422	15685	6270	6560	7813
62	8308	7292	4102	11267	12351	10366	8707	4866	4571	5164	15949	15717	15419	14682	6629	7378	6908
63	10072	5537	2461	12941	12017	10215	8593	5814	5311	5139	15192	14972	14627	14132	5667	7344	5605
64	7482	8279	5201	10743	11876	9803	8149	5334	5200	6138	15728	15489	15227	14327	7800	8309	7242
65	8336	7436	4067	10714	14021	12058	10399	3331	2926	3537	17505	17278	16960	16307	5508	5719	8116
66	10170	5892	2606	12318	14407	12606	10979	4162	3474	2768	17469	17255	16890	16483	3755	4954	7620
67	8847	7584	4304	10702	15323	13393	11738	2477	1845	2188	18680	18457	18120	17553	4626	4340	9053
68	7910	7718	4552	10959	12264	10241	8581	4910	4686	5454	15966	15732	15447	14646	7050	7649	7120
69	10916	4666	1580	13672	12245	10547	8962	6189	5601	5055	15172	14959	14588	14232	5069	7186	5327
70	9328	6326	3267	12314	11843	9952	8307	5601	5192	5366	15233	15006	14685	14066	6283	7598	5941
71	12222	4369	3084	15431	10033	8528	7053	8546	8013	7518	12720	12511	12130	11863	7033	9609	2875
72	2797	18340	15021	3246	18993	16797	15532	9865	10593	12834	23708	23455	23370	21780	15956	13829	17259
73	2811	18281	14950	2870	19194	16992	15705	9669	10407	12652	23891	23638	23545	21979	15796	13599	17306
74	4503	19979	16718	5183	19280	17145	16033	11946	12650	14877	24089	23837	23803	22065	17934	15969	18444
75	4897	20299	17057	5678	19283	17167	16093	12389	13085	15307	24107	23856	23833	22064	18343	16428	18656
76	5281	20647	17414	6025	19434	17332	16285	12785	13480	15700	24266	24016	24001	22210	18730	16826	18946
77	5632	20807	17611	6703	19123	17049	16055	13198	13875	16080	23968	23719	23719	21889	19062	17274	18932
78	6346	21316	18159	7559	19099	17066	16142	13933	14595	16786	23954	23706	23727	21847	19728	18029	19265
79	6530	21199	18088	8102	18558	16553	15676	14111	14750	16916	23415	23168	23201	21294	19798	18234	18983
80	6918	21533	18434	8454	18698	16713	15867	14497	15135	17297	23555	23309	23351	21424	20171	18622	19263
81	7268	22744	19490	7077	21359	19293	18303	14615	15338	17576	26207	25958	25963	24121	20668	18573	21079
82	7801	23277	20024	7501	21781	19728	18759	15133	15858	18097	26633	26384	26395	24536	21195	19079	21593
83	8002	23434	20195	7828	21731	19694	18750	15381	16101	18337	26586	26338	26357	24480	21420	19346	21677
84	8332	23787	20541	8020	22097	20064	19124	15677	16402	18641	26953	26705	26725	24844	21735	19624	22049
85	8794	24249	21005	8405	22473	20450	19527	16127	16854	19093	27329	27082	27108	25213	22192	20064	22497
86	10813	26134	22931	10549	23536	21599	20799	18230	18948	21182	28385	28142	28205	26228	24251	22193	24140
87	11393	26663	23474	11177	23826	21917	21153	18832	19546	21778	28668	28426	28500	26501	24837	22805	24598
88	11778	27063	23871	11495	24196	22294	21538	19204	19921	22155	29036	28794	28871	26865	25220	23167	24999
89	8041	21195	17864	3801	24734	22507	21081	11288	12075	14093	29259	29008	28855	27481	17351	14074	21515
90	7634	21042	17700	3423	24349	22123	20711	11182	11973	14027	28896	28645	28498	27102	17295	14087	21253

To be continued on next page...

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DECIBEL - Main Result

Calculation: A057 N149/V110

...continued from previous page

WTG	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI
91	6974	20551	17200	2778	23695	21469	20062	10747	11542	13631	28250	27998	27853	26449	16906	13781	20668
92	7037	20866	17510	2932	23773	21550	20162	11104	11901	14007	28357	28105	27969	26535	17284	14194	20893
93	7415	21251	17895	3329	24152	21929	20546	11471	12266	14362	28742	28490	28356	26916	17638	14517	21291
94	8202	22178	18823	4213	24928	22709	21347	12392	13188	15276	29547	29294	29169	27699	18550	15395	22191
95	8024	22165	18805	4122	24734	22518	21168	12424	13220	15328	29368	29116	28996	27508	18604	15495	22098
96	7970	22332	18968	4220	24639	22428	21100	12652	13449	15578	29298	29045	28934	27418	18856	15800	22159
97	5191	20732	17407	4189	20945	18782	17601	12055	12808	15053	25722	25469	25413	23735	18225	15898	19607
98	5384	20954	17641	4661	20860	18710	17561	12403	13148	15393	25654	25402	25356	23648	18546	16282	19715
99	5789	21357	18043	4912	21208	19065	17927	12772	13521	15767	26009	25757	25715	23996	18927	16632	20116
100	5940	21514	18210	5242	21151	19019	17904	13018	13761	16006	25962	25711	25676	23936	19154	16901	20195
101	6840	22368	19036	5314	22397	20255	19118	13560	14325	16567	27200	26948	26906	25184	19767	17315	21246
102	4966	20339	16990	3234	21204	19016	17773	11394	12163	14403	25938	25685	25607	23993	17612	15144	19463
103	4528	19914	16568	3024	20801	18610	17357	11020	11785	14027	25528	25275	25193	23589	17227	14805	19025
104	7291	21563	18516	9099	18259	16312	15525	14827	15442	17577	23112	22868	22924	20965	20388	18969	19123
105	7699	21921	18888	9464	18425	16501	15747	15234	15848	17980	23273	23030	23096	21117	20784	19376	19429
106	8722	22892	19882	10332	19004	17135	16452	16264	16879	19011	23837	23596	23682	21662	21810	20405	20306
107	9119	23138	20155	10793	18979	17142	16501	16642	17248	19369	23800	23561	23657	21616	22142	20788	20467
108	6492	21973	18716	6459	20784	18698	17674	13855	14574	16811	25625	25375	25369	23554	19896	17827	20349
109	6099	21666	18372	5561	21097	18976	17884	13256	13995	16239	25917	25666	25639	23879	19372	17162	20272
110	10035	23981	21022	11624	19473	17689	17112	17559	18164	20282	24269	24033	24147	22073	23045	21705	21222
111	6848	22328	18986	5062	22597	20445	19285	13411	14183	16421	27388	27136	27087	25386	19635	17121	21302
112	6848	22272	18924	4842	22749	20589	19409	13268	14044	16278	27529	27277	27221	25539	19503	16938	21329
113	6110	21523	18175	4199	22130	19959	18756	12546	13319	15556	26895	26642	26579	24920	18775	16248	20599
114	5355	20734	17385	3518	21532	19350	18118	11767	12538	14777	26277	26024	25950	24322	17991	15496	19851
115	5765	21180	17833	3943	21823	19649	18438	12229	12999	15238	26582	26330	26263	24614	18452	15952	20255
116	6666	22215	18933	6188	21350	19249	18196	13882	14617	16860	26184	25933	25918	24126	19984	17798	20730
117	5881	20750	17382	2762	22468	20262	18958	11384	12174	14379	27150	26898	26797	25251	17640	14883	20256
118	4627	19257	15888	1346	21343	19125	17771	9903	10691	12903	25971	25718	25598	24115	16158	13467	18846
119	4283	18835	15466	1012	21015	18795	17427	9493	10280	12495	25626	25374	25249	23783	15747	13083	18441
120	3660	19214	15927	4314	19082	16917	15737	11007	11720	13953	23857	23604	23548	21872	17035	15011	17862
121	3310	18877	15582	4026	18950	16774	15569	10623	11337	13572	23708	23456	23391	21740	16659	14624	17588
122	8365	22584	19561	9999	18857	16967	16256	15910	16527	18662	23697	23455	23533	21528	21468	20051	20041
123	6874	22338	19087	6818	20997	18924	17923	14248	14966	17202	25843	25593	25594	23762	20285	18220	20672
124	10298	25432	22270	10473	22480	20565	19799	17813	18510	20730	27324	27082	27153	25160	23743	21838	23283
125	10493	25535	22393	10798	22359	20466	19730	18034	18723	20936	27197	26956	27035	25026	23928	22076	23308
126	10877	25925	22784	11126	22681	20800	20078	18413	19105	21319	27515	27275	27359	25340	24315	22450	23687
127	11290	26325	23189	11511	22974	21108	20406	18826	19517	21732	27802	27563	27652	25622	24727	22861	24061
128	11607	26587	23464	11876	23070	21224	20547	19153	19841	22052	27891	27652	27749	25705	25036	23196	24271
129	11790	26687	23581	12157	22984	21158	20507	19351	20032	22238	27796	27558	27662	25605	25203	23407	24307
130	6734	20166	16817	2498	23431	21204	19785	10352	11147	13234	27967	27716	27566	26180	16509	13387	20321
131	7675	21618	18262	3650	24408	22187	20816	11848	12644	14742	29014	28762	28633	27176	18018	14895	21625
132	2973	18545	15245	3801	18798	16614	15386	10260	10975	13209	23541	23288	23216	21588	16300	14263	17309
133	11033	26302	23112	10860	23523	21604	20829	18479	19192	21423	28368	28126	28196	26205	24478	22457	24247
134	6147	21032	17886	7542	18772	16738	15813	13737	14391	16573	23627	23379	23399	21522	19496	17844	18950
135	5992	21091	17910	7092	19173	17118	16155	13568	14240	16439	24024	23775	23785	21932	19408	17650	19142
136	8074	22185	19173	9862	18457	16559	15841	15596	16204	18328	23299	23057	23132	21133	21114	19741	19623
137	9743	23645	20688	11413	19181	17386	16797	17254	17856	19969	23983	23747	23857	21790	22722	21402	20888
138	9468	23311	20359	11229	18878	17073	16474	16963	17560	19666	23685	23448	23555	21495	22408	21113	20551
139	3836	18431	15063	976	20572	18350	16979	9161	9944	12168	25177	24925	24799	23338	15410	12814	17996
140	5582	20406	17038	2425	22206	19997	18681	11041	11831	14037	26877	26624	26519	24987	17297	14553	19930
141	5286	20069	16701	2108	21941	19729	18403	10712	11501	13709	26600	26347	26238	24719	16967	14241	19607
142	5031	19730	16362	1762	21721	19506	18165	10362	11151	13359	26365	26112	25998	24496	16617	13896	19302
143	4858	20403	17079	4017	20648	18481	17291	11761	12511	14756	25419	25166	25107	23438	17920	15624	19274
144	4524	20070	16747	3837	20368	18197	16996	11454	12201	14446	25132	24880	24817	23159	17604	15334	18945
145	4184	19711	16384	3520	20178	17997	16775	11068	11815	14060	24927	24674	24604	22968	17220	14948	18635
146	6733	21924	18732	7453	19938	17900	16961	14279	14965	17176	24792	24544	24562	22689	20174	18337	19991
147	6520	21956	18610	4616	22432	20269	19085	12988	13762	15998	27209	26956	26899	25222	19218	16684	20998
148	6333	21888	18603	5896	21129	19019	17950	13546	14281	16523	25957	25706	25686	23907	19647	17466	20429
149	6996	22539	19260	6494	21559	19467	18432	14220	14955	17198	26397	26147	26138	24331	20322	18134	21023

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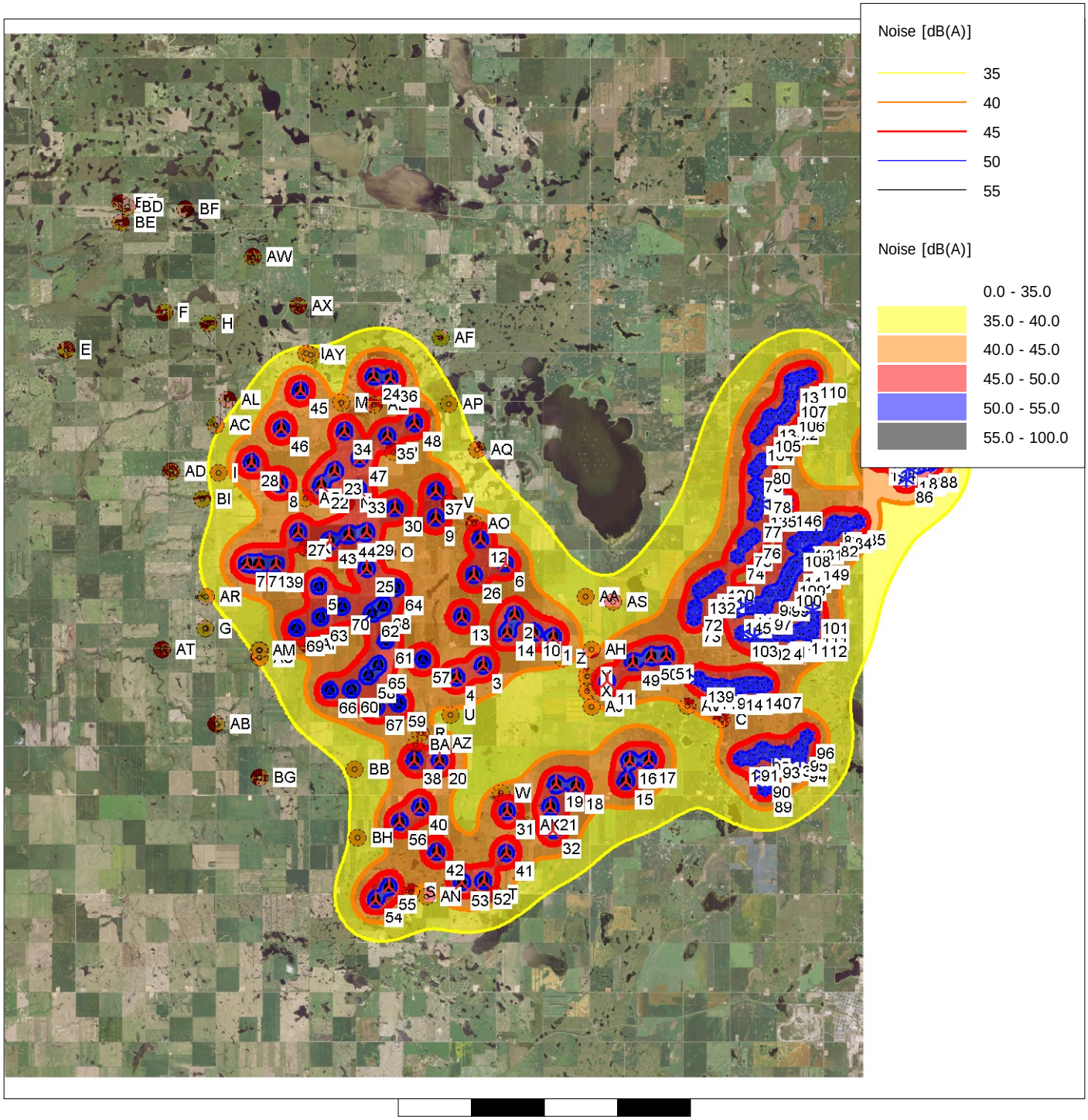
Calculated:
11/21/2019 9:56 AM/3.0.654

DECIBEL - Map 95% rated power

Calculation: A057 N149/V110



Map: US Naval Research Laboratory , Print scale 1:200,000, Map center UTM WGS84 Zone: 13 East: 641,269 North: 5,375,656

New WTG Existing WTG Noise sensitive area

Noise calculation model: ISO 9613-2 General. Wind speed: 95% rated power
Height above sea level from active line object