South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's First Data Request

Date: July 29, 2019

Data Request:

1-1) Provide copies of all data requests submitted by any intervener to you in this proceeding and copies of all responses to those data requests. Provide this information to date and on an ongoing basis.

Response:

1-1) Tatanka Ridge Wind, LLC has not received data requests from interveners to date.

Response Prepared by:

Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's First Data Request

Date: July 29, 2019

Data Request:
1-2) Confirm that the setbacks accounted for section line roads, which are defined as public highways pursuant to state law.

Response:

1-2) Tatanka Ridge Wind, LLC adhered to all applicable setbacks, including section line roads.

Response Prepared by:
Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
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Data Request:
1-3) Do the studies submitted with the Application, including but not limited to shadow and noise studies, account for the cumulative impact any other existing or planned project in the area?

Response:

1-3) The modeling of sound and shadow flicker are based on the Tatanka Ridge Wind Project turbines. Both sound and shadow flicker results are dominated by the closest turbines. A review of publicly available information identifies two planned wind projects to the north which are over 9 miles away. Given this vast distance, no cumulative sound or shadow flicker impact would be expected. An existing wind project is located to the south, over 1.5 miles away, which is also a substantial distance. Distance notwithstanding, one could not be simultaneously downwind from both projects simultaneously.

Response Prepared by:
Mark Bastasch

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
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Date: July 29, 2019

Data Request:
1-4) Has Applicant applied to the FAA for approval to utilize ADLS technology? Provide copies of agency communication.

Response:

1-4) Tatanka Ridge Wind, LLC has not applied to the FAA for approval to utilize ADLS technology.

Response Prepared by:
Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
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Date: July 29, 2019

Data Request:
1-6) Provide an update on any pending easements in the project area. When will these easements be signed?

Response:

1-6) Pending easements include a waiver/Good Neighbor Agreement/lease with Wildrose Dairy and Lucky Hill Dairy in Section 2 of Blom Township.

A wind lease, transmission easement, and option to purchase 5 acres from Mr. Bandemer in section 22 of Scandinavia W Township is pending and is anticipated to sign before the end of July 2019.

A transmission easement on section 16 of Scandinavia W with Emerson is pending and anticipated to be signed before the end of July 2019.

Response Prepared by:
Jesse Bermel

South Dakota Public Utilities Commission
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Date: July 29, 2019

Data Request:

1-7) What capacity factor was assumed when calculating the predicted tax revenue?

Response:

1-7) Tatanka Ridge Wind, LLC used a capacity factor of 45%.

Response Prepared by:
Jesse Bermel

South Dakota Public Utilities Commission
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Data Request:
1-8) Have any landowners waived the maximum dBA or shadow flicker requirement? If so, please list the receptor number of the landowners who have signed a waiver?

Response:

1-8) To clarify, the Deuel County regulations do not establish a maximum dBA requirement for participating landowners. The project has been designed to comply with Deuel County's Zoning Ordinance regulations for sound and flicker which are summarized below:
1215.03(13)(a) Noise level shall not exceed 45 dBA average A-Weighted Sound pressure at the perimeter of existing residences, for non-participating residences.
1215.03(13)(b) Limit for allowable shadow flicker at existing residences to no more than 30 hours annually.

Response Prepared by:
Mark Bastasch

Table A1-9.1 Modeled Receiver Locations to 1/10th of a decibel (Revised Appendix N, Table 2)

Receiver Status	Receiver ID	Sound Pressure Level (dBA)	Sound Pressure Level (dBA)	Height (m)	Coordinates	
					X (m)	Y (m)
Participating	H155	49	49.4	4	678585	4942822
Participating	H81	49	49.1	4	678919	4943688
Participating	H76	49	48.7	4	680833	4942902
Participating	H89	49	48.7	4	679515	4945123
Participating	H75	48	47.9	4	681840	4942678
Participating	H74	48	47.8	4	683780	4942251
Participating	H72	48	47.8	4	682934	4941994
Participating	H156	48	47.7	4	676014	4943529
Participating	H158	47	47.4	4	678182	4946033
Participating	H77	47	47.2	4	681688	4942911
Participating	H86	47	46.8	4	684161	4944755
Participating	H43	46	46.4	4	683463	4939028
Participating	H145	46	46.2	4	676613	4947704
Participating	H163	46	46.0	4	675547	4946765
Participating	H147	46	45.8	4	677166	4948738
Participating	H160	46	45.6	4	675633	4946794
Participating	H71	45	45.3	4	686229	4941921
Participating	H58	45	45.2	4	682263	4940123
Participating	H80	45	45.0	4	688300	4943646
Participating	H161	45	44.9	4	676584	4947413
Participating	H146	45	44.7	4	676373	4947953
Participating	H63	45	44.7	4	680616	4941080
Participating	H117	45	44.7	4	678375	4948421
Participating	H159	45	44.5	4	675799	4945577
Participating	H164	44	44.4	4	688863	4943158
Nonparticipating	H83	44	44.2	4	685334	4944133
Participating	H53	44	43.9	4	689381	4939944
Nonparticipating	H137	44	43.8	4	674779	4945951
Participating	H85	44	43.7	4	687326	4944518
Participating	H50	44	43.5	4	684050	4939765
Nonparticipating	H78	43	43.3	4	689062	4942941
Nonparticipating	H45	43	43.2	4	682524	4939180

Attachment 1-9
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Table A1-9.1 Modeled Receiver Locations to 1/10th of a decibel (Revised Appendix N, Table 2)

		Sound Pressure Level	Sound Pressure Level		Coordinates	
Participating	H66	43	43.2	4	691388	4941342
Nonparticipating	H93	43	43.2	4	682055	4945939
Nonparticipating	H64	43	43.1	4	684540	4941185
Nonparticipating	H98	43	42.9	4	682904	4946155
Participating	H60	43	42.7	4	688637	4940736
Participating	H36	43	42.6	4	690696	4938383
Nonparticipating	H157	43	42.6	4	675808	4944069
Participating	H68	43	42.5	4	685385	4941463
Nonparticipating	H144	42	42.4	4	676071	4947608
Participating	H67	42	41.8	4	688636	4941413
Nonparticipating	H162	42	41.8	4	678852	4947413
Participating	H65	41	41.4	4	679189	4941266
Participating	H101	41	41.3	4	683599	4946691
Nonparticipating	H102	41	41.0	4	684074	4946851
Nonparticipating	H87	41	40.7	4	688741	4944987
Participating	H62	41	40.6	4	687368	4941026
Nonparticipating	H69	41	40.5	4	690352	4941587
Nonparticipating	H88	40	40.1	4	687136	4945116
Nonparticipating	H54	40	40.0	4	688658	4939959
Nonparticipating	H104	40	39.9	4	680692	4947086
Nonparticipating	H55	40	39.7	4	681031	4940013
Participating	H40	40	39.7	4	692283	4938611
Nonparticipating	H33	39	38.9	4	691948	4938171
Nonparticipating	H154	39	38.7	4	675757	4941934
Nonparticipating	H132	38	38.4	4	674929	4944253
Nonparticipating	H25	38	37.8	4	690715	4937792
Nonparticipating	H59	38	37.5	4	686562	4940149
Participating	H52	38	37.5	4	687955	4939871
Nonparticipating	H105	37	37.4	4	684957	4947425
Nonparticipating	H108	37	37.3	4	681028	4947822
Nonparticipating	H106	37	37.2	4	684194	4947619
Nonparticipating	H152	37	37.2	4	676826	4941169
Nonparticipating	H133	37	37.1	4	674171	4945237
Participating	H28	37	36.9	4	683448	4937988
Nonparticipating	H116	37	36.9	4	677958	4949878
Participating	H26	37	36.7	4	682715	4937976

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Table A1-9.1 Modeled Receiver Locations to 1/10th of a decibel (Revised Appendix N, Table 2)

		Sound Pressure Level	Sound Pressure Level		Coordinates	
Nonparticipating	H49	37	36.6	4	686281	4939710
Nonparticipating	H92	37	36.6	4	688489	4945892
Nonparticipating	H95	37	36.6	4	687770	4946076
Nonparticipating	H109	36	36.4	4	683484	4947898
Nonparticipating	H141	36	36.4	4	674202	4947455
Participating	H23	36	36.4	4	691912	4937732
Nonparticipating	H142	36	36.2	4	674195	4947534
Nonparticipating	H38	36	36.0	4	688821	4938498
Nonparticipating	H153	36	36.0	4	675873	4941177
Participating	H24	36	35.9	4	692163	4937775
Participating	H46	36	35.6	4	687223	4939256
Nonparticipating	H41	36	35.5	4	685817	4938898
Nonparticipating	H37	36	35.5	4	685209	4938467
Nonparticipating	H96	35	35.3	4	688841	4946145
Participating	H150	35	35.2	4	678221	4939683
Nonparticipating	H34	35	34.7	4	688367	4938286
Nonparticipating	H151	35	34.7	4	677418	4939868
Participating	H128	35	34.6	4	678716	4939141
Nonparticipating	H17	35	34.5	4	684084	4937488
Nonparticipating	H130	35	34.5	4	675574	4940786
Participating	H20	34	34.3	4	681578	4937615
Nonparticipating	H30	34	34.3	4	680611	4938073
Nonparticipating	H14	34	34.1	4	690508	4937083
Nonparticipating	H136	34	34.1	4	673228	4946679
Nonparticipating	H32	34	33.8	4	686745	4938142
Nonparticipating	H94	34	33.8	4	690052	4945991
Nonparticipating	H99	34	33.8	4	689630	4946277
Nonparticipating	H134	34	33.8	4	673086	4945901
Nonparticipating	H18	34	33.6	4	688764	4937521
Nonparticipating	H138	34	33.6	4	673333	4947545
Nonparticipating	H135	34	33.5	4	672956	4945917
Participating	H119	33	33.4	4	680671	4937573
Nonparticipating	H121	33	33.0	4	679979	4937635
Participating	H9	33	32.8	4	682277	4936774
Participating	H118	33	32.6	4	681391	4936894
Nonparticipating	H124	33	32.5	4	679249	4937641

Table A1-9.1 Modeled Receiver Locations to 1/10th of a decibel (Revised Appendix N, Table 2)

		Sound Pressure Level	Sound Pressure Level		Coordinates	
Participating	H114	32	32.3	4	682887	4936492
Nonparticipating	H129	32	32.1	4	677481	4938248
Participating	H122	32	31.5	4	680705	4936501
Nonparticipating	H123	31	31.4	4	679220	4936990
Nonparticipating	H126	31	31.2	4	677489	4937617
Nonparticipating	H139	31	30.9	4	672465	4948293
Nonparticipating	H140	31	30.8	4	672468	4948419
Nonparticipating	H125	30	29.6	4	677541	4936351

Notes:
dBA = decibel (A-weighted scale)
ID = identifier
m = meter(s)

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Table A1-9.2 Modeled Receiver Locations to 1/10th of a decibel

(Revised Appendix N, Table A1. Modeled Receiver Locations)

Receiver Status	Receiver ID	Sound Pressure Level (dBA)					
		Mixed Ground Scenario (Figure 1)		Hard Ground Scenario (Figure A-1)		NARUC Scenario (Figure A-2)	
Participating	H155	49	49.4	49	49.1	47	46.5
Participating	H81	49	49.1	49	48.9	46	46.2
Participating	H76	49	48.7	49	48.5	46	45.8
Participating	H89	49	48.7	49	48.5	46	45.8
Participating	H75	48	47.9	48	47.7	45	45.0
Participating	H74	48	47.8	48	47.6	45	44.8
Participating	H72	48	47.8	48	47.7	45	44.9
Participating	H156	48	47.7	47	47.4	45	44.8
Participating	H158	47	47.4	47	47.2	45	44.5
Participating	H77	47	47.2	47	47.1	44	44.2
Participating	H86	47	46.8	47	46.6	44	43.8
Participating	H43	46	46.4	46	46.1	44	43.5
Participating	H145	46	46.2	46	46.0	43	43.3
Participating	H163	46	46.0	46	45.8	43	43.1
Participating	H147	46	45.8	46	45.6	43	42.9
Participating	H160	46	45.6	45	45.4	43	42.7
Participating	H71	45	45.3	45	45.2	42	42.3
Participating	H58	45	45.2	45	45.0	42	42.2
Participating	H80	45	45.0	45	44.8	42	42.0
Participating	H161	45	44.9	45	44.7	42	41.9
Participating	H146	45	44.7	45	44.6	42	41.8
Participating	H63	45	44.7	45	44.6	42	41.7
Participating	H117	45	44.7	45	44.5	42	41.8
Participating	H159	45	44.5	44	44.3	42	41.5
Participating	H164	44	44.4	44	44.2	41	41.4
Nonparticipating	H83	44	44.2	44	44.1	41	41.0
Participating	H53	44	43.9	44	43.7	41	40.9
Nonparticipating	H137	44	43.8	44	43.6	41	40.9
Participating	H85	44	43.7	44	43.5	41	40.7
Participating	H50	44	43.5	43	43.4	41	40.5
Nonparticipating	H78	43	43.3	43	43.2	40	40.3
Nonparticipating	H45	43	43.2	43	43.0	40	40.2

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Tatanka Ridge Wind Project, LLC
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Table A1-9.2 Modeled Receiver Locations to 1/10th of a decibel

(Revised Appendix N, Table A1. Modeled Receiver Locations)

Receiver Status	Receiver ID	Sound Pressure Level (dBA)					
		Mixed Ground Scenario (Figure 1)		Hard Ground Scenario (Figure A-1)		NARUC Scenario (Figure A-2)	
Participating	H66	43	43.2	43	43.1	40	40.3
Nonparticipating	H93	43	43.2	43	43.1	40	40.1
Nonparticipating	H64	43	43.1	43	43.1	40	40.0
Nonparticipating	H98	43	42.9	43	42.9	40	39.9
Participating	H60	43	42.7	43	42.5	40	39.7
Participating	H36	43	42.6	43	42.5	40	39.7
Nonparticipating	H157	43	42.6	43	42.5	40	39.5
Participating	H68	43	42.5	43	42.5	39	39.2
Nonparticipating	H144	42	42.4	42	42.3	39	39.4
Participating	H67	42	41.8	42	41.7	39	38.7
Nonparticipating	H162	42	41.8	42	41.7	39	38.7
Participating	H65	41	41.4	41	41.4	38	38.4
Participating	H101	41	41.3	41	41.3	38	38.3
Nonparticipating	H102	41	41.0	41	41.0	38	38.0
Nonparticipating	H87	41	40.7	41	40.6	38	37.7
Participating	H62	41	40.6	41	40.6	38	37.6
Nonparticipating	H69	41	40.5	40	40.4	38	37.5
Nonparticipating	H88	40	40.1	40	40.1	37	37.0
Nonparticipating	H54	40	40.0	40	39.9	37	37.0
Nonparticipating	H104	40	39.9	40	40.0	37	36.9
Nonparticipating	H55	40	39.7	40	39.7	37	36.6
Participating	H40	40	39.7	40	39.9	37	36.8
Nonparticipating	H33	39	38.9	39	38.9	36	35.9
Nonparticipating	H154	39	38.7	39	38.7	36	35.6
Nonparticipating	H132	38	38.4	38	38.4	35	35.4
Nonparticipating	H25	38	37.8	38	37.8	35	34.8
Nonparticipating	H59	38	37.5	38	37.7	34	34.4
Participating	H52	38	37.5	38	37.6	35	34.5
Nonparticipating	H105	37	37.4	38	37.5	34	34.4
Nonparticipating	H108	37	37.3	38	37.6	34	34.4
Nonparticipating	H106	37	37.2	37	37.4	34	34.2
Nonparticipating	H152	37	37.2	37	37.3	34	34.2

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Table A1-9.2 Modeled Receiver Locations to 1/10th of a decibel

(Revised Appendix N, Table A1. Modeled Receiver Locations)

Receiver Status	Receiver ID	Sound Pressure Level (dBA)					
		Mixed Ground Scenario (Figure 1)		Hard Ground Scenario (Figure A-1)		NARUC Scenario (Figure A-2)	
Nonparticipating	H133	37	37.1	37	37.2	34	34.1
Participating	H28	37	36.9	37	37.0	34	34.0
Nonparticipating	H116	37	36.9	37	36.9	34	33.9
Participating	H26	37	36.7	37	36.8	34	33.7
Nonparticipating	H49	37	36.6	37	36.9	34	33.6
Nonparticipating	H92	37	36.6	37	36.7	34	33.6
Nonparticipating	H95	37	36.6	37	36.8	34	33.6
Nonparticipating	H109	36	36.4	37	36.6	33	33.4
Nonparticipating	H141	36	36.4	37	36.5	33	33.4
Participating	H23	36	36.4	37	36.5	33	33.4
Nonparticipating	H142	36	36.2	36	36.3	33	33.2
Nonparticipating	H38	36	36.0	36	36.1	33	33.0
Nonparticipating	H153	36	36.0	36	36.2	33	33.0
Participating	H24	36	35.9	36	36.0	33	33.0
Participating	H46	36	35.6	36	35.9	33	32.6
Nonparticipating	H41	36	35.5	36	35.8	33	32.6
Nonparticipating	H37	36	35.5	36	35.8	33	32.6
Nonparticipating	H96	35	35.3	36	35.5	32	32.3
Participating	H150	35	35.2	36	35.5	32	32.3
Nonparticipating	H34	35	34.7	35	34.9	32	31.8
Nonparticipating	H151	35	34.7	35	35.0	32	31.8
Participating	H128	35	34.6	35	35.0	32	31.8
Nonparticipating	H17	35	34.5	35	34.8	32	31.6
Nonparticipating	H130	35	34.5	35	34.8	32	31.6
Participating	H20	34	34.3	35	34.5	31	31.4
Nonparticipating	H30	34	34.3	35	34.6	32	31.5
Nonparticipating	H14	34	34.1	34	34.3	31	31.2
Nonparticipating	H136	34	34.1	34	34.3	31	31.2
Nonparticipating	H32	34	33.8	34	34.2	31	30.9
Nonparticipating	H94	34	33.8	34	34.1	31	30.9
Nonparticipating	H99	34	33.8	34	34.0	31	30.9
Nonparticipating	H134	34	33.8	34	34.0	31	30.9

Table A1-9.2 Modeled Receiver Locations to 1/10th of a decibel

(Revised Appendix N, Table A1. Modeled Receiver Locations)

Receiver Status	Receiver ID	Sound Pressure Level (dBA)					
		Mixed Ground Scenario (Figure 1)		Hard Ground Scenario (Figure A-1)		NARUC Scenario (Figure A-2)	
Nonparticipating	H18	34	33.6	34	33.8	31	30.7
Nonparticipating	H138	34	33.6	34	33.8	31	30.7
Nonparticipating	H135	34	33.5	34	33.7	31	30.6
Participating	H119	33	33.4	34	33.8	31	30.6
Nonparticipating	H121	33	33.0	33	33.4	30	30.2
Participating	H9	33	32.8	33	33.1	30	30.0
Participating	H118	33	32.6	33	33.0	30	29.8
Nonparticipating	H124	33	32.5	33	32.9	30	29.7
Participating	H114	32	32.3	33	32.7	30	29.6
Nonparticipating	H129	32	32.1	33	32.5	29	29.3
Participating	H122	32	31.5	32	31.9	29	28.8
Nonparticipating	H123	31	31.4	32	31.8	29	28.8
Nonparticipating	H126	31	31.2	32	31.6	29	28.5
Nonparticipating	H139	31	30.9	31	31.3	28	28.2
Nonparticipating	H140	31	30.8	31	31.2	28	28.1
Nonparticipating	H125	30	29.6	30	29.9	27	27.0

Notes:
dBA = decibel (A-weighted scale)
ID = identifier

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
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Date: July 29, 2019

Data Request:
1-10) Provide a land ownership map that details participating and non-participating parcels and lists landowners.

Response:

1-10) Please see attachment 1-10.

Response Prepared by:
Jesse Bermel

- Turbine Location
- Met Tower Location
- Laydown Area
- O&M Building
- Substation
- Access Road
- Crane Path

Collector Line

- Underground
- Overhead/Underground
- Final Alignment To Be Determined
- Existing Underground Pipeline
- Existing Overhead Transmission Line

Lease and Easement Status (7/17/2019)

- None

Turbine Lease

- Signed
- Negotiating, Pending or Verbal

Other

- Electrical Easement
- Setback Waiver (Good Neighbor Agr.)
- Setback Waiver, Negotiating
- Project Boundary
- Municipality
- County Boundary

Miles

1 0 1

Kilometers

1.5 0 1.5

PARCEL MAP

Tatanka Ridge Wind Project
Tatanka Ridge Wind, LLC
Deuel County, South Dakota

AVANGRID RENEWABLES

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
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Date: July 29, 2019

Data Request:
1-11) Referring to section 2.3 of the Application, provide the contractual operational date for the two PPAs.

Response:

1-11) December 31, 2020 for both PPAs.

Response Prepared by:
Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
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Date: July 29, 2019

Data Request:

1-12) Provide a map that clearly depicts the crane path to be used for construction.

Response:

1-12) Please see attachment 1-12. Please note that all access roads may be used as crane paths.

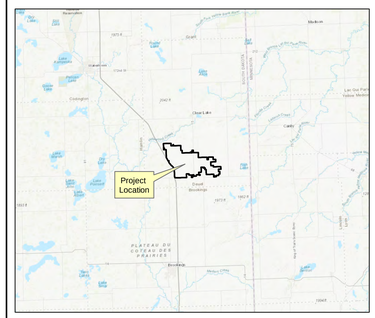
Response Prepared by:
Mark Mullen

Tatanka Wind Project

Project Roads/Crane Paths

Deuel County, SD

- Proposed Turbine (56)
- Alternate Turbine (6)
- Proposed Access Road
- Alternate Access Road
- Proposed Crane Path
- Project_Boundaries



N

0 0.5 1

Miles

AVANGRID RENEWABLES

Modified Date: 7/29/2019

Path: Y:\USA\ONSHORE\PROJECTS\Tatanka\MXD\REPORT_FIGURES\PUCTatanka_Roads_Crane_Turbines.mxd

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's First Data Request

Date: July 29, 2019

Data Request:

1-13) Provide GIS shape files for the project and project facilities.

Response:

1-13) Please see attachment 1-13.

Response Prepared by:

Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's First Data Request

Date: July 29, 2019

Data Request:
1-14) What evaluation of alternative sites were considered by the applicant for the facility.

Response:

1-14) Tatanka Ridge Wind, LLC considered multiple alternate sites near the project area. In order for a site to be viable, it needs to have a sufficient wind resource, it must be close to transmission infrastructure, the site must be compatible with siting requirements, land use, and environmental features, and it must have landowner support. Sites not meeting all of these criteria were evaluated and eliminated from consideration. The proposed site meets all of the necessary criteria.

Response Prepared by:
Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's First Data Request

Date: July 29, 2019

Data Request:
1-15) Refer to the direct testimony of Mark Mullen, please provide the missing reference sources found on page 11

Response:

1-15) **South Dakota Geological Survey. (n.d.). *Earthquakes in South Dakota (1872 – 2013).* Retrieved 2019, from Publications & Maps.**

U.S. Geological Survey. (2019b). U.S. Quaternary Faults. Retrieved 2019, from Interactive Quaternary faults database: https://usgs.maps.arcgis.com/apps/webappviewer/index.html?id=5a6038b3a1684561a9b0aadf88412fcf

Response Prepared by:
Mark Mullen

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's First Data Request

Date: July 29, 2019

Data Request:
1-17) What are the lengths of the PPA contracts with Google and Dairyland Power Cooperative in Wisconsin

Response:

1-17) 12 years and 10 years, respectively.

Response Prepared by:
Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-1) Referring to ARSD 20:10:22:07, provide the name of the project manager of the proposed facility.

Response:

2-1) The name of the Project Manager will be available by June 2020.

Response Prepared by: Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-2) Refer to Page 14 of the Application. The Applicant states "South Dakotans use more electricity than current generation rates in the state."

a) Please define "current generation rates."
b) Please provide support for the statement.
c) What is the current nameplate capacity of all installed generation in South Dakota?
d) What was the peak demand of South Dakotans in 2018?

Response:

2-2a) According to the US EIA South Dakota Electricity Profile 2017 dated January 9, 2019, South Dakota generated 10,935,719 MWhr of electricity.

2-2b) Please see of Attachment 2-2.

2-2c) According to the South Dakota Public Utilities Commission, the nameplate capacity in December 2018 was 1,018MW and 502MW were under construction.

2-2d) According to the 2018 "early release data" from the US EIA, the 2018 summer peak demand was 4,382.7 MW for SD utilities. The winter peak demand was 4,401.3 MW*.

*The early release is provided for the express purpose of providing immediate access to individual utility data for analysts who use this type of information. The data has not been fully edited and is inappropriate for aggregation, such as to state or national totals. Also, in some cases, data for a certain number of utilities has been excluded from this early release pending further data validation. Final, complete, and fully-edited data will be released by EIA later in 2019.

Response Prepared by: Jesse Bermel

U.S. Energy Information Administration

Electricity

State Electricity Profiles

Data for 2017 | **Release Date:** January 8, 2019 | **Next Release:** December 2019

South Dakota Electricity Profile 2017

Table 1. 2017 Summary statistics (South Dakota)

Item	Value	Rank
Primary energy source		Hydroelectric
Net summer capacity (megawatts)	**4,129**	**45**
Electric utilities	3,531	36
IPP & CHP	597	47
Net generation (megawatthours)	**10,935,719**	**45**
Electric utilities	8,883,270	37
IPP & CHP	2,052,449	47
Emissions		
Sulfur dioxide (short tons)	853	46
Nitrogen oxide (short tons)	1,186	49
Carbon dioxide (thousand metric tons)	2,502	46
Sulfur dioxide (lbs/MWh)	0.2	42
Nitrogen oxide (lbs/MWh)	0.2	51
Carbon dioxide (lbs/MWh)	503	42
Total retail sales (megawatthours)	**12,313,675**	**43**
Full service provider sales	12,313,675	42
Energy-only provider sales	.	.
Direct use (megawatthours)	41	52
Average retail price (cents/kWh)	10.05	22

Sources: U.S. Energy Information Administration, Form EIA-860, Annual Electric Generator Report, U.S. Energy Information Administration, Form EIA-861, Annual Electric Power Industry Report, U.S. Energy Information Administration, Form EIA-923, Power Plant Operations Report and predecessor forms.

Full data tables 1-14

See also:

- State Energy Profiles
- Electric Power Monthly
- Electric Power Annual
- Annual electricity statistics back to 1949

- Projected electricity capacity to 2050
- International electricity statistics
- Electric Power Data Guide

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-3) Refer to Page 20 of the Application. The Applicant makes the following request:

> *To accommodate this final micrositing, Tatanka Ridge requests that the Facility Permit allow for the minor shifting of turbines and other project facilities within 200 ft of their current proposed location. If turbine shifts are greater than 200 ft and do not meet applicable setback requirements. Tatanka Ridge will either not use the turbine location, or will obtain SDPUC approval of a proposed turbine location change. In all cases, the final turbine locations constructed will adhere to all applicable local, state, and federal regulations and requirements.*

a) Refer to the following section of the proposal: "*If turbine shifts are greater than 200 ft* ***and do not meet applicable setback requirements.***" ***(emphasis added)*** Please explain the type of applicable setback requirements that the Commission would waive as part of a material deviation filing.
b) Please refer to Permit Condition 22 for the Triple H Wind Farm (https://puc.sd.gov/commission/orders/electric/2019/el19-007final.pdf) Does the material deviation condition for the Triple H Wind Farm address the needs of the Applicant? If no, please explain and provide support for using 200 ft. as the shift distance that triggers a material deviation filing rather than the Commission precedent of 250 ft.

Response:

2-3a) The text in the application contained a typo and should have read as follows:
If turbine shifts are greater than 200 ft and do not meet applicable setback requirements, Tatanka Ridge will either not use the turbine location, or will obtain SDPUC approval of a proposed turbine location change. In all cases, the final turbine locations constructed will adhere to all applicable local, state, and federal regulations and requirements.

At this time, Tatanka Ridge does not anticipate requesting a waiver to deviate from applicable setbacks.

2-3b) Tatanka Ridge Wind finds Permit Condition 22 for the Triple H Wind Farm acceptable; however, Tatanka Ridge's permit from Deuel County only allows for the minor shifting of turbines within 200 feet of their current proposed location, provided the location meets applicable setbacks. Tatanka Ridge Wind will comply with their permit from Deuel County.

Response Prepared by: Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-4) Refer to Page 20 of the Application. The Applicant states "Tatanka Ridge will install all underground collector lines at a *typical depth* of 42 in below grade via trenching, plowing, or directional bores, creating a network between turbine locations and the Project Substation." (*emphasis added*)

Refer to Permit Condition 20 for the Sweetland Wind Farm permit (https://puc.sd.gov/commission/dockets/electric/2019/el19-012/stipulation.pdf). Will the Applicant agree to bury the underground collector system at a *minimum depth* of 3.5 ft.? (*emphasis added*) If no, please explain.

Response:

2-4) Yes, Tatanka Ridge will bury the underground collector system to a minimum depth of 3.5 feet.

Response Prepared by: Mark Mullen

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-5) Refer to Page 21 of the Application. The Applicant states "Tatanka Ridge will install all communication cables underground at a minimum depth of 38 in below grade via trenching, plowing, or directional bores."

a) Please explain why communication cables are installed at a different depth than underground collector lines.
b) Please explain the different safety considerations with communication cables versus collector lines that accounts for these different installation standards.

Response:

2-5a) The burial depth for the underground collector cables is dictated by the National Electric Code which has been developed to provide a safe distance between the energized cables and the public. The fiber optic communication cable is not energized and does not present the same level of safety concern as the energized collector cables and thus can be buried at a shallower depth.

2-5b) The burial depth of the collector cables is based on maintaining adequate separation between the energized cables and the public to prevent unintended contact with the cables. Since the fiber optic communication cable is not energized, it does not present an electrical safety hazard to the public. The burial depth is intended to protect the cable from unintended contact and the potential loss of function.

Response Prepared by: Mark Mullen

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-6) Refer to Page 24 of the Application. The Applicant states it anticipates the life span of the Project to be approximately 40 years. Please provide the basis and supporting documentation for a 40-year useful life for the Project.

Response:

2-6) Tatanka Ridge Wind LLC's wind leases have 30 year operational timelines with two 5 year extensions. This accounts for a turbine replacement at year 20 and results in a project lifespan of approximately 40 years.

Response Prepared by: Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-7) Referring to ARSD 20:10:22:13, please identify any irreversible changes which are anticipated to remain beyond the operating lifetime of the facility.

Response:

2-7) Irreversible changes to the environment that are anticipated to remain beyond the operating lifetime of the wind farm and after decommissioning are described in the table below.

Section of the Application	Resource	Irreversible Change(s)
7.1.2	Geology	Irreversible changes will be limited to any locations where portions of turbine foundations and collector lines remain below the required removal depths following decommissioning.
7.2.2	Soils	Irreversible changes will be limited to any locations where portions of turbine foundations and collector lines remain below the required removal depths following decommissioning.
8.1.2	Groundwater	No irreversible changes to groundwater resources are anticipated.
8.2.2	Surface Water	No irreversible changes to surface water resources are anticipated.
9.1.2	Vegetation	Irreversible changes will be limited to one area where collector lines will cross approximately 100 feet of Native Undisturbed Grasslands along the southern boundary of the Project. Tatanka Ridge will replace soils to follow the original soil profiles and will reseed this area with a weed-free native plant seed mixture, if available; therefore, although the classification of this area as undisturbed will change, adverse impacts to this native grassland community are not anticipated.
9.2.2	Wildlife	No irreversible changes to wildlife resources are anticipated.
10.2	Aquatic Ecosystems	No irreversible changes to aquatic ecosystems are anticipated.
11.1.2	Land Use	No irreversible changes to land uses are anticipated.
11.2.2	Recreation, Public Facilities, and Conservation Easements	No irreversible changes to recreation, public facilities, or conservation easements are anticipated.
11.3.2	Visual Resources	No irreversible changes to visual resources are anticipated.
13.2	Water Quality	No irreversible changes to water quality are anticipated.

14.2	Air Quality	No irreversible changes to air quality are anticipated.
16.0	Community	No irreversible changes to community resources are anticipated.
17.0	Transportation	No irreversible changes to transportation are anticipated.

Response Prepared by: Dan Flo and Janelle Rieland

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-8) Referring to ARSD 20:10:22:14(8), please confirm that there are no constraints that may imposed by geological characteristics on the design, construction, or operation of the proposed facility.

Response:

2-8) There are no constraints imposed by geologic characteristics.

Response Prepared by: Mark Mullen

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-9) Referring to ARSD 20:10:22:15(4), please confirm that aquifers will not be used as a source of potable water supply or process water

Response:

2-9) The contractor may submit a permit application for a well prior to construction. The operation and maintenance building will be connected to Brookings Deuel Rural Water.

Response Prepared by: Mark Mullen

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-10) Referring to Page 50 of the Application, the Applicant states the USFWS easements do not allow impacts to protected wetlands without specific coordination and permission. Is the permission granted by USFWS documented in a specific agreement? Please explain.

Response:

2-10) Tatanka Ridge is actively coordinating with the United States Fish and Wildlife Service (USFWS) to cross a wetland easement with a collector line. Tatanka Ridge will avoid impacts to wetlands within the easement by boring under or spanning the line over the wetlands. Based on conversations with Natoma Hanson of the USFWS, additional coordination is not required. Nevertheless, Tatanka Ridge Wind will provide a crossing plan to the USFWS prior to construction in order to document the avoidance for the agency's records.

Response Prepared by: Dan Flo

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-11) Refer to Page 52 of the Application. The Applicant states:

> "This ecoregion serves as a transitional zone between tall and shortgrass prairie with high concentrations of *temporary and* wetlands that are favorable for duck nesting and migration."

Is the description of the ecoregion complete or missing words? Please modify as necessary

Response:

2-11) Please see the following revised language from Page 52 of the Application, emphasis added to previously missing word.

"This ecoregion serves as a transitional zone between tall and shortgrass prairie with high concentrations of temporary and *seasonal* wetlands that are favorable for duck nesting and migration."

Source - U.S. Geological Survey. 2016. Ecoregions of North Dakota and South Dakota.

Response Prepared by: Janelle Rieland

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-12) Please provide the distance of the closest turbine to the Toronto Cemetery

Response:

2-12) The closest turbine to the Toronto Cemetery is approximately 7,231 feet.

Response Prepared by: Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-13) Referring to ARSD 20:10:22:18(2), please identify the number of persons and homes which will be displaced by the location of the proposed facility.

Response:

2-13) The Tatanka Ridge Wind Project will not displace people or homes.

Response Prepared by: Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-14) Referring to Page 90 of the Application, the Applicant states the city limits of Toronto are entirely within the one-mile buffer of the Project boundary. Referring to Page 102 of the Application, the Applicant states that Deuel County has established a 1.5 mile setback from the city limits of Toronto. Please confirm that the Project reflects a 1.5 mile setback from the city limits of Toronto.

Response:

2-14) Deuel County has established a 1.5-mile setback from the city limits of Toronto. The layout of the Tatanka Ridge Wind project reflects that setback.

Response Prepared by: Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
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Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-15) Refer to ARSD 20:10:22:24. Please provide:

a) An assessment of the adequacy of local workforce to meet permanent labor requirement during the operation of the proposed facility.
b) Provide an estimated percentage of permanent workforce that will remain within the county and township(s) during operation.

Response:

2-15a) Based on our experience in the area, approximately 20-50% of the permanent, direct employees are local.

2-15b) Based on our experience, approximately 20-50% of the permanent, direct employees remain local during operation of the project.

Response Prepared by: Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
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Date: August 16, 2019

Data Request:

2-16) Refer to Page 124 of the Application. Please explain why the Company proposes to re-evaluate the decommissioning costs after the first year of operation.

Response:

2-16) Tatanka Ridge Wind will re-evaluate decommissioning costs after the first year because we will have as-builts at that time.

Response Prepared by: Mark Mullen

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
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Date: August 16, 2019

Data Request:

2-17) Are there any private airstrips within 1 mile of the Project Area? If yes, please provide the location, a description, and the distance from the closest turbine of each private airstrip.

Response:

2-17) There are no private airstrips within 1 mile of the Project area.

Response Prepared by: Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
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Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-18) Pursuant to SDCL 49-32-3.1, provide an update on the status of notifying all telecommunications companies in the project area and an update on any meetings with the telecommunications companies Applicant has had. When will this step of the process be complete?

Response:

2-18) Tatanka Ridge Wind sent an email to ITC on May 20, 2019 providing an update on the project and to understand the requirements needed to satisfy the state notification. Tatanka Ridge Wind followed up on August 9, 2019 via phone. To date, a response has not been received.

Response Prepared by: Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
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Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-19) Please describe the technology that will be employed at each turbine to detect and assess ice buildup.

Response:

2-19) The turbine control system and meteorological measurements at each turbine will be used to detect and assess ice buildup. The control system evaluates wind speed, temperature, and rotor RPM's to determine if there is ice on the blades. In case of ice detection, the turbine controller disconnects the wind turbine generator system from the grid and the rotor is brought to a standstill or rotates at a very low speed known as idling or ready position. An alarm message is sent to the Control Center through what is known as a SCADA sever, System Control and Data Acquisition. The turbine does not restart until the rotor blades are detected to be free of ice or the operator has satisfied himself of the ice-free condition of the rotor blades, has acknowledged the ice alarm message and restarts the turbine.

Response Prepared by: Mark Mullen

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-20) For each non-participating residence that is located less than 1 mile from the closest turbine in the Project Layout, please provide the following information:

(a) Name of property owner
(b) Address
(c) Distance from closest turbine
(d) Receptor ID
(e) Predicted Shadow Flicker (Hours per Year)
(f) Predicted Sound Level

Response:

2-20) Attachment 2-20 provides the requested data for non-participating residences located less than 1 mile from the closest turbine in the Project Layout.

Response Prepared by:
Mark Bastasch

Attachment 2-20.

Nonparticipating Residences Located Less than 1 Mile from the Closest Turbine

Property Owner	Address	Distance to Nearest Turbine (ft)	Nearest Turbine (ID)	Receiver ID	Sound Pressure Level (dBA)		Sound Pressure Level NARUC (dBA)		Expected Shadow Hours per Year [h/year]
GARY & MURIEL SEPPENAN	19336 475 AVE, TORONTO, SD, 57268	2,614	O5	H45	43	43.2	40	40.2	14:51
EUGENE & SHIRLEY PETERSON	18980 479 AVE, BRANDT, SD 57218	3,028	F2	H87	41	40.7	38	37.7	11:37
WESLEY D RISSEEUW	47124 188 ST, ESTELLINE, SD 57234	3,398	S5	H144	42	42.4	39	39.4	11:16
TIM & SANDY WULF	19016 471 AVE, ESTELLINE, SD 57234	3,415	K0	H157	43	42.6	40	39.5	9:39
WILDROSE DAIRY LLC	19035 477 AVE, BRANDT, SD 57218-	2,426	G3	H83	44	44.2	41	41	9:09
RUSSELL & JULIE HAMANN & GORDON HAMANN	312 PARKWAY DR, CLEAR LAKE, SD 57226	2,010	L1	H137	44	43.8	41	40.9	8:15
DEREK & AMANDA VER HELST	47923 191 ST, BRANDT, SD 57218	2,772	E6	H78	43	43.3	40	40.3	7:02
SCHMAHL FAMILY ENTERPRISE LLC	1015 4 AVE S, CLEAR LAKE, SD 57226	3,778	F2	H88	40	40.1	37	37	6:14
PHILIP A & JODIE A SVENNES	47639 192 ST, BRANDT, SD 57218	3,541	O3	H64	43	43.1	40	40	4:34
JAMES P & NANCY C EFFLING	47548 189 ST, CLEAR LAKE, SD 57226	3,826	I2	H98	43	42.9	40	39.9	0:00
KRISTOPHER E &	18909 474 AVE, CLEAR	2,995	I2	H93	43	43.2	40	40.1	0:00

Property Owner	Address	Distance to Nearest Turbine (ft)	Nearest Turbine (ID)	Receiver ID	Sound Pressure Level (dBA)		Sound Pressure Level NARUC (dBA)		Expected Shadow Hours per Year [h/year]
KRISTEN L MOYER	LAKE, SD 57226								
RANDY & DONNA STROSCHEIN LIVING TRUST	18766 473 AVE, CLEAR LAKE, SD 57226	4,217	S8	H162	42	41.8	39	38.7	0:00
GARY & JAN QUAIL	48002 192 ST, TORONTO, SD 57268	3,457	J2	H102	41	41	38	38	0:00
GARY & JAN QUAIL	48002 192 ST, TORONTO, SD 57268	4,179	C5	H69	41	40.5	38	37.5	0:00
DOYLE T TROOIEN	47896 193 ST, TORONTO, SD 57268	3,566	C5	H54	40	40	37	37	0:00
JOY E PREHN	18836 474 AVE, CLEAR LAKE, SD 57226	4,317	L9	H104	40	39.9	37	36.9	0:00
THANE A TROOIEN	19411 481 AVE, TORONTO, SD 57268	3,677	A2	H33	39	38.9	36	35.9	0:00
M A GORDER LAND LLC	19149 471 AVE, ESTELLINE, SD 57234-	4,182	K0	H154	39	38.7	36	35.6	0:00
JARED I & ALICIA K GASS	19434 480 AVE, TORONTO, SD 57268-	4,416	A1	H25	38	37.8	35	34.8	0:00
DANNY D & SHIRLEY A KRAUSE	18940 470 AVE, ESTELLINE, SD 57234	5,033	L1	H133	37	37.1	34	34.1	0:00
JEAN WINKELMAN	2041 CEDAR DR NE, WATERTOWN, SD 57201-	5,136	F2	H92	37	36.6	34	33.6	0:00
THE JEFFERS LIVING TRUST	12 RIVERDALE CIRCLE, WATERTOWN, WI 53094	5,263	L1	H141	36	36.4	33	33.4	0:00

Property Owner	Address	Distance to Nearest Turbine (ft)	Nearest Turbine (ID)	Receiver ID	Sound Pressure Level (dBA)	Sound Pressure Level NARUC (dBA)	Expected Shadow Hours per Year [h/year]

Notes:

dBA = decibel (A-weighted scale)

ID= identifier

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-21) Refer to Appendix N, Sound Modeling, attached to the Application. Referring to Table A1, there are two non-participating residences that exceed 40 dBA under the NARUC sound modeling scenario (Receptor H83, 41 dBA; Receptor H137, 41 dBA).

a) Please explain if the Applicant can make minor shifts to any turbines to reduce the predicted sound level to 40 dBA or lower at these two residences.

b) If shifts cannot be made as requested in (a), please explain how many turbines would need to be removed to reduce the predicted sound level to 40 dBA or lower at these two residences.

c) Has the Applicant discussed the Project with the property owners at Receptors H83 and H137? If yes, please provide the following information:

i. Have either property owners indicated any concerns regarding the sound associated with the Project? Please explain.

ii. Have either property owners indicated any concerns regarding the Project? Please explain.

iii. Did the Applicant ask these property owners to participate in the Project? If yes, please provide the reason(s) why the property owners did not elect to participate. If no, please explain why the Applicant did not ask these landowners to participate in the Project.

Response:

2-21a) Tatanka Ridge Wind, LLC's Special Exception permit, granted by Deuel County on June 11, 2019, allows minor turbine shifts of up to 200 feet. Based on preliminary sound modeling, shifting turbine L1 I 200 feet north would not reduce sound levels to 40 dBA or below. The current Sound Modeling report (Appendix N of the application) indicates that the project meets Deuel County ordinance requirements and we note that there is not a state noise standard.

2-21b) We have not performed that analysis.

2-21c) Yes, the owners of receptor H137 were contacted in 2015/2016 to update them on the project and at that time, a project representative inquired if they had interest in participating in the Tatanka Ridge Project. The owners indicated to the project representative that they had no interest in participating themselves but were not opposed to the local community hosting wind turbines. They indicated that they might have more interest if the project would be a regulated utility. Sound was not mentioned as a concern.

The owners of receptor H83 are currently in negotiations with the project toward executing a good neighbor agreement. We expect to reach that agreement in the near future. The owners did express concern about stray voltage and sound.

Response Prepared by: Jesse Bermel, Mark Bastach, Mandy Bohnenblust

Thurber, Jon

From: Brett Koenecke <brett@mayadam.net>
Sent: Tuesday, October 1, 2019 3:41 PM
To: Edwards, Kristen; Thurber, Jon; Rezac, Joseph; Kearney, Darren; Reiss, Amanda
Subject: [EXT] Tower locations

The closest non-participant to Turbine L1 is H137 with a NARUC-modeled sound level of 41 dBA. To lower the dBA at H137 by 1 dBA, turbine L1 would need to move more than the FAA allowable distance of 1-degree arc second. Directly north of current turbine L1 location is a microwave beam path and the turbine would have to move even further north to avoid the beam path. This would requires us to re-survey the new location for Geotech (water depth), water/wetland surveys, and archeological surveys for the new disturbance corridor. We would also need to re-file with the FAA for the new turbine location which is a minimum six month process. This location meets the sound standard in Deuel County ordinance. The landowner has not contacted us about concerns or expressed concerns during the Deuel County or SD PUC permitting processes.

The closest non-participant to Turbine G3 is H83 with a NARUC-modeled sound level of 41 dBA. For G3 we would need to move the turbine south to lower the sound by 1 dBA. This revised turbine location would then be too close to adjacent turbines and would then have to be dropped. We are in late stage negotiations with the landowner at H83 for a Good Neighbor Agreement. The landowner has expressed concerns for stray voltage and we have addressed that issue with him. The landowner is aware of our plans. Again the location meets the sound standard in Deuel County ordinance. The landowner has not publicly expressed concerns during either the Deuel County or SD PUC permitting processes.

In both cases using an alternate tower location is a more expensive build than the proposed location.

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-22) Refer to Page 4 of Appendix Q, Decommissioning Plan, attached to the Application. The Applicant stated that it "will dismantle and remove all towers, turbine generators, transformers, overhead and underground cables, foundations, buildings, and ancillary equipment to a depth of 42 inches unless landowner agreements specify a greater depth."

Refer to the direct testimony of Jesse Bermel, Page 6, lines 84 – 85. Mr. Bermel states "At the end of commercial operation, Tatanka will be responsible for removing wind facilities and the turbine foundations to a depth of four feet below grade."

Does the Applicant commit to a decommissioning removal depth of 3 ½ or 4 feet? If the Applicant proposes a decommissioning removal depth of 3 ½ feet, please provide support for using that depth as a reasonable standard for decommissioning.

Response:

2-22) Turbine foundations will be removed to a depth of 4 feet below grade, as the applicant has committed to landowners. All other facilities will be removed to a depth of 3 ½ feet. Removal of facilities to 3 ½ feet provides sufficient clearance to allow for normal agricultural activities.

Response Prepared by: Mark Mullen

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:
2-23) Refer to Page 124 of the Application. The Applicant stated that it "will re-evaluate the decommissioning costs after the first year of operation, then every 10 years following."

Refer to the direct testimony of Jesse Bermel, lines 88 – 91. Mr. Bermel states "because of the uncertainties surrounding future decommissioning costs and salvage values,
Tatanka will review and update the cost estimate of decommissioning and restoration for the Project every five years after Project commissioning pursuant to State Law Requirements."

a) Please provide the "State Law Requirement" Mr. Bermel referred to in his testimony.
Mr. Bermel misspoke and will clarify at hearing. The application controls, and Mr. Bermel's testimony will conform to the application.

b) Please clarify how often the Applicant proposes to re-evaluate decommissioning costs.
Applicant proposes to reevaluate decommissioning costs on a schedule as found in the application. After one year and every ten years thereafter.

Response Prepared by: Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:
2-24) Refer to Page 124 of the Application. The Applicant stated that it "is responsible for implementing the Decommissioning Plan and will commit to a Letter of Credit for financial assurance adequate to pay the entire cost of the decommissioning process."

Refer to Page 10 of Appendix Q, Decommissioning Plan, attached to the Application. The Applicant stated that it "will commit to a parent guarantee for financial assurance adequate to pay the entire cost of the decommissioning process."

Refer to the direct testimony of Jesse Bermel, lines 96 – 97. Mr. Bermel states "Tatanka proposes to cover the cost of the decommissioning through a parent guarantee or letter of credit."

a) Please clarify which financial assurance option the Applicant is proposing.
Applicant is proposing that the same financial assurance for both Deuel County and the PUC. Deuel County commissioners and zoning officials indicated an interest in a parent guarantee. Applicant prefers that vehicle as well.
b) Please provide a detailed proposal, including, but not limited, the proposed agreement, of the option selected in (a).
See attached draft agreement.
c) Please provide all relevant cost information associated with the financial assurance option selected in (a).
We are unaware of a cost at this time other than in the event the guarantee were executed. If we are made aware of a cost, we will advise.
d) Does the Applicant intend on submitting supplemental testimony to address the concerns raised by the Commissioners regarding a Letter of Credit or Parent Guarantee during the evidentiary hearing for the Triple H Wind Farm, Docket EL19-007?
We do.

Response Prepared by: Jesse Bermel, Mark Bastach, Mandy Bohnenblust

GUARANTY OF GUARANTOR

THIS GUARANTY, dated as of September 1, 2019, is issued by Avangrid, Inc., a New York corporation, ("Guarantor") in favor of Deuel County, South Dakota a political subdivision of the State of South Dakota ("Guaranteed Party"). Tatanka Ridge Wind, LLC, a Delaware limited liability company, ("Obligor") is an indirect wholly owned subsidiary of Guarantor.

RECITALS

A. Obligor has filed and Guaranteed Party has accepted a decommissioning plan for the future decommissioning of Tatanka Ridge Wind, LLC, dated as of _____, 20__ (the "Agreement").

B. This Guaranty is delivered to Guaranteed Party by Guarantor pursuant to the Agreement.

AGREEMENT

1. Guaranty.

A. Guaranty of Obligations Under the Agreement. For value received, Guarantor hereby absolutely, unconditionally and irrevocably, subject to the express terms hereof, guarantees the payment when due of all payment obligations, whether now in existence or hereafter arising, by Obligor to Guaranteed Party pursuant to the Agreement (the "Obligations"). This Guaranty is one of payment and not of collection and shall apply regardless of whether recovery of all such Obligations may be or become discharged or uncollectible in any bankruptcy, insolvency or other similar proceeding, or otherwise unenforceable.

B. Maximum Guaranteed Amount. Notwithstanding anything to the contrary herein, Guarantor's aggregate obligation to Guaranteed Party hereunder is limited to Five Million U.S. Dollars ($5,000,000.00) (the "Maximum Guaranteed Amount") (it being understood for purposes of calculating the Maximum Guaranteed Amount of Guarantor hereunder that any payment by Guarantor either directly or indirectly to the Guaranteed Party, pursuant to a demand made upon Guarantor by Guaranteed Party or otherwise made by Guarantor pursuant to its obligations under this Guaranty including any indemnification obligations, shall reduce Guarantor's maximum aggregate liability hereunder on a dollar-for-dollar basis), including costs and expenses incurred by Guaranteed Party in enforcing this Guaranty, and shall not either individually or in the aggregate be greater or different in character or extent than the obligations of Obligor to Guaranteed Party under the terms of the Agreement. IN NO EVENT SHALL GUARANTOR BE SUBJECT TO ANY CONSEQUENTIAL, EXEMPLARY, EQUITABLE, LOSS OF PROFITS, PUNITIVE, TORT OR OTHER SIMILAR DAMAGES.

2. Payment; Currency. All sums payable by Guarantor hereunder shall be made in freely transferable and immediately available funds and shall be made in the currency in which the Obligations were due. If Obligor fails to pay any Obligation when due, the Guarantor will pay that Obligation directly to Guaranteed Party within twenty (20) days after written notice to Guarantor by Guaranteed Party. The written notice shall provide a reasonable description of the amount of the Obligation and explanation of why such amount is due.

3. Waiver of Defenses. Except as set forth above, Guarantor hereby waives notice of acceptance of this Guaranty and of the Obligations and any action taken with regard thereto, and waives presentment, demand for payment, protest, notice of dishonor or non-payment of the Obligations, suit, or the taking of and failing to take other action by Guaranteed Party against Obligor, Guarantor or others and waives any defense of a surety. Without limitation, Guaranteed Party may at any time and from time to time without notice to or consent of Guarantor and without impairing or releasing the obligations of Guarantor hereunder: (a) make any change to the terms of the Obligations; (b) take or fail to take any action of any kind in respect of any security for the Obligations; (c) exercise or refrain from exercising any rights against Obligor or others in respect of the Obligations or (d) compromise or subordinate the Obligations, including any security therefor. Notwithstanding the foregoing, Guarantor shall be entitled to assert rights, setoffs, counterclaims and other defenses which Obligor may have to performance of any of the Obligations and also shall be entitled to assert rights, setoffs, counterclaims and other defenses that the Guarantor may have against the Guaranteed party, other than defenses based upon lack of authority of Obligor to enter into and/or perform its obligations under the Agreement or any insolvency, bankruptcy, reorganization, arrangement, composition, liquidation, dissolution or similar proceeding with respect to Obligor.

4. Term. This Guaranty shall continue in full force and effect until [Insert term or whether it automatically expires upon final payment]. Guarantor further agrees that this Guaranty shall continue to be effective or be reinstated, as the case may be, if at any time payment, or any part thereof, of any Obligation is rescinded or must otherwise be restored or returned due to bankruptcy or insolvency laws or otherwise. Guaranteed party shall return this original executed document to Guarantor within twenty (20) days of termination of this Guaranty.

5. Subrogation. Until all Obligations are indefeasibly performed in full, but subject to Section 6 hereof, Guarantor hereby waives all rights of subrogation, reimbursement, contribution and indemnity from Obligor with respect to this Guaranty and any collateral held therefor, and Guarantor hereby subordinates all rights under any debts owing from Obligor to Guarantor, whether now existing or hereafter arising, to the prior payment of the Obligations.

6. Expenses. Whether or not legal action is instituted, Guarantor agrees to reimburse Guaranteed Party on written demand for all reasonable attorneys' fees and all other reasonable costs and expenses incurred by Guaranteed Party in enforcing its rights under this Guaranty. Notwithstanding the foregoing, the Guarantor shall have no

obligation to pay any such costs or expenses if, in any action or proceeding brought by Guaranteed Party giving rise to a demand for payment of such costs or expenses, it is finally adjudicated that the Guarantor is not liable to make payment under Section 2 hereof.

7. Assignment. Guarantor may not assign its rights or delegate its obligations under this Guaranty in whole or part without written consent of Guaranteed Party, *provided, however*, that Guarantor may assign its rights and delegate its obligations under this Guaranty without the consent of Guaranteed Party if (a) such assignment and delegation is pursuant to the assignment and delegation of all of Guarantor's rights and obligations hereunder, in whatever form Guarantor determines may be appropriate, to a partnership, limited liability company, corporation, trust or other organization in whatever form that succeeds to all or substantially all of Guarantor's assets and business and that assumes such obligations by contract, operation of law or otherwise, *provided,* such entity has an Investment Grade Rating by either Moody's Investors Service, Inc. ("Moody's") or Standard & Poor's Ratings Group, a division of McGraw-Hill, Inc. ("S&P") or (b) such assignment and delegation is made to an entity within the Iberdrola S.A. group of companies that has an Investment Grade Rating by either Moody's or S&P. For purposes of this Section 7, "Investment Grade Rating" means a minimum credit rating for senior unsecured debt or corporate credit rating of BBB- by S&P or Baa3 by Moody's. Upon any such delegation and assumption of obligations and, if required, the written consent of Guaranteed Party (which consent shall not be unreasonably withheld, conditioned or delayed), Guarantor shall be relieved of and fully discharged from all obligations hereunder, whether such obligations arose before or after such delegation and assumption.

8. Non-Waiver. The failure of Guaranteed Party to enforce any provisions of this Guaranty at any time or for any period of time shall not be construed to be a waiver of any such provision or the right thereafter to enforce same. All remedies of Guaranteed Party under this Guaranty shall be cumulative and shall be in addition to any other remedy now or hereafter existing at law or in equity. The terms and provisions hereof may not be waived, altered, modified or amended except in a writing executed by Guarantor and Guaranteed Party.

9. Entire Agreement. This Guaranty and the Agreement are the entire and only agreements between Guarantor and Guaranteed Party with respect to the guaranty of the Obligations of Obligor by Guarantor. All agreements or undertakings heretofore or contemporaneously made, which are not set forth herein, are superseded hereby.

10. Notice. Any demand for payment, notice, request, instruction, correspondence or other document to be given hereunder by Guarantor or by Guaranteed Party shall be in writing and shall be deemed received (a) if given personally, when received, (b) if mailed by certified mail (postage prepaid and return receipt requested), five days after deposit in the U.S. mails, (c) if given by facsimile, when transmitted with confirmed transmission or (d) if given via overnight express courier service, when received or personally delivered, in each case with charges prepaid and addressed as

follows (or such other address as either Guarantor or Guaranteed Party shall specify in a notice delivered to the other in accordance with this Section):

If to Guarantor:

Avangrid, Inc.
% Avangrid Renewables, LLC
1125 NW Couch, Suite 700
Portland, OR 97209
Attn: Credit Manager

If to Guaranteed Party:

Deuel County, South Dakota
408 4th Street West
Clear Lake, SD 57501
Attn: Zoning Officer

11. Counterparts. This Guaranty may be executed in counterparts, each of which when executed and delivered shall constitute one and the same instrument.

12. Governing Law. This Guaranty shall be governed by and construed in accordance with the laws of the state of New York without giving effect to principles of conflicts of law.

13. Further Assurances. Guarantor shall cause to be promptly and duly taken, executed and acknowledged and delivered, such further documents and instruments as Guaranteed Party may from time to time reasonably request in order to carry out the intent and purposes of this Guaranty.

14. Limitation on Liability. Except as specifically provided in this Guaranty, Guaranteed Party shall have no claim, remedy or right to proceed against Guarantor or against any past, present or future stockholder, partner, member, director or officer thereof for the payment of any of the Obligations, as the case may be, or any claim arising out of any agreement, certificate, representation, covenant or warranty made by Obligor in the Agreement.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Guarantor has executed and delivered this Guaranty as of the date first set forth above.

AVANGRID, Inc.,
a New York corporation

By: _____
Name:
Title:

By: _____
Name:
Title:

Acknowledged and agreed:

Deuel County, South Dakota,
a political subdivision of the State of South Dakota

By: _____
Name:
Title:

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Supplemental Response to Staff's Second Data Request

Date: September 19, 2019

Data Request:
2-25)

b) Please provide the estimated cost of decommissioning per turbine in 2050dollars, assuming salvage and no resale. Please provide and explain the assumptions and calculations to determine the 2050estimate.
The estimated cost of decommissioning is $164,601 per turbine in 2050 dollars, assuming salvage and no resale. This was calculated using an assumed inflation rate of 2.0% a year, per the Federal Open Market Committee inflation projections "PCE Inflation-Longer Run". See attachment.

c) Please provide the estimated cost of decommissioning per turbine in 2050dollars, assuming no salvage and no resale. Please provide and explain the assumptions and calculations to determine the 2050estimate.

The estimated cost of decommissioning is $299,672 per turbine in 2050 dollars, assuming no salvage and no resale. This was calculated using an assumed inflation rate of 2.0% a year, per the Federal Open Market Committee inflation projections "PCE Inflation-Longer Run". See attachment.

Response Prepared by: Mark Mullen

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-25) Refer to Appendix Q to the Application. Per Appendix Q to the Application, the estimated cost of decommissioning per turbine in current dollars is $89,090, assuming salvage and no resale.

a) Please provide the estimated cost of decommissioning per turbine in current dollars, assuming no salvage and no resale.
b) Please provide the estimated cost of decommissioning per turbine in 2050 dollars, assuming salvage and no resale. Please provide and explain the assumptions and calculations to determine the 2050 estimate.
c) Please provide the estimated cost of decommissioning per turbine in 2050 dollars, assuming no salvage and no resale. Please provide and explain the assumptions and calculations to determine the 2050 estimate

Response:

2-25a) As shown in Table 4 of Appendix Q, total decommissioning expenses are estimated to be $9,083,000, not considering salvage or resale. This equates to an estimated decommissioning cost of $162,196 per turbine.

2-25b) We have not performed this calculation due to volatility of several markets, construction, energy and labor.

2-25c) We have not performed this calculation due to volatility of several markets, construction, energy and labor.

Response Prepared by: Mark Mullen

resourceful. naturally.
engineering and environmental consultants

BARR

9/12/2019

Mark Mullen
Avangrid Renewables
1125 NW Couch St.,
Suite 700
Portland, OR 97209

Re: Tatanka Decommissioning 2050 Pricing

Dear Mark Mullen:

Barr Engineering's (Barr) "Wind Project Decommissioning Plan – Tatanka Ridge Wind Project – May 2019" describes the Tatanka Wind Project components, impacts and feasibility of decommissioning of the Project at the end of its useful life. The report, based on the design completed at the time, includes a cost estimate of decommissioning activities expected to be needed to return the site to approximate preconstruction conditions. Table 1 below, from the referenced Decommissioning Plan represents the estimated decommissioning costs.

Table 1 Net Decommissioning Summary

Item	Cost
Decommissioning expenses	**$9,083,000**
Potential revenue - salvage value of turbine components and recoverable materials	($4,093,980)
Net Decommissioning Cost	**$4,989,020**
Per Turbine Decommissioning Cost (based on 56 turbines)	**$89,090**

These costs were not scaled nor accounted for inflation of future cost at the end life of the project. These costs are calculated to be in 2019 dollars.

2050 Pricing

It's not possible to account for dynamic changes in the construction, energy or labor markets thirty years from now, but one can assume an inflation factor. An inflation rate of 2.0% a year, per the Federal Open Market Committee inflation projections "PCE Inflation-Longer Run", was used to convert potential future costs of the decommissioning of the Tatanka Wind Project into 2050 dollars. (Table 2)

Sincerely,

Joel E Bahma

Joel Bahma, P.E.

Table 2 Decommissioning per Turbine in 2050 Dollars

Year	Inflation*	Includes Salvage, No Resale	No Salvage, No Resale
2019		$ 89,090	$ 162,196
2020	2%	$ 90,871	$ 165,440
2021	2%	$ 92,689	$ 168,749
2022	2%	$ 94,543	$ 172,124
2023	2%	$ 96,433	$ 175,567
2024	2%	$ 98,362	$ 179,078
2025	2%	$ 100,329	$ 182,660
2026	2%	$ 102,336	$ 186,313
2027	2%	$ 104,383	$ 190,039
2028	2%	$ 106,470	$ 193,840
2029	2%	$ 108,600	$ 197,717
2030	2%	$ 110,772	$ 201,671
2031	2%	$ 112,987	$ 205,704
2032	2%	$ 115,247	$ 209,818
2033	2%	$ 117,552	$ 214,015
2034	2%	$ 119,903	$ 218,295
2035	2%	$ 122,301	$ 222,661
2036	2%	$ 124,747	$ 227,114
2037	2%	$ 127,242	$ 231,656
2038	2%	$ 129,787	$ 236,290
2039	2%	$ 132,383	$ 241,015
2040	2%	$ 135,030	$ 245,836
2041	2%	$ 137,731	$ 250,752
2042	2%	$ 140,485	$ 255,767
2043	2%	$ 143,295	$ 260,883
2044	2%	$ 146,161	$ 266,100
2045	2%	$ 149,084	$ 271,422
2046	2%	$ 152,066	$ 276,851
2047	2%	$ 155,107	$ 282,388
2048	2%	$ 158,209	$ 288,036
2049	2%	$ 161,374	$ 293,796
2050	2%	**$ 164,601**	**$ 299,672**

*Board of Governors of the Federal Reserve System (2019, June 19). *FOMC Projections materials, accessible version.* Retrieved from https://www.federalreserve.gov/monetarypolicy/fomcprojtabl20190619.htm

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-26) Refer to ARSD 20:10:22:23. Provide a forecast of the impact on land values and property values from the Project.

Response:

2-26) Please see attachment 2-26.

Response Prepared by: Jesse Bermel

MAROUS & COMPANY

MARKET IMPACT ANALYSIS

TATANKA RIDGE WIND PROJECT
DEUEL COUNTY, SOUTH DAKOTA

300 SOUTH NORTHWEST HIGHWAY • SUITE 204 • PARK RIDGE, ILLINOIS 60068
(847) 384-2030 • FAX (847) 692-5498 • www.marous.com
Real Estate Consultation, Appraisal & Investment Services

August 14, 2019

Tatanka Ridge Wind Project, LLC
c/o Avangrid Renewables
1125 NW Couch Street
Portland, Oregon 97209

Attention: Jesse Bermel - Business Developer

Subject: Market Impact Analysis
Tatanka Ridge Wind Project
Deuel County, South Dakota

Dear Mr. Bermel,

In accordance with your request, the proposed development of the Tatanka Ridge Wind Project in Deuel County, South Dakota, has been analyzed, and this market impact analysis has been prepared.

MaRous & Company has conducted similar market impact studies for a variety of clients and for a number of different proposed developments over the last 39 years. Clients have ranged from municipalities, counties, and school districts, to corporations, developers, and citizen's groups. The types of proposals analyzed include: commercial developments such as shopping centers and big-box retail facilities; religious facilities such as mosques and mega-churches; residential developments such as high-density multifamily and congregate-care buildings and large single-family subdivisions; recreational uses such as skate parks and lighted high school athletic fields; and industrial uses such as waste transfer stations, landfills, and quarries.

MaRous & Company has conducted numerous market studies of energy-related projects. Those projects include the following projects: Dakota Range Wind Project I, II, & III, in Codington County, Grant County, and Roberts County, Deuel Harvest Wind Farm in Deuel County, Crocker Wind Farm in Clark County, and Prevailing Wind Park in Charles Mix County, Bon Homme County, and Hutchinson County, Triple H Wind Project in Hyde County, all in South Dakota; Grand Ridge V and Otter Creek wind farms in LaSalle County, Pleasant Ridge Wind Farm in Livingston County, Walnut Ridge Wind Farm in Bureau County, McLean County Wind Farm in McLean County, Alta Farms Wind Project II in DeWitt County, Radford's Run Wind Farm in Macon County, Midland Wind Project in Henry County, all in Illinois; Freeborn County Wind Farm in Freeborn County, Minnesota; Ida County and Palo Alto County Wind Farms, both in Iowa; Tippecanoe County Wind Farm in Tippecanoe County and Roaming Bison Wind Farm in Montgomery County, both in Indiana; Neosho Ridge Wind Farm in Neosho County, Kansas; Orangeville Wind Farm in Wyoming County, New York; Seneca Wind Farm in Seneca County, Ohio; Dorchester County Solar Farms in Dorchester County, Maryland; Badger Hollow Solar Farm in Iowa County, Wisconsin; and Lone Oak Solar Farm in Madison County, Indiana. We also have analyzed the impact of transmission lines on adjacent residential uses and a number of proposed natural gas-fired electric plants in various locations.

In addition to this experience, MaRous & Company has appraised a variety of properties in the large market area of the proposed project in South Dakota, and in North Dakota in the last 3 years, including: industrial facilities, food processing plants, and warehouse and distribution facilities ranging in size from 50,000 to 1,000,000 square feet, and more than 15 major retail facilities.

Table of Contents

Tatanka Ridge Wind Project

Property	
Property Name	Tatanka Ridge Wind Project
Location	Deuel County, South Dakota
Townships	Blom, Brandt, Grange, Hidewood, and Scandinavia
Property Type	Wind Farm
Project Developer	Tatanka Ridge Wind Project, LLC, a subsidiary of Avangrid Renewables
Wind Farm Description	
Footprint Land Acreage	≈27,900 Acres
Number of Turbines	Up to 56 Turbines
Turbine Specifications	
Type	GE 2.3 & GE 2.82
Capacity	2.3-2.82 Megawatts
Tip Height	≈499 Feet
Total Capacity	154.8 Megawatts
Setbacks/Noise/Shadow Flicker	**Setbacks:** ⁘ Turbines shall be set back approximately 1,996 feet or 4 times the height of the tower from any surrounding property line, unless a waiver has been obtained from the adjacent landowner. **Noise:** ⁘ Noise level shall not exceed 45 dBA average A-Weighted Sound pressure at the perimeter of existing residences, for non-participating residences **Shadow Flicker:** ⁘ Shadow flicker will not exceed a maximum of 30 hours of per year, unless otherwise agreed to by the landowner.
Number of Participants	≈100 Landowners
Participant Acreage	≈18,000 Acres
Ancillary Construction	
Collector substation	Gravel access roads
Underground collector lines	Operations and maintenance building
Meteorological towers	Underground and overhead transmission lines
Up to 3 aircraft detection lighting system towers	
Total Cost	≈$218,000,000

Purpose and Intended Use of the Study

The purpose of this appraisal assignment is to analyze the impact, if any, on the value of the surrounding rural residential and agricultural properties due to the development of the wind farm. Specifically, this study is designed to address the question of whether the development of the wind farm has an effect on the value of residential uses and/or agricultural land in proximity to the turbines. Any other use or user of this report is considered to be unintended.

Executive Summary

As a result of the market impact analysis undertaken, MaRous & Company concluded that there is no market data indicating the project will have a negative impact on either rural residential or agricultural property values in the surrounding area. Further, market data from South Dakota supports the conclusion that the project will not have a negative impact on rural residential or agricultural property values in the surrounding area. Finally, for agricultural properties that host turbines, the additional income from the wind lease may increase the value and marketability of those properties. The foregoing general conclusions are built upon the following information and data:

- The use will meet or exceed all the required development and operating standards;
- Controls are in place to ensure on-going compliance;
- There are significant financial benefits to the local economy and to the local taxing bodies from the development of the wind farm;
- The wind farm will create well-paid jobs in the area which will benefit overall market demand;
- An analysis of recent residential sales proximate to existing wind farms, which includes residential sales within five times turbine tip height, did not support any finding that proximity to a wind turbine had any impact on property values;
- An analysis of agricultural land values in the area and in other areas of the state with wind farms did not support any finding that the agricultural land values are negatively impacted by the proximity to wind turbines;
- Studies indicate that wind turbine leases add value to agricultural land;
- A survey of County Assessors in 8 South Dakota counties in which wind farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a wind farm and that there were no reductions in assessed valuations;
- A survey of County Assessors in 18 Illinois counties in which wind farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a wind farm and that there were no reductions in assessed valuations;

- A survey of County Assessors in 8 Minnesota counties in which wind farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a wind farm and that there were no reductions in assessed valuations;
- A survey of County Assessors in 26 Iowa counties in which wind farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a wind farm and that there were no reductions in assessed valuations;
- A survey of County Assessors in 21 Kansas counties in which wind farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a wind farm and that there were no reductions in assessed valuations;
- A survey of County Assessors in 5 Indiana counties in which wind farms are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a wind farm and that there were no reductions in assessed valuations; and
- A summary of the findings in literature on peer-reviewed studies of wind farms in North America, although not specific to South Dakota; the literature and studies reported conclusions that are consistent with our findings.

Definition of Market Value

When discussing market value, the following definition is used:

> The most probable price a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:
>
> - Buyer and seller are typically motivated;
> - Both parties are well informed or well advised, and acting in what they consider their own best interests;
> - A reasonable time is allowed for exposure in the open market;
> - Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and
> - The price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.[1]

[1] *(12 C.F.R. Part 34.42(g); 55 Federal Register 34696, August 24, 1990, as amended at 57 Federal Register 12202, April 9, 1992; 59 Federal Register 29499, June 7, 1994)*

Scope of Work and Reporting Process

Information was gathered concerning the real estate market generally and the market of the area surrounding the proposed wind farm specifically. The uses in the surrounding area were considered. The following summarizes the actions taken:

- Review and analysis of the Deuel County zoning ordinance, and other public documents;
- Review and analysis of the Application for a Facility Permit submitted by Tatanka Ridge Wind, LLC, to the South Dakota Public Utilities Commission;
- Review and analysis of the demographics in the area of the proposed wind farm;
- Review and analysis of data on the general market area of the wind farm, and on the other areas in South Dakota and/or Deuel County in which existing wind farms are located;
- Review and analysis of data on the market for single-family houses in the immediate area of the proposed wind farm and from other areas in each of the counties from public sources, and from the Deuel County and/or South Dakota public records[2];
- Interviews of local real estate professionals concerning recent sales in the area, local market conditions, and the impact of wind turbines on property values in the area;
- Properties used for the development of the matched pairs were physically inspected on the exterior, and photographs of the interiors were reviewed where available;
- Inspections were performed of the project area and the areas in nearby counties with existing wind farms by Michael S. MaRous April 14-15, 2019, and June 11, 2019. Inspections were also performed by Michael S. MaRous of the following nearby wind farms: Dakota Range Wind Park I, II, & III on February 18-19, 2018 and October 8-9, 2018, the Crocker Wind Farm on April 5-6, 2018, and the Deuel Harvest Wind Farm on October 4-5, 2017 and October 8-9, 2018. As well as inspections of the nearby Dakota Range Wind Park I, II, & III by Joseph M. MaRous on February 18-19, 2018.

This document is considered to conform to the requirements of the *Uniform Standards of Professional Appraisal Practice and Advisory Opinions* (USPAP). This letter is a brief recapitulation of the appraisal data, analyses, and conclusions. Additional supporting documentation is retained in the MaRous and Company office file. There are no extraordinary assumptions or hypothetical conditions included in the market study.

In order to form a judgment concerning the potential impact, if any, on the value of the surrounding residential properties of the approval of the conditional use for the wind farm, I have considered the following:

[2] *Aurora County, Bon Homme County, Brookings County, Campbell County, Charles Mix County, Codington County, Day County, Deuel County, Grant County, Hutchinson County, Hyde County, Jerauld County, McPherson County, and Roberts County*

- The character and the value of the residential and agricultural properties in the general area of the proposed wind farm;
- Agricultural land values in Deuel County, and in other South Dakota counties in which wind farms are located;
- Market trends for both residential and agricultural land up to the past 5 years;
- The economic impact the proposed wind farm would have on the larger community; and
- The potential impact on the value of the surrounding residential and agricultural properties.

Description of Area and Development Area Analysis

Tatanka Ridge Wind Project Location	
Toronto, South Dakota	
2010 Population	212 Persons
2018 Population	201 Persons
Median Household Income in 2018	$53,676
Number of Households in 2018	95
Number of Housing Units in 2018	113
Number of Vacant Housing Units in 2018	18
Unemployment Rate	0.9%
Astoria, South Dakota	
2010 Population	139 Persons
2018 Population	132 Persons
Median Household Income in 2018	$52,550
Number of Households in 2018	58
Number of Housing Units in 2018	73
Number of Vacant Housing Units in 2018	15
Unemployment Rate	1.4%
Brandt, South Dakota	
2010 Population	107 Persons
2018 Population	101 Persons
Median Household Income in 2018	$52,797
Number of Households in 2018	41
Number of Housing Units in 2018	49
Number of Vacant Housing Units in 2018	8
Unemployment Rate	1.9%
Townships – ***Blom, Brandt, Grange, Hidewood, and Scandinavia***	
2018 Population	681 Persons
Deuel County, South Dakota	
2010 Population	4,364 Persons
2018 Population	4,367 Persons
Median Household Income in 2018	$53,852
Number of Households in 2018	1,818
Number of Housing Units in 2018	2,204
Number of Vacant Housing Units in 2018	386
Unemployment Rate	2.5%
Main Roadway Arterials	
North/South	Interstate 29 extends along the western border of the footprint
East/West	SD-15 extends along the northern portion of the footprint and SD-28 extends along the southern portion of the footprint

Business Summary in Deuel County, South Dakota	
Business Name	**Business Type**
Sanford Clear Lake Medical Center	Healthcare
The Good Samaritan Society – Deuel County	Healthcare
South Dakota Partners, Inc	Manufacturing
Tech Ord	Manufacturing
ITC	Communications
Buffalo Ridge Resort and Business Center	Hospitality

Source: Deuel Area Development, Inc.- http://www.deuelarea.com/business-resources/target-industries-in-deuel-county

Nearest Cities within the Market Area of the Tatanka Ridge Wind Project	
Clear Lake, South Dakota ***≈5 Miles North of Project Footprint***	
2010 Population	1,273 Persons
2018 Population	1,237 Persons
Estelline, South Dakota ***≈6 Miles West of Project Footprint***	
2010 Population	768 Persons
2018 Population	793 Persons
White, South Dakota ***≈9 Miles South of Project Footprint***	
2010 Population	485 Persons
2018 Population	520 Persons
Castlewood, South Dakota ***≈9 Miles West of Project Footprint***	
2010 Population	627 Persons
2018 Population	656 Persons
Gary, South Dakota ***≈11 Miles Northeast of Project Footprint***	
2010 Population	227 Persons
2018 Population	227 Persons
Bruce, South Dakota ***≈11 Miles Southwest of Project Footprint***	
2010 Population	204 Persons
2018 Population	242 Persons
Altamont, South Dakota ***≈11 Miles North of Project Footprint***	
2010 Population	34 Persons
2018 Population	38 Persons

Other Existing Wind Farms Near the Project Area

The closest existing wind farm to the project is the Buffalo Ridge Wind Farm, located in Brookings County, South Dakota, and approximately 1 mile south of the project footprint. The wind farm is made up of a total of 129 turbines with a total capacity of approximately 260.4 megawatts and came online in 2009. Minn-Dakota Wind Project is located across the border of Brookings County, South Dakota and Lincoln County, Minnesota, and is approximately 16 miles southeast of the project footprint. The wind farm is made up of a total of 64 turbines with a total capacity of approximately 96 megawatts and came online in 2007. Day County Wind Project is located in Day County, South Dakota, and approximately 60 miles northwest of the project footprint. The wind farm is made up of a total of 66 turbines with a total capacity of approximately 99 megawatts and came online in 2010.

Residential Sales Nearest to the Project Area

Like the majority of South Dakota, this area is primarily rural in nature. In addition to farms, there are single-family houses situated on either smaller lots or larger farmsteads. The following table summarizes examples of the most recent single-family residential sales in the general area of the Tatanka Ridge Wind Project. A map illustrating the location of each of these sales is included in the addenda to this market impact study.

MOST RECENT SINGLE-FAMILY RESIDENTIAL SALES SUMMARY IN THE AREA NEAREST TO THE TATANKA RIDGE WIND PROJECT

No.	Location	Sale Price	Sale Date	Site Size (Acres)	Year Built	Building Size (Sq. Ft.)	Sale Price Per Sq. Ft. of Bldg. Area Incl. Land	Other Features
1	650 Dakota St. Toronto, South Dakota	$55,500	9/23/16	2.00	1948	1,184	$46.88	Wooded site; Paved roads; Located near town
2	19565 471st Ave. Toronto, South Dakota	$87,716	8/26/16	3.28	1889	1,800	$48.73	Wooded site; Paved roads; Located near town
3	580 Palisades Ave. Toronto, South Dakota	$107,000	9/24/18	0.45	2000	1,028	$104.09	Wooded site; Paved roads; Located near town
4	200 Madison St. Brandt, South Dakota	$150,000	7/31/17	2.00	1977	1,162	$129.09	Wooded site; Paved roads; Located near town
5	845 Dakota St. Toronto, South Dakota	$150,000	12/18/17	0.51	1983	2,464	$60.88	Cleared site; Paved roads; Located near town

Project Description

The project is proposed to consist of up to 56 turbines with an individual capacity between 2.30 and 2.82 megawatts; the turbines have a tip height of approximately 499 feet. The total capacity of the wind farm will be approximately 154.8 megawatts, covering approximately 18,000 acres.

The proposed project will use GE 2.3 and GE 2.82 turbines. The turbines will be constructed to meet applicable standards and will be monitored to ensure compliance with those standards and to limit the impact of sound, and shadow flicker.

Roads will be improved both before and after construction to accommodate the installation of the turbines and to repair any damage caused by the construction.

The total project cost will be approximately $218,000,000. Ancillary construction includes gravel-covered access roads, an electrical collection system, a collector substation, underground and overhead transmission lines, meteorological tower, an operations and maintenance building, and potentially 1 to 3 towers for an aircraft detection lighting system.

Project Benefits

Taxes	
Total Revenue	Estimated to be $700,000 per year
Beneficiary Totals over 25 years	Deuel County ≈ $180,000; Townships ≈ $75,000; Area School Districts ≈ $260,000
Land Agreements	
Participating Landowner Lease Payments	Total annual payments of approximately $1,000,000 will be dispersed between each participating landowners with turbines installed and each participating landowners without turbines
Good Neighbor Agreement Payments	Signing payment of $4,000 and an annual payment of $2,000
Job Creation	
Temporary/Construction	≈200 Construction Jobs
Permanent	≈12-15 Permanent Jobs
Induced Impacts due to Construction	
Indirect Impacts	Permit payments to the county and anticipated increase in household spending to local businesses

Market Impact Analysis

A market impact analysis is undertaken to develop an opinion as to whether the proposed wind farm will have an effect on the value of residential uses and/or agricultural land in proximity to the turbines. This analysis includes:

- A matched pair analysis considering the impact on value of residential properties proximate to a wind farm in South Dakota, as well as matched pairs developed and analyzed of residential properties in counties with similar demographics, land use, and economic characteristics of other states in the Midwest, specifically, Illinois, Minnesota, Iowa, Kansas, and Indiana;
- The value of agricultural land in Deuel County and in other counties with existing wind farms;
- Interviews with local and national real estate professionals;
- The results of a survey of assessors in South Dakota, Illinois, Minnesota, Iowa, Kansas, and Indiana with existing wind farms in their respective jurisdictions; and
- The results of several academic and peer-reviewed studies on the impact of wind turbines on residential property values.

Matched Pair Analysis

A matched pair analysis is a methodology which analyzes the importance of a selected characteristic, in this instance, proximity to a wind turbine, to the value of a property.[3] This technique compares the sale of a property in proximity to a selected characteristic to the sale of a similar property in the same market area and under similar market conditions but without the proximity to the selected characteristic.

It is difficult to find properties that are identical except for proximity to a wind turbine, and which also occurred under substantially similar market conditions, especially in rural areas. Many sales in the area are also conducted privately from family member to family member, or passed down from generation to generation, causing there to be a lack of sale information. Additionally, in many cases, the properties in these types of transactions do not sell at full value. The matched pair analysis accounts for different adjustments that must be made to account for the differences in the paired properties.

Data from similar Midwestern states that have a strong presence of wind turbines, similar demographics, similar economics, and similar agricultural characteristics, have also been analyzed.

Details of the sales included in this analysis are retained in my office files; maps in the addenda to this report illustrate the location of the properties. Unless otherwise indicated, none of the purchasers in these transactions appear to own any other property in proximity, and none of the transactions appear to have a wind turbine lease associated with the property.

[3] *See the discussion "Paired Sales Analysis" and "Sale/Resale Analysis" in Bell, Randall, MAI, Real Estate Damages, Applied Economics and Detrimental Conditions, Second Edition, Appraisal Institute, 2008, pages 25-27.*

South Dakota Analysis - Brookings County Matched Pair No. 1

The Buffalo Ridge Wind Farms are located in Brookings County in the East-Central region of South Dakota and consist of 129 turbines that began commercial operations in 2009. Both phases I and II are located primarily in Brookings County. Phase I came online in 2009 with 24 turbines generating approximately 50.4 MW of power. Phase II was much larger, following the first phase the next year in 2010 with 105 turbines generating approximately 210 MW of power. A property located at 21088 487th Avenue, Elkton, South Dakota, sold in October 2016 for $183,000. The nearest turbine is approximately 1,028 feet to the south of this property.

This property is compared with a similar property located at 5705 Rathum Loop, Brookings, South Dakota, that sold in June 2015, which is not located proximate to any wind turbines. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 487th Avenue property to the closest wind turbines.

BROOKINGS COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Wind Turbine	1B - Not Proximate to a Wind Turbine
Address	21088 487th Ave. Elkton, SD 57026	5705 Rathum Loop Brookings, SD 57006
Distance from Turbine (Ft.)	1,028	N/A
Sale Date	October 14, 2016	June 5, 2015
Sale Price	$183,000	$142,000
Sale Price/Sq. Ft. (A.G.)	$66.64	$68.33
Year Built	2003	1973
Building Size (Sq. Ft.)	2,746	2,078
Lot Size (Acres)	8.00	0.49
Style	One-story, frame (vinyl) 5 bedrooms, 3 bath	One-story; frame (vinyl) 3 bedrooms, 1 bath
Basement	Partial	Crawlspace/Partially finished
Utilities	Central air; Forced-air heat; Well & septic	Central air; Forced-air heat; Well & septic
Other	1-car attached garage patio, deck, utility buildings	1-car attached garage; 3-car detached garage; patio, deck, utility buildings

21088 487th Avenue

5705 Rathum Loop

Both the 487th Avenue property and the Rathum Loop property are ranch-style houses. However, Rathum Loop appears to contain only three bedrooms, whereas 487th Avenue has five bedrooms. An upward adjustment of Rathum Loop for the superior building style of 487th Avenue is required. In the case of the Rathum Loop property, there are utility buildings, a detached three-car garage, and a one-car attached garage; however, the 487th Avenue property has a just one larger utility building and an attached one-car garage. A downward adjustment for the superior outbuildings of Rathum Loop is required. The 487th Avenue building is of newer construction, and Rathum Loop is approximately 50 years old. Both properties are considered to be in normal condition by the Brookings County Assessor. An upward adjustment of Rathum Loop is required due to 487th Avenue's newer vintage. An upward adjustment is made for the larger building size of the 487th Avenue property. The 487th Avenue property is also situated on a much larger lot than that of the Rathum Loop property requiring an upward adjustment; however, both lots are surrounded by agricultural and pastureland, which mitigates the size differential to some degree. The Rathum Loop property has a superior location to the 487th Street property due to its close proximity to the town of Brookings, requiring a downward adjustment.

Considering the adjustments noted in the following table for the older vintage and smaller size of the Rathum Loop property and for the superior market conditions of the 487th Avenue property, the difference in the sale price does not support the conclusion that proximity to the wind turbines had a negative impact on the value of the 487th Avenue property.

ADJUSTMENT GRID MATCHED PAIR NO. 1

SALE NO.	ADDRESS	SALE DATE	YEAR BUILT	BUILDING SIZE	LOT SIZE	LOCATION	STYLE	BASEMENT	UTILITIES	OUT-BUILDINGS
1B	5705 Rathum Loop Brookings, South Dakota	+	+	+	+	-	+	o	o	-
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

South Dakota Analysis - Brookings County Matched Pair No. 2

A property located at 19824 478th Avenue, Toronto, South Dakota, sold in March 2011 for $235,000. The nearest turbine is approximately 1,548 feet to the northwest of this property.

This property is compared with a similar property located at 20485 475th Avenue, Brookings, South Dakota, that sold in August 2016, which is not located proximate to any wind turbines. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 478th Avenue property to the closest wind turbines.

BROOKINGS COUNTY MATCHED PAIR NO. 2

	2A - Proximate to a Wind Turbine	2B - Not Proximate to a Wind Turbine
Address	19824 478th Ave. Toronto, SD 57268	20485 475th Ave. Brookings, SD 57002
Distance from Turbine (Ft.)	1,548	N/A
Sale Date	March 14, 2011	August 10, 2016
Sale Price	$235,000	$300,000
Sale Price/Sq. Ft. (A.G.)	$100.38	$129.53
Year Built	1998	2016
Building Size (Sq. Ft.)	2,341	2,316
Lot Size (Acres)	9.50	19.10
Style	1.5-story, frame (stone/vinyl) 3 bedrooms, 1.2 bath	One-story; frame (vinyl) 4 bedrooms, 3 bath
Basement	Partial	Full
Utilities	Radiant floor heat; Well & septic	Central air; Geothermal heat; Well & septic
Other	1-car attached garage	3-car attached garage

19824 478th Avenue

20485 475th Avenue

Although the 478th Avenue property is a 1.5-story house and the 475th Avenue property is a ranch-style house, the two houses are of equivalent size. In the case of the 475th Avenue property, there is an attached three-car garage, while the 478th Avenue property has an attached one-car garage. A downward adjustment for the superior outbuildings of 475th Avenue is required. The 475th Avenue building is of newer construction than 478th Avenue property. Both properties are considered to be in normal condition by the Brookings County Assessor. A downward adjustment of 475th Avenue is required for its newer vintage, as well as a downward adjustment of 475th Avenue for its superior market conditions. The 475th Avenue property is situated on a much larger lot than that of the 478th Avenue property requiring a downward adjustment; however, both lots are surrounded by agricultural and pastureland, which mitigates the size differential to some degree. The 475th Avenue property has a superior location to the 478th Avenue property due to its close proximity to the town of Brookings, requiring a downward adjustment.

ADJUSTMENT GRID MATCHED PAIR NO. 2

SALE NO.	ADDRESS	SALE DATE	YEAR BUILT	BUILDING SIZE	LOT SIZE	LOCATION	STYLE	BASEMENT	UTILITIES	OUT-BUILDINGS
2B	20485 475th Ave. Brookings, South Dakota	-	-	o	-	-	o	-	-	-
+	Positive adjustment based on comparable being inferior in comparison to property #2A									
-	Negative adjustment based on comparable being superior in comparison to property #2A									
o	No adjustment necessary									

Considering the adjustments noted in the following table for the newer vintage and superior market conditions of the 475th Avenue property, the difference in the sale price does not support the conclusion that proximity to the wind turbines had a negative impact on the value of the 478th Avenue property.

South Dakota Analysis - Brookings County Matched Pair No. 3

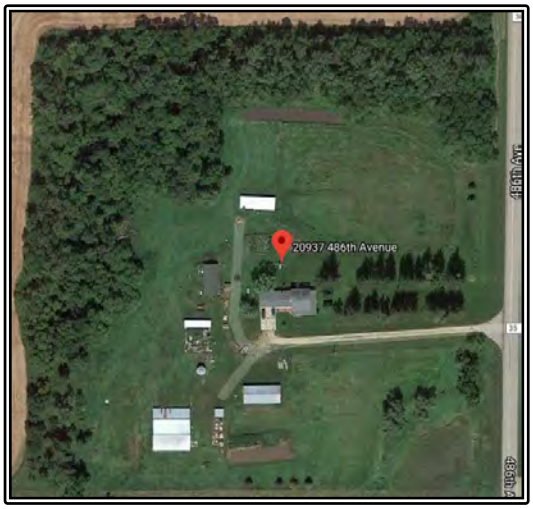
A property located at 20937 486th Avenue, Elkton, South Dakota, sold in December 2011 for $175,000. The nearest turbine is approximately 1,433 feet to the northeast of this property.

This property is compared with a similar property located at 518 West 44th Street S, Brookings, South Dakota, that sold in October 2017, which is not located proximate to any wind turbines. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 486th Avenue property to the closest wind turbines.

BROOKINGS COUNTY MATCHED PAIR NO. 3

	3A - Proximate to a Wind Turbine	3B - Not Proximate to a Wind Turbine
Address	20937 486th Ave. Elkton, SD 57026	518 W. 44th St. S Brookings, SD 57006
Distance from Turbine	1,433 Feet	N/A
Sale Date	December 1, 2011	October 9, 2017
Sale Price	$175,000	$175,900
Sale Price/Sq. Ft. (A.G.)	$79.26	$104.70
Year Built	1918	1990
Building Size (Sq. Ft.)	2,208	1,680
Lot Size (Acres)	14.28	4.55
Style	Two-story, frame (vinyl) 4 bedrooms, 2 bath	One-story; frame (vinyl) 3 bedrooms, 2 bath
Basement	Partial	Crawlspace
Utilities	Central air; Forced-air heat; Well & septic	Central air; Forced-air heat; Well & septic
Other	2-car attached garage	2-car detached garage



20937 486th Avenue

518 W. 44th Street S

The 486th Avenue property is a two-story house, and the 44th Street South property is a one-story house, and the 486th Avenue property has an extra bedroom. The superior style and number of bedrooms of the 486th Avenue property require an upward adjustment. In the case of the outbuildings, both properties have a two-car garage. The 44th Street South building is of newer construction than 486th Avenue property, which is 100 years old. Both properties are considered to be in normal condition by the Brookings County Assessor. A downward adjustment of 44th Street South is required for its newer vintage, as well as a downward adjustment of 44th Street South for its superior market conditions. The 486th Avenue property is situated on a much larger lot than that of the 44th Street South property requiring an upward adjustment; however, both lots are surrounded by agricultural and pastureland, which mitigates the size differential to some degree.

Considering the adjustments noted in the following table for the newer vintage and superior market conditions of the 44th Street South property, the difference in the sale price does not support the conclusion that proximity to the wind turbines had a negative impact on the value of the 486th Avenue property.

ADJUSTMENT GRID MATCHED PAIR NO. 3

SALE NO.	ADDRESS	SALE DATE	YEAR BUILT	BUILDING SIZE	LOT SIZE	LOCATION	STYLE	BASEMENT	UTILITIES	OUT-BUILDINGS
3B	518 W. 44th St. S. Brookings, South Dakota	-	-	+	+	o	+	+	o	o

\+ Positive adjustment based on comparable being inferior in comparison to property #3A
\- Negative adjustment based on comparable being superior in comparison to property #3A
o No adjustment necessary

South Dakota Analysis - Brookings County Matched Pair No. 4

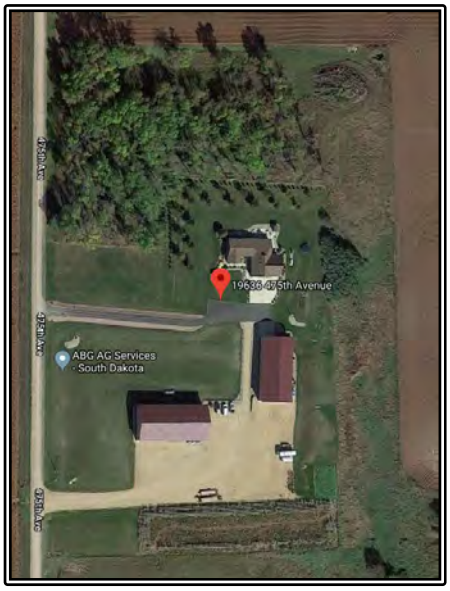
A property located at 19636 475th Avenue, Toronto, South Dakota, sold in November 2013 for $530,000. The nearest turbine is approximately 2,309 feet to the southeast of this property.

This property is compared with a similar property located at 46246 214th Street, Volga, South Dakota that sold in December 2016, which is not located proximate to any wind turbines. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 475th Avenue property to the closest wind turbines.

BROOKINGS COUNTY MATCHED PAIR NO. 4

	4A - Proximate to a Wind Turbine	4B - Not Proximate to a Wind Turbine
Address	19636 475th Ave. Toronto, SD 57268	46246 214th St. Volga, SD 57071
Distance from Turbine	2,309 Feet	N/A
Sale Date	November 21, 2013	December 21, 2016
Sale Price	$530,000	$317,000
Sale Price/Sq. Ft. (A.G.)	$151.60	$182.81
Year Built	1989	2001
Building Size (Sq. Ft.)	3,496	1,734
Lot Size (Acres)	13.00	10.43
Style	One-story; frame (vinyl) 5 bedrooms, 3 bath	One-story; frame (vinyl) 4 bedrooms, 3 bath
Basement	Partial	Full
Utilities	Central air; Forced-air heat; Well & septic	Central air; Geothermal heat; Well & septic
Other	3-car attached garage; two commercial utility buildings; gazebo	1-car attached garage; 2-car detached garage



19636 475th Avenue

46246 214th Street

Both the 475th Avenue property and the 214th Street property are a one-story ranch style house. In the case of the outbuildings, the 475th Avenue property is superior with two large commercial-style utility buildings and a three-car attached garage compared to the 214th Street property with a two-car detached garage and a one-car attached garage. The superiority of the 475th Avenue buildings requires an upward adjustment. The 214th Street building is of newer construction than 475th Avenue property. Both properties are considered to be in normal condition by the Brookings County Assessor. A downward adjustment of 214th Street is required for its newer vintage, as well as a downward adjustment of 214th Street for its superior market conditions. The 475th Avenue property is situated on a larger lot than that of the 214th Street property requiring an upward adjustment; however, both lots are surrounded by agricultural and pastureland, which mitigates the size differential to some degree.

Considering the adjustments noted in the following table for the newer vintage and superior market conditions of the 214th Street property, the difference in the sale price does not support the conclusion that proximity to the wind turbines had a negative impact on the value of the 475th Avenue property.

ADJUSTMENT GRID MATCHED PAIR NO. 4

SALE NO.	ADDRESS	SALE DATE	YEAR BUILT	BUILDING SIZE	LOT SIZE	LOCATION	STYLE	BASEMENT	UTILITIES	OUT-BUILDINGS
4B	46246 214th St. Volga, South Dakota	-	-	+	+	o	o	-	-	+

\+ Positive adjustment based on comparable being inferior in comparison to property #4A
\- Negative adjustment based on comparable being superior in comparison to property #4A
o No adjustment necessary

South Dakota Analysis - Brookings County Matched Pair No. 5

A property located at 48646 207th Street, Elkton, South Dakota, sold in March 2014 for $190,000. The nearest turbine is approximately 1,118 feet to the west of this property.

This property is compared with a similar property located at 5705 Rathum Loop, Brookings, South Dakota, that sold in June 2015, which is not located proximate to any wind turbines. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 207th Street property to the closest wind turbines.

BROOKINGS COUNTY MATCHED PAIR NO. 5

	5A - Proximate to a Wind Turbine	5B - Not Proximate to a Wind Turbine
Address	48646 207th St. Elkton, SD 57026	5705 Rathum Loop Brookings, SD 57006
Distance from Turbine	1,118 Feet	N/A
Sale Date	March 26, 2014	June 5, 2015
Sale Price	$190,000	$142,000
Sale Price/Sq. Ft. (A.G.)	$87.96	$68.33
Year Built	1936	1973
Building Size (Sq. Ft.)	2,160	2,078
Lot Size (Acres)	6.95	0.49
Style	Two-story, frame (vinyl) 3 bedrooms, 3 bath	One-story; frame (vinyl) 3 bedrooms, 1 bath
Basement	Partial	Crawlspace/Partially finished
Utilities	Central air; Forced-air heat; Well & septic	Central air; Forced-air heat; Well & septic
Other	1-car attached garage; 2-car detached garage	1-car attached garage; 3-car detached garage; patio, deck, utility buildings

48646 207th Street

5705 Rathum Loop

Although the 207th Street property is a two-story house and the Rathum Loop property is a ranch-style house, the two houses are of equivalent size. However, an upward adjustment to Rathum Loop is required for the superior building style of 207th Street property. In the case of the Rathum Loop property, there are utility buildings, a detached three-car garage, and a one-car attached garage. In comparison, the 207th Street property has an attached one-car garage and a detached two-car garage. A downward adjustment for the superior outbuildings of Rathum Loop is required. Although the Rathum Loop building is of newer construction, it is still approximately 50 years old. The 207th Street property is closer to 80 years old. Both properties are considered to be in normal condition by the Brookings County Assessor. A downward adjustment of Rathum Loop is required for its newer vintage, as well as a downward adjustment of Rathum Loop for its superior market conditions. The 207th Street property is situated on a much larger lot than that of the Rathum Loop property requiring an upward adjustment; however, both lots are surrounded by agricultural and pastureland, which mitigates the size differential to some degree. The Rathum Loop property has a superior location to the 207th Street property due to its close proximity to the town of Brookings, requiring a downward adjustment.

Considering the adjustments noted in the following table for the newer vintage and superior market conditions, yet smaller lot size of the Rathum Loop property, the difference in the sale price does not support the conclusion that proximity to the wind turbines had a negative impact on the value of the 207th Street property.

ADJUSTMENT GRID MATCHED PAIR NO. 5

SALE NO.	ADDRESS	SALE DATE	YEAR BUILT	BUILDING SIZE	LOT SIZE	LOCATION	STYLE	BASEMENT	UTILITIES	OUT-BUILDINGS
5B	5705 Rathum Loop Brookings, South Dakota	-	-	o	+	-	+	o	o	-
+	Positive adjustment based on comparable being inferior in comparison to property #5A									
-	Negative adjustment based on comparable being superior in comparison to property #5A									
o	No adjustment necessary									

South Dakota Analysis - Brookings County Matched Pair No. 6

A property located at 20922 485th Avenue, Elkton, South Dakota, sold in August 2010 for $180,000. The nearest turbine is approximately 1,959 feet to the south, as well as twelve other turbines within approximately a half mile to the east, of this property.

This property is compared with a similar property located at 46464 218th Street, Volga, South Dakota, that sold in November 2014, which is not located proximate to any wind turbines. The salient details of these two properties are summarized in the table below.

The following aerial map illustrates the relationship of the 485th Avenue property to the closest wind turbines.

BROOKINGS COUNTY MATCHED PAIR NO. 6

	6A - Proximate to a Wind Turbine	6B - Not Proximate to a Wind Turbine
Address	20922 485th Ave. Elkton, SD 57026	46464 218th St. Volga, SD 57071
Distance from Turbine	1,959 Feet	N/A
Sale Date	August 4, 2010	November 14, 2014
Sale Price	$180,000	$190,600
Sale Price/Sq. Ft. (A.G.)	$107.14	$113.45
Year Built	1992	1918
Building Size (Sq. Ft.)	1,680	1,680
Lot Size (Acres)	13.35	15.00
Style	One-story; frame (vinyl) 4 bedrooms, 2 bath	Two-story; frame (vinyl) 5 bedrooms, 2 bath
Basement	Partial	Full
Utilities	Central air; Geothermal heat; Well & septic	Central air; Forced-air heat; Well & septic
Other	1-car attached garage	1-car detached garage

20922 485th Avenue

46464 218th Street

The 218th Street property is a two-story house with five bedrooms, and the 485th Avenue property is a one-story ranch style house with four bedrooms. The superior style of the 218th Street property requires a downward adjustment. In the case of the outbuildings, both properties have a one-car garage. The 485th Avenue building is of newer construction than the 218th Street property, which is 100 years old. Both properties are considered to be in normal condition by the Brookings County Assessor. An upward adjustment of 218th Street is required for 485th Avenue's newer vintage, as well as a downward adjustment of 218th Street for its superior market conditions. The 218th Street property is situated on a larger lot than that of the 485th Avenue property requiring an upward adjustment; however, both lots are surrounded by agricultural and pastureland, which mitigates the size differential to some degree.

Considering the adjustments noted in the following table for the older vintage, yet superior market conditions of the 218th Street property, the difference in the sale price does not support the conclusion that proximity to the wind turbines had a negative impact on the value of the 485th Avenue property.

ADJUSTMENT GRID MATCHED PAIR NO. 6

SALE NO.	ADDRESS	SALE DATE	YEAR BUILT	BUILDING SIZE	LOT SIZE	LOCATION	STYLE	BASEMENT	UTILITIES	OUT-BUILDINGS
6B	46464 218th St. Volga, South Dakota	-	+	o	o	o	-	-	+	o
+	Positive adjustment based on comparable being inferior in comparison to property #6A									
-	Negative adjustment based on comparable being superior in comparison to property #6A									
o	No adjustment necessary									

Matched Pair Analysis - Illinois, Minnesota, Iowa, Kansas, and Indiana

In addition to analyzing sales in the subject project area, we have researched sales in proximity to several existing wind farms in rural areas of Illinois, Minnesota, Iowa, Kansas, and Indiana in order to discover whether residential property values in these areas were impacted by their locations. The following are the results of the most recent of these studies.

As with the research from South Dakota, details of these sales are retained in my office files; maps in the addenda to this report illustrate the location of these matched pairs. Unless otherwise indicated, none of the purchasers in these transactions appear to own any other property in proximity, and none of the transactions appear to have a wind turbine lease associated with the property.

Illinois Analysis - Macon County Matched Pair No. 1

Macon County Matched Pair #1 considers the recent sale of a property located at 8873 North Glasgow Road, Warrensburg, that is 1,855 feet from the nearest wind turbine located within the subject, the Triple H Wind Project, with approximately four additional turbines visible from the property to the north and west.

This sale is compared with a similar property located at 1511 Hunters View Drive, Mount Zion, that sold in June 2013. The location is in a suburban setting, but the area is still very rural in nature. The salient details of these two properties are summarized in the table below.

MACON COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Wind Turbine	1A - Prior Sale	1B - Not Proximate to a Wind Turbine
Address	8873 North Glasgow Rd. Warrensburg, IL 62573	8873 North Glasgow Rd. Warrensburg, IL 62573	1511 Hunters View Dr. Mount Zion, IL 62549
Distance from Turbine	1,855 Feet	NA	NA
Sale Date	June 12, 2017	March 25, 2014	June 31, 2013
Sale Price	$214,000	$184,000	$193,000
Sale Price/Sq. Ft. (A.G.)	$124.35	$106.91	$91.90
Year Built	2006	2006	2006
Building Size (Sq. Ft.)	1,721	1,721	2,100
Lot Size (Acres)	1.04	1.35	0.21
Style	1-story, frame (vinyl) 4 bedrooms, 2 bath	1-story, frame (vinyl) 3 bedrooms, 2 bath	2-story, frame (vinyl/brick) 4 bedrooms; 2.1 bath
Basement	Full; partially finished	Full; unfinished	Full; finished
Utilities	Geothermal heat & cooling; Well & septic	Geothermal heat & cooling; Well & septic	Central Air; Forced-air heat; Public Sewer
Other	2.5-car attached garage; front porch and deck	2.5-car attached garage; front porch	3-car attached garage; patio

8873 North Glasgow Road

1511 Hunters View Drive

The house at 8873 North Glasgow Road, is located approximately 8 miles northwest of Decatur, in a rural area. According to the Macon County Assessor's records, this house previously sold in March 2014 for $184,000. This indicates an increase in value of approximately 16% during a period in which residential sale prices generally were not increasing. There is no lease for a wind turbine on this property. According to the most recent selling broker, there was an issue with the well test; the yard was dug up to find the well and to treat the problem. The yard has since returned to normal condition. The broker also stated that the house is in excellent condition and showed very well. The sellers added a wrap-around deck and finished part of the basement to add a fourth bedroom. The seller was being relocated and was offered a low price for the relocation fee; the sellers put the house on the market on their own and were able to sell it within six weeks, for greater than the asking price.

The house on Hunters View Drive has a similar, rural location, yet is situated in a suburban setting, and is approximately 4 miles south of Decatur. Although this house sits on a smaller lot than the Glasgow Road property, this is offset by the extra bedroom and by the second floor. The property is not near a wind farm.

ADJUSTMENT GRID MATCHED PAIR NO. 1

SALE NO.	ADDRESS	SALE DATE	YEAR BUILT	BUILDING SIZE	LOT SIZE	LOCATION	STYLE	BASEMENT	UTILITIES	OUT-BUILDINGS
1B	1511 Hunters View Drive Mount Zion, Illinois	+	o	-	+	-	o	o	+	o
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

The comparison will be made to the June 2017 date of sale because it is most similar to the sale of the Hunters View Drive property.

Upward adjustments are made for the superior market conditions, larger lot size, and geothermal heating and cooling system of the Glasgow Road property. Downward adjustments are made for the superior building size of the Hunters View Drive property. When the adjustments noted above are made to the sale price of the Hunters View Drive property, the two properties have essentially the same sale price per square foot value. Therefore, although the Hunters View Drive house is larger, the higher per foot sales price for the Glasgow Road property is justified by its superior condition and amenities, and its larger lot size. Thus, the difference in the sales price does not support the conclusion that there is any diminution in value resulting from the proximity of the Glasgow Road property to wind turbines. This is further supported by the subsequent sale of the Glasgow Road property, at which time the 2017 sale price increased by $17.44 per square foot over the 2014 sale price.

Illinois Analysis - McLean County Matched Pair No. 1

McLean County Matched Pair No. 1 considers the sale of a house located at 29394 E 850 North Road, Ellsworth, that sold in November 2015 for $207,000. This house is located approximately 1,865 feet from the nearest turbine, and there are several turbines visible to the north and east. The following photograph is of the turbines visible from the house, with the majority visible in the distance.

This property is compared with a similar property located at 26298 E 1000 North Road, Downs, that sold in March 2015 for $220,000. This property is not located near wind turbines; however, there are some visible more than 1 mile to the east. Market conditions are considered to be similar. Both properties are situated in rural locations. The salient details of these two properties are summarized in the table below.

MCLEAN COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Wind Turbine	1B - Not Proximate to a Wind Turbine
Address	29394 E 850 North Rd. Ellsworth, IL 61737	26298 E 1000 North Rd. Downs, IL 61736
Distance from Turbine	1,865 Feet	N/A
Sale Date	November 17, 2015	March 11, 2015
Sale Price	$207,000	$220,000
Sale Price/Sq. Ft. (A.G.)	$86.25	$82.71
Year Built	1978	1978
Building Size (Sq. Ft.)	2,400	2,660
Lot Size (Acres)	1.70	2.49
Style	Two-story, frame (vinyl/brick) 4 bedrooms; 2 bath	Two-story, frame (vinyl) 4 bedrooms; 2 bath
Basement	Full, finished	Full, finished
Utilities	Central air; Propane heat; Well & septic	Central air; Propane heat; Well & septic
Other	2-car detached garage; patio, deck, small shed	2.5-car attached garage; large storage shed

29394 E 850 North Road

26298 E 1000 North Rd.

Both houses are of similar construction type, vintage, and size. Both had been updated recently, with the house at 29394 E 850 North Road having been updated more extensively than the other. Both have finished basements; however, basement build-out in the house at 26298 E 1000 North Road is not completely finished. The house at 26298 E 1000 North Road has a large shed with a drive-in door. The superior interior features and the larger shed are offset by the approximately ½-acre larger site size of the property at 26298 E 1000 North Road. Both houses are located on paved roads.

ADJUSTMENT GRID MATCHED PAIR NO. 1

SALE NO.	ADDRESS	SALE DATE	YEAR BUILT	BUILDING SIZE	LOT SIZE	LOCATION	STYLE	BASEMENT	UTILITIES	OUT-BUILDINGS
1B	26298 E 1000 North Rd. Downs, Illinois	o	o	o	-	o	o	o	o	-
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

Downward adjustments are made for the superior lot size and outbuildings of the 26298 E 1000 North Road property. When the adjustments noted above are made to the sale price of the 26298 E 1000 North Road property, the two properties have essentially the same sale price per square foot value. Thus, the difference in the sales price does not support the conclusion that there is any negative impact on value resulting from the proximity of the 29394 E 850 North Road property to wind turbines.

Illinois Analysis - McLean County Matched Pair No. 2

McLean County Matched Pair No. 2 considers the sale of a house located at 25156 E 1400 North Road, Ellsworth, that sold in November 2015 for $196,000. This house is located approximately 2,210 feet from the nearest turbine, but there are several turbines proximate to the south, southeast, and southwest.

The following photograph is of the turbines visible from the property.

This property is compared with a similar property located at 787 E 1300 North Road, Sibley, that sold in March 2015 for $125,000. This property is not located near wind turbines. Market conditions are considered to be similar. Although this property is located in Ford County, both properties have similar, rural locations. The salient details of these two properties are summarized in the table below.

MCLEAN COUNTY MATCHED PAIR NO. 2

	2A - Proximate to a Wind Turbine	2B - Not Proximate to a Wind Turbine
Address	25156 E 1400 North Rd. Ellsworth, IL 61737	787 E 1300 North Rd. Sibley, IL 61773
Distance from Turbine	2,210 Feet	N/A
Sale Date	November 1, 2015	March 13, 2015
Sale Price	$196,000	$125,000
Sale Price/Sq. Ft. (A.G.)	$66.58	$49.56
Year Built	1890	1900
Building Size (Sq. Ft.)	2,944	2,522
Lot Size (Acres)	4.14	3.36
Style	Two-story, frame (vinyl) 4 bedrooms; 2 bath	Two-story, frame (vinyl) 4 bedrooms; 2 bath
Basement	Full, finished	Full, partially finished
Utilities	Central air; Propane heat; Well & septic	Central air; Propane heat; Well & septic
Other	1-car attached garage; porch; machine shop	2-car detached garage; deck, large shed

25156 E 1400 North Road

787 E 1300 North Road

Both houses are of similar construction type, vintage, and size. Both have been remodeled in the recent past. The E 1400 North Road house has a large freestanding garage/machine shed that has water and electricity, which is superior to the older shed on the site of the E 1300 North Road house. Also, the site size of the E 1400 North Road property is approximately ¾ acre larger than the E 1300 North Road property. Both factors are reflected in the E 1400 North Road properties higher sale price.

ADJUSTMENT GRID MATCHED PAIR NO. 2

SALE NO.	ADDRESS	SALE DATE	YEAR BUILT	BUILDING SIZE	LOT SIZE	LOCATION	STYLE	BASEMENT	UTILITIES	OUT-BUILDINGS
2B	787 E 1300 North Rd. Sibley, Illinois	o	o	+	+	o	o	o	o	o

\+ Positive adjustment based on comparable being inferior in comparison to property #2A
\- Negative adjustment based on comparable being superior in comparison to property #2A
o No adjustment necessary

Upward adjustments are made for the larger building size and the larger lot size of the E 1400 North Road property. When the adjustments noted above are made to the sale price of the E 1300 North Road property, the two properties have a similar sale price per square foot value. Thus, the difference in the sales price does not support the conclusion that there is any negative impact on value resulting from the proximity of the E 1400 North Road property to wind turbines.

Illinois Analysis - McLean County Matched Pair No. 3

McLean County Matched Pair No. 3 considers the sale of a house located at 25017 E 1400 North Road, Ellsworth, that sold in September 2015 for $159,000. This house is located approximately 1,573 feet from the nearest turbine, and there are several turbines proximate to the south, southeast, and southwest.

The following photograph is of the turbines visible from the property.

This property is compared with a similar property located at 10837 Yankee Town Road, Farmer City, that sold in October 2016 for $134,000. This property is not located near wind turbines. Market conditions are considered to be slightly superior at the date of sale of this property. Although this house is located in DeWitt County, both properties have similar rural locations. The salient details of these two properties are summarized in the table below.

MCLEAN COUNTY MATCHED PAIR NO. 3

	3A - Proximate to a Wind Turbine	3B - Not Proximate to a Wind Turbine
Address	25017 E 1400 North Rd. Ellsworth, IL 61737	10837 Yankee Town Rd. Farmer City, IL 61842
Distance from Turbine	1,573 Feet	N/A
Sale Date	September 3, 2015	October 3, 2016
Sale Price	$159,000	$134,000
Sale Price/Sq. Ft. (A.G.)	$81.45	$68.37
Year Built	1880	1908
Building Size (Sq. Ft.)	1,952	1,960
Lot Size (Acres)	2.87	4.00
Style	Two-story, frame (vinyl) 4 bedrooms; 2 bath	Two-story, frame (vinyl) 4 bedrooms; 2 bath
Basement	Full, finished	Full, finished
Utilities	Central air; Propane heat; Well & septic	Central air; Propane heat; Well & septic
Other	No separate garage; large shed with drive-in doors; other farm buildings	No separate garage; large shed with drive-in doors; other farm buildings

25017 E 1400 North Road

10837 Yankee Town Road

Both houses are of similar construction type, vintage, and size. Both have been remodeled and updated. Neither property has a garage; both have large buildings with drive-in doors for cars and other equipment. Both properties have other farm buildings on the site. The Yankee Town Road property has a site that is approximately 1.25 acres larger than that of the E 1400 North Road property.

ADJUSTMENT GRID MATCHED PAIR NO. 3

SALE NO.	ADDRESS	SALE DATE	YEAR BUILT	BUILDING SIZE	LOT SIZE	LOCATION	STYLE	BASEMENT	UTILITIES	OUT-BUILDINGS
3B	10837 Yankee Town Rd. Farmer City, Illinois	-	o	o	-	o	o	o	o	o
+	Positive adjustment based on comparable being inferior in comparison to property #3A									
-	Negative adjustment based on comparable being superior in comparison to property #3A									
o	No adjustment necessary									

Downward adjustments are made for the superior market conditions and larger lot size of the E 1400 North Road property. When the adjustments noted above are made to the sale price of the Yankee Town Road property, the E 1400 North Road property appears to have a superior sale price per square foot value to that of the Yankee Town Road property. Thus, the difference in the sales price does not support the conclusion that there is any negative impact on value resulting from the proximity of the E 1400 North Road property to wind turbines.

Illinois Analysis - Livingston County Matched Pair No. 1

Livingston County Matched Pair No. 1 considers the sale of a property in Livingston County that is located proximate to the Cayuga Ridge Wind Farm. Cayuga Ridge construction began in 2009, and the wind farm came fully online in March 2010. The house at 23090 N 2500 East Road, Odell, is 2,322 feet east of a wind turbine, 3,229 feet west of a wind turbine, and 3,440 feet south of a wind turbine. The following photograph illustrates the location of this house (on the right in the picture) relative to the nearest turbines.

This sale is compared with a similar property located at 16101 E 1400 North Road in Pontiac that is not proximate to a wind turbine. The salient details of these two properties are summarized in the table below.

LIVINGSTON COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Wind Turbine	1B - Not Proximate to a Wind Turbine
Address	23090 N 2500 East Rd. Odell, IL 60460	16101 E 1400 North Rd. Pontiac, IL 61764
Distance from Turbine	2,322 Feet	N/A
Sale Date	August 15, 2013	November 18, 2013
Sale Price	$205,000	$167,500
Sale Price/Sq. Ft. (A.G.)	$108.41	$89.33
Year Built	1971	1967
Building Size (Sq. Ft.)	1,891	1,875
Lot Size (Acres)	3.63	3.27
Style	One-story; brick 4 bedrooms, 1.1 bath	One-story; brick 3 bedrooms, 2 bath
Basement	Full, partially finished	Crawlspace
Utilities	Central air; Electric heat; Well & septic	Central air; Propane heat; Well & septic
Other	2-car detached garage; 2 pole barns; 60 x 90 shed (subsequently demolished)	1-car attached garage; 30 x 40 shed; 64 x 42 machine shop

23090 N 2500 East Road

16101 E 1400 North Road

Both properties are located in the Pontiac High School district. The lot sizes are similar; however, the Odell property is approximately ⅓-acre larger. The houses are of similar construction vintage and are of equivalent size. The condition of both is assumed to be similar. The Odell property has an additional bedroom and is superior in that it has a full, partially finished basement and a larger garage. However, the Pontiac property has two full bathrooms, a first-floor laundry room, and propane gas heat. The outbuildings of the Odell property were in poor condition and were demolished subsequent to the sale; therefore, the Pontiac property is considered superior in that regard, which offsets the smaller size of the garage.

ADJUSTMENT GRID MATCHED PAIR NO. 1

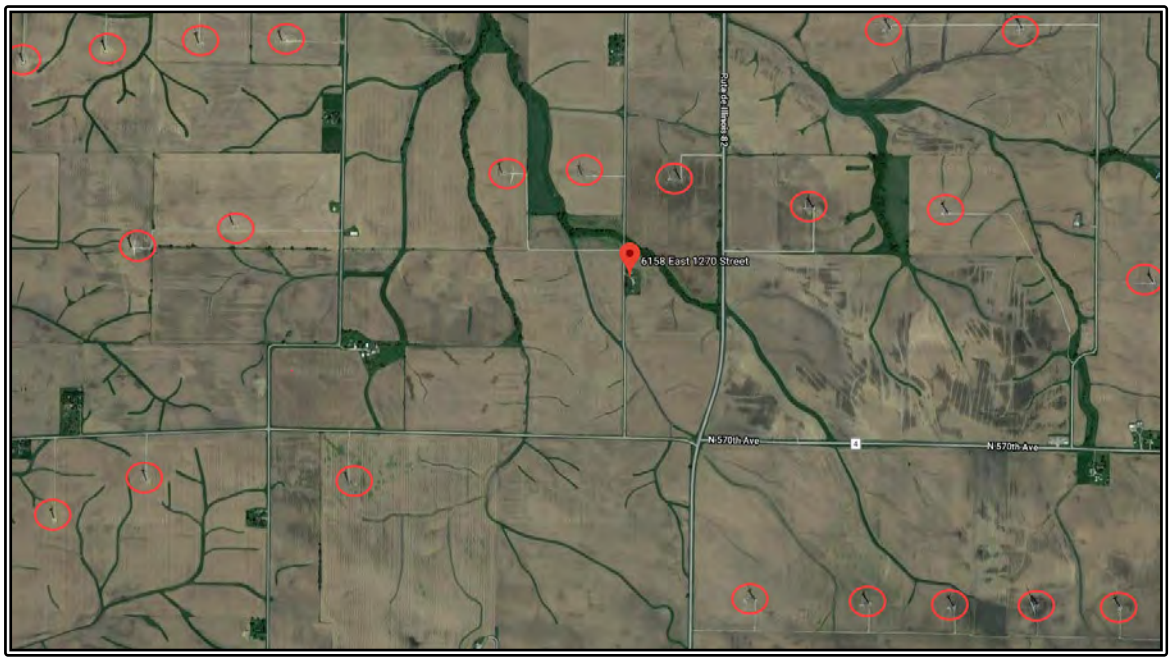
SALE NO.	ADDRESS	SALE DATE	YEAR BUILT	BUILDING SIZE	LOT SIZE	LOCATION	STYLE	BASEMENT	UTILITIES	OUT-BUILDINGS
1B	16101 E 1400 North Rd. Pontiac, Illinois	o	o	o	o	o	o	+	o	o
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

An upward adjustment is made for the superior basement of the N 2500 East Road property. When the adjustments noted above are made to the sale price of the E 1400 North Road property, the N 2500 East Road property appears to have a superior sale price per square foot value to that of the E 1400 North Road property. Thus, the difference in the sales price does not support the conclusion that there is any negative impact on value resulting from the proximity of the N 2500 East Road property to wind turbines.

Illinois Analysis - Henry County Matched Pair No. 1

Henry County Matched Pair No. 1 considers the sale of a house located at 6158 East 1270th Street, Cambridge, that sold in April 2016 for $120,000. This house is located approximately 1,610 feet from the nearest turbine, and there are several turbines visible in each direction.

The following photograph is an aerial view of the turbines visible surrounding the house.



This property is compared with a similar property located at 17675 N 400th Avenue, Cambridge, that sold in March 2017 for $110,000. This property is not located near wind turbines; however, there are some visible more than 1 mile to the west. Market conditions are considered to be similar. Both properties are situated in rural locations. The salient details of these two properties are summarized in the table below.

HENRY COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Wind Turbine	1B - Not Proximate to a Wind Turbine
Address	6158 E 1270th St. Cambridge, IL 61238	17675 N 400th Ave. Cambridge, IL 61238
Distance from Turbine	1,610 Feet	N/A
Sale Date	April 29, 2016	March 1, 2017
Sale Price	$120,000	$110,000
Sale Price/Sq. Ft. (A.G.)	$63.03	$73.33
Year Built	1907	1907
Building Size (Sq. Ft.)	1,904	1,500
Lot Size (Acres)	1.20	5.00
Style	Two-story; frame (vinyl) 3 bedrooms, N/A bath	Two-story; frame (vinyl) 3 bedrooms, 2 bath
Basement	N/A	N/A
Utilities	Well & septic	Forced-air heat; Well & septic
Other	2-car detached garage; workshop attached to garage; pole barn	2-car detached garage; Chicken coop; Tree farm and small orchard

6158 E 1270th Street

17675 N 400th Avenue

Both houses are of similar construction type, vintage, and market condition. Both houses were constructed in 1907, but the 400th Avenue house appears to be in better condition. Both do not have basements; however, both have the same number of bedrooms. The 1270th Street house has a large two car garage with an added large area on the north end of the garage that could be used as a workshop and a separate barn. The superior size and the superior outbuildings of the 1270th Street property are offset by the approximately 4½-acre larger site size, the superior utilities, and the site amenities of the 400th Avenue property.

ADJUSTMENT GRID MATCHED PAIR NO. 1

SALE NO.	ADDRESS	SALE DATE	YEAR BUILT	BUILDING SIZE	LOT SIZE	LOCATION	STYLE	BASEMENT	UTILITIES	OUT-BUILDINGS
1B	17675 N 400th Ave. Cambridge, Illinois	o	o	+	-	o	o	o	+	o
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

A downward adjustment is made for the larger lot size of the N 400th Avenue property. Upward adjustments were made for the larger building size and superior utilities of the East 1270th Street property. When the adjustments noted above are made to the sale price of the N 400th Avenue property, the two properties have a similar sale price per square foot value. Thus, the difference in the sales price does not support the conclusion that there is any negative impact on value resulting from the proximity of the East 1270th Street property to wind turbines.

Minnesota Analysis - Freeborn County Matched Pair No. 1

Freeborn County, Minnesota, is located north adjacent to central Iowa. Matched Pair #1 considers the sale of a property in the footprint of the Bent Tree Wind Farm in Freeborn County, which has been operational since February 2011. The house is located at 69525 305th Street, Hartland, sold in March 2016. This house is approximately 2,375 feet from the nearest turbine; there are several turbines located to the south and southeast.

This sale is compared with a similar property located at 70308 240th Street, Albert Lea, that sold in May 2016. Wind turbines are visible from the house, but the turbines are more than 1.5 miles away. The location is very rural in nature. Market conditions are considered to be substantially similar at the dates of sale. The salient details of these two properties are summarized in the table below.

FREEBORN COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Wind Turbine	1B - Not Proximate to a Wind Turbine
Address	69525 305th Street. Hartland, MN 56042	70308 240th Street. Albert Lea, MN 56007
Distance from Turbine	2,375 Feet	NA
Sale Date	March 31, 2016	May 16, 2016
Sale Price	$89,000	$100,000
Sale Price/Sq. Ft. (A.G.)	$57.12	$61.80
Year Built	1880	1925
Building Size (Sq. Ft.)	1,558	1,618
Lot Size (Acres)	5.51	4.01
Style	Farmhouse; frame (vinyl) 3 or 4 bedrooms, 2 bath	Farmhouse; frame (vinyl) 3 bedrooms, 2 bath
Basement	Full, unfinished	Partial, unfinished
Utilities	No central air; propane heat; Well & septic	Central air; natural gas heat; Well & septic
Other	2-car detached garage; deck, outbuildings	2.5-car detached garage; deck, outbuildings

69525 305th Street

70308 240th Street

Both properties are older, farm-house style and of frame construction with vinyl siding. They are somewhat similar in size. However, the 240th Street house is superior to the 305th Street house in condition; it is classified by the Assessor as being in better condition and is described in the online listing as having been renovated recently. The 305th Street house does not have central air conditioning, and does not have natural gas available; however, the 240th Street house has both. Both the central air conditioning and the availability of natural gas are considered superior factors for 240th Street requiring a downward adjustment. An upward adjustment for the full basement of 305th Street compared to the partial basement of 240th Street.

The house on 240th Street has a site size approximately 1.5 acres smaller than that of the 305th Street house. However, this is more than offset by its location on a hard-surface road, as well as the proximity to Interstate 90 access and to the city of Albert Lea.

ADJUSTMENT GRID MATCHED PAIR NO. 1

SALE NO.	ADDRESS	SALE DATE	YEAR BUILT	BUILDING SIZE	LOT SIZE	LOCATION	STYLE	BASEMENT	UTILITIES	OUT-BUILDINGS
1B	70308 240th St. Albert Lea, Minnesota	o	-	o	o	-	o	+	-	o
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

When the adjustments noted above for superior condition, air conditioning, and the availability of natural gas are made to the sale price of the 240th Street house, the two properties have essentially the same per square foot value. In other words, the higher per foot sale price for the 240th Street house is justified by its superior condition and amenities. Thus, the difference in the sale price does not support the conclusion that proximity to the wind turbines had a negative impact on the sale price of the property at 69525 305th Street.

Iowa Analysis - Hancock County Matched Pair No. 1

Hancock County is located in northern Iowa and is a largely rural county, primarily agricultural in nature. The county has two areas of wind turbines, the Hancock County Wind Farm in the southeast portion of Hancock County and the Crystal Lake Energy Center in the northwest portion of Hancock County.

Crystal Lake I Wind Farm is located in Hancock County in north central Iowa and consists of 100 turbines that began commercial operations in 2008. Phases II and III located primarily in Winnebago County, added another 80 and 44 turbines, respectively, and began operations in approximately 2009. A property located at 2685 Ford Avenue, Britt, sold in May 2016, for $155,400. The sale previously sold in October 2012 for $150,000. The nearest turbine is approximately 2,000 feet to the north and west of this property.

The following aerial map illustrates the relationship of the Ford Avenue property to the closest wind turbines.

This property is compared with a similar property located at 2855 Taft Avenue that sold in December 2014 and is not located proximate to any wind turbines. Market conditions between December 2014 and May 2016 are considered to have been stable in this area of Iowa. The salient details of these two properties are summarized in the table below.

HANCOCK COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Wind Turbine	1B - Not Proximate to a Wind Turbine
Address	2685 Ford Ave. Britt, IA 50423	2855 Taft Ave. Garner, IA 50438
Distance from Turbine	2,020 Feet	NA
Sale Date	May 20, 2016	December 22, 2014
Sale Price	$155,400	$190,000
Sale Price/Sq. Ft. (A.G.)	$81.62	$94.25
Year Built	1959	1975
Building Size (Sq. Ft.)	1,904	2,016
Lot Size (Acres)	2.08	1.22
Style	Ranch; frame (metal siding) 3 bedrooms, 2 bath	Split level; frame 3 bedrooms, 2 bath
Basement	Full, finished	None; slab
Utilities	Central air; Well & septic	In-wall air; Electric heat; Well & septic
Other	2-car attached garage; 1-car detached garage; patio, porch, shed	2.5-car attached garage; patio, deck, utility buildings

2685 Ford Avenue

2855 Taft Avenue

Although the Ford Avenue property technically is a ranch-style house, and the Taft Avenue property is a split-level-style house, both properties have lower levels that comprise a family room and an additional room. An upward adjustment for the superior market condition of the Ford Avenue property is made. In the case of the Ford Avenue property, the additional lower-level room is a kitchen, and the basement square footage is not included in the building size, and an upward adjustment is made for this feature. In the case of the Taft Avenue property, the lower level is not below grade, and the area, which includes a family room and a bedroom, is included in the square footage. The Taft Avenue building is of newer construction, and a downward adjustment is made; however, the Ford Avenue property has been adequately maintained. Both properties are considered to be in normal condition by the Hancock County Assessor. An upward adjustment is made for the central air of Ford Avenue compared to the in-wall air of Taft Avenue. The Ford Avenue property is situated on a larger lot than that of the Taft Avenue property; however, both lots have wooded areas along the rear property line, which mitigate the size differential to a large degree.

ADJUSTMENT GRID MATCHED PAIR NO. 1

SALE NO.	ADDRESS	SALE DATE	YEAR BUILT	BUILDING SIZE	LOT SIZE	LOCATION	STYLE	BASEMENT	UTILITIES	OUT-BUILDINGS
1B	2855 Taft Ave. Garner, Iowa	+	-	o	o	-	+	-	+	o

\+ Positive adjustment based on comparable being inferior in comparison to property #1A
\- Negative adjustment based on comparable being superior in comparison to property #1A
o No adjustment necessary

When the adjustments noted above for newer construction and the superior above-grade location of the second family room are made to the sale price of the Taft Avenue house, the two properties have essentially the same per square foot value. In other words, the higher per foot sales price for the Taft Avenue house is justified by its superior condition and location. Thus, the difference in the sale price does not support the conclusion that proximity to the wind turbines had a negative impact on the value of the Ford Avenue property.

Kansas Analysis - Coffey County Matched Pair No. 1

Coffey County Matched Pair No. 1 considers the sale of a house located at 2045 Trefoil Road Northeast, Waverly, that sold in November 2018 for $162,500. This house is located approximately 1,960 feet from the nearest turbine of the Waverly Wind Farm, which came online in 2016, and there are several turbines visible in each direction.

The following photograph is an aerial view of the turbines visible surrounding the house.

This property is compared with a similar property located at 1804 North C Street, Le Roy, that sold in June 2018 for $120,000. This property is not located near wind turbines. Both properties are situated in rural locations. The salient details of these two properties are summarized in the table below.

COFFEY COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Wind Turbine	1B - Not Proximate to a Wind Turbine
Address	2045 Trefoil Rd. NE Waverly, KS 66871	1804 North C St. Le Roy, KS 66857
Distance from Turbine (Ft.)	1,960	N/A
Sale Date	November 19, 2018	June 15, 2018
Sale Price	$162,500	$120,000
Sale Price/Sq. Ft. (A.G.)	$113.80	$39.53
Year Built	1977	2002
Building Size (Sq. Ft.)	1,428	3,036
Lot Size (Acres)	12.00	0.50
Style	One-story; frame (vinyl) 3 bedrooms, 2 bath	One-story; frame (brick) 4 bedrooms, 3 bath
Basement	Full, unfinished walkout	Full, partial finished
Utilities	Central-air; forced-air heat/heat pump; well & septic	Central-air; forced-air heating; well & septic
Other	Fully stocked pond	2-car attached garage; 2-car detached garage; porch

2045 Trefoil Road Northeast

1804 North C Street

The house at 2045 Trefoil Road Northeast, is located approximately 1,960 feet away from the nearest turbine, in a rural area. Both houses are located in a similar rural location with paved roads, have similar utilities, have similar basements, and were sold in similar market conditions. The 2045 Trefoil Road Northeast property has a superior lot size. The 1804 North C Street property has a superior vintage, a superior building size, a superior building style, and has superior outbuildings.

ADJUSTMENT GRID MATCHED PAIR NO. 1

Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	1804 North C St. Le Roy, KS 66857	o	-	-	+	o	-	o	o	-

\+ Positive adjustment based on comparable being inferior in comparison to property #1A
\- Negative adjustment based on comparable being superior in comparison to property #1A
o No adjustment necessary

Upward adjustments are made to the 1804 North C Street property for the larger lot size of the 2045 Trefoil Road Northeast property. Downward adjustments are made for the superior vintage, building size, building style, and outbuildings of the 1804 North C Street property compared to those features of the 2045 Trefoil Road Northeast property. The two properties have essentially the same location, utilities, and were sold in similar market conditions. Therefore, although the 1804 North C Street property gives the impression of being superior in many categories, the much higher per square foot sale price for the 2045 Trefoil Road Northeast property appears to not support a finding that there is a negative impact on value resulting from the proximity of the 2045 Trefoil Road Northeast property to a wind turbine.

Kansas Analysis - Harper County Matched Pair No. 1

Harper County Matched Pair No. 1 considers the sale of a house located at 330 Northwest 150th Road, Harper, that sold in July 2017 for $385,000. This house is located approximately 1,330 feet from the nearest turbine of the Flat Ridge II Wind Farm, which came online in 2013, and there are several turbines visible in each direction.

This property is compared with a similar property located at 750 Northeast 110th Road, Danville, that sold in January 2017 for $174,900. This property is not located near wind turbines. Market areas are considered to be similar. The salient details of these two properties are summarized in the following table.

The following photograph is an aerial view of the turbines visible surrounding the house.

HARPER COUNTY MATCHED PAIR NO. 1		
	1A - Proximate to a Wind Turbine	**1B - Not Proximate to a Wind Turbine**
Address	330 NW 150th Rd. Harper, KS 67058	750 NE 110th Rd. Danville, KS 67036
Distance from Turbine (Ft.)	1,330	N/A
Sale Date	July 14, 2017	January 1, 2017
Sale Price	$385,000	$174,900
Sale Price/Sq. Ft. (A.G.)	$120.46	$73.49
Year Built	1997	1955
Building Size (Sq. Ft.)	3,196	2,380
Lot Size (Acres)	5.20	5.92
Style	One-story; frame (stone) 5 bedrooms, 4 bath	Two-story; frame (brick) 4 bedrooms, 2 bath
Basement	Partial, finished	N/A
Utilities	Other cooling; forced-air heat; well & septic	Other cooling; other heat; well & septic
Other	2-car attached garage; farm building; pond, deck, patio, fire pit	1-car attached garage; 2-car detached garage; round top building & extra structure

330 Northwest 150th Road

750 Northeast 110th Road

The house at 330 Northwest 150th Road, is located approximately 1,330 feet away from the nearest turbine, in a rural area. The 330 Northwest 150th Road property is of superior vintage and superior building size. The 750 Northeast 110th Road property has superior outbuildings compared to 330 Northwest 150th Road. Both houses were sold in similar market conditions, located in a similar rural location, have similar lot sizes, similar building styles, similar basements, and have similar utilities.

ADJUSTMENT GRID MATCHED PAIR NO. 1

Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	750 NE 110th Rd. Danville, KS 67036	B	+	+	B	B	B	B	B	-

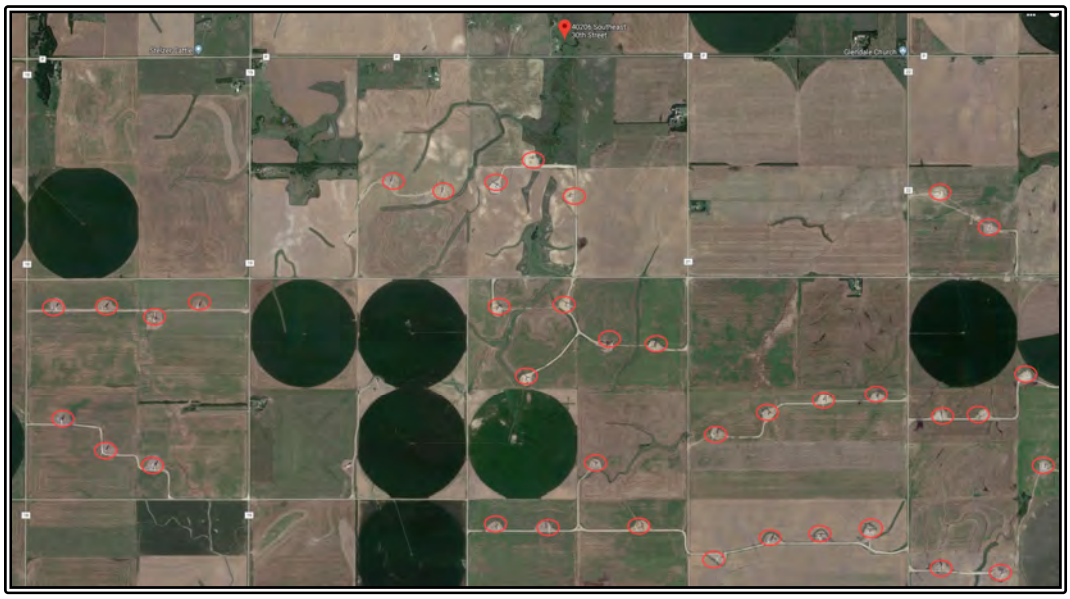
\+ Positive adjustment based on comparable being inferior in comparison to property #1A
\- Negative adjustment based on comparable being superior in comparison to property #1A
B No adjustment necessary

Upward adjustments were made for the superior vintage and building size of the 330 Northwest 150th Road property compared to the 750 Northeast 110th Road property. Downward adjustments were made for the superior outbuildings of the 750 Northeast 110th Road property compared to those of the 330 Northwest 150th Road property. The two properties have essentially the same market conditions, location, style, basement, and utilities. Therefore, although the two properties give the impression of being similar in many categories, the much higher per square foot sale price for the 330 Northwest 150th Road property appears to support the conclusion that there is not any negative impact in value resulting from the proximity of the 330 Northwest 150th Road property to a wind turbine.

Kansas Analysis - Pratt County Matched Pair No. 1

Pratt County Matched Pair No. 1 considers the sale of a house located at 40206 Southeast 30th Street, Pratt, that sold in January 2018 for $195,000. This house is located approximately 2,710 feet from the nearest turbine of the Ninnescah Wind Farm, which came online in 2016, and there are several turbines visible towards the southern direction of the property.

The following photograph is an aerial view of the turbines visible surrounding the house.



This property is compared with a similar property located at 1517 Eastland Place, Pratt, that sold in December 2017 for $230,000. This property is not located near wind turbines. Both properties are situated in rural locations. The salient details of these two properties are summarized in the table below.

PRATT COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Wind Turbine	1B - Not Proximate to a Wind Turbine
Address	40206 SE 30th St. Pratt, KS 67124	1517 Eastland Pl. Pratt, KS 67124
Distance from Turbine (Ft.)	2,710	N/A
Sale Date	January 29, 2018	December 11, 2017
Sale Price	$195,000	$230,000
Sale Price/Sq. Ft. (A.G.)	$106.56	$59.85
Year Built	2002	2010
Building Size (Sq. Ft.)	1,830	3,843
Lot Size (Acres)	10.01	0.29
Style	One-story; frame (brick) 3 bedrooms, 2 bath	One-story; frame (brick) 5 bedrooms, 3 bath
Basement	N/A	Full, finished
Utilities	Central-air; propane gas heat; well & septic	Central-air; forced-air heating; public water & sewer
Other	2-car attached garage; 3-bay work shed & storage building; deck, patio, pool, pond, creek	2-car attached garage; cul-de-sac; porch & deck

40206 Southeast 30th Street

1517 Eastland Place

The house at 40206 Southeast 30th Street, is located approximately 2,710 feet away from the nearest turbine, in a rural area. Both houses are of similar building styles, are of similar vintage, and were sold in similar market conditions. The 40206 Southeast 30th Street property has a superior lot size and superior outbuildings. The 1517 Eastland Place property has a superior building size, a superior basement, a superior location on a paved cul-de-sac, and has superior utilities.

ADJUSTMENT GRID MATCHED PAIR NO. 1

Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	1517 Eastland Pl. Pratt, KS 67124	o	o	-	+	-	o	-	-	+

\+ Positive adjustment based on comparable being inferior in comparison to property #1A
\- Negative adjustment based on comparable being superior in comparison to property #1A
o No adjustment necessary

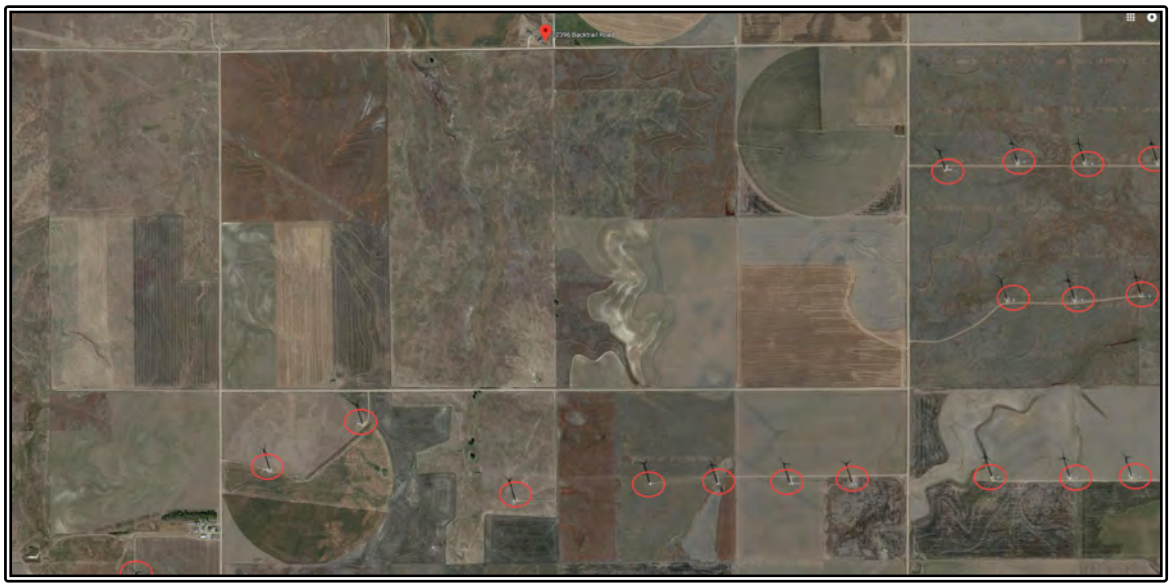
Upward adjustments are made to the 1517 Eastland Place property for the larger lot size and superior outbuildings of the 40206 Southeast 30th Street property. Downward adjustments are made for the superior building size, location, basement, and utilities of the 1517 Eastland Place property compared to those features of the 40206 Southeast 30th Street property. The two properties have essentially the same style, vintage, and were sold in similar market conditions. Therefore, although the 1517 Eastland Place property gives the impression of being superior in many categories, the much higher per square foot sale price for the 40206 Southeast 30th Street property appears to not support a finding that there is a negative impact on value resulting from the proximity of the 40206 Southeast 30th Street property to a wind turbine.

Kansas Analysis - Ford County Matched Pair No. 1

Ford County Matched Pair No. 1 considers the sale of a house located at 12396 Backtrail Road, Spearville, that sold in March 2017 for $235,000. This house is located approximately 6,705 feet, or approximately 1.27 miles, from the nearest turbine of the Spearville Wind Farm, which came online in 2006; however, any distance greater than 4,000 feet, or approximately 0.75 miles, from a turbine cannot be considered proximate and is not considered viable for use in a proper matched pair analysis. Although the distance to the nearest turbine does not allow for a viable analysis, the lack of population and sales performed at arm's length created the need for the analysis of data that is beyond what is deemed typical for a matched pair sales analysis.

This property is compared with a similar property located at 11447 U.S. Highway 50, Wright, that sold in February 2016 for $145,000. This property is not located near wind turbines. Both properties are situated in rural locations. The salient details of these two properties are summarized in the table below.

The following photograph is an aerial view of the turbines visible surrounding 12396 Backtrail Road.



FORD COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Wind Turbine	1B - Not Proximate to a Wind Turbine
Address	12396 Backtrail Rd. Spearville, KS 67876	11447 U.S. Hwy. 50 Wright, KS 67882
Distance from Turbine (Ft.)	6,705	N/A
Sale Date	March 17, 2017	February 8, 2016
Sale Price	$235,000	$145,000
Sale Price/Sq. Ft. (A.G.)	$167.86	$92.47
Year Built	2001	1999
Building Size (Sq. Ft.)	1,400	1,568
Lot Size (Acres)	6.62	9.00
Style	One-story; frame (wood) 3 bedrooms, 3 bath	One-story; frame (vinyl) 3 bedrooms, 2 bath
Basement	Full, finished	Partial
Utilities	Other cooling; other heating; well & septic	Other cooling; other heating; well & septic
Other	10-car attached garage; deck	2-car attached garage; carport; deck

12396 Backtrail Road

11447 U.S. Highway 50

The house at 12396 Backtrail Road, is located approximately 6,705 feet away from the nearest turbine, in a rural area. Both houses are located in a similar rural location, have a similar building style, have similar utilities, and have similar vintage. The 12396 Backtrail Road property was sold in superior market conditions, has a superior basement, and has superior outbuildings compared to the 11447 U.S. Highway 50 property. The 11447 U.S. Highway 50 property has a superior building size and a superior lot size compared to the 12396 Backtrail Road property.

ADJUSTMENT GRID MATCHED PAIR NO. 1

Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	11447 U.S. Hwy. 50 Wright, KS 67882	+	o	-	-	o	o	+	o	+

\+ Positive adjustment based on comparable being inferior in comparison to property #1A
\- Negative adjustment based on comparable being superior in comparison to property #1A
o No adjustment necessary

Upward adjustments are made to the 11447 U.S. Highway 50 property for the superior market conditions, basement, and outbuildings of the 12396 Backtrail Road property. Downward adjustments are made for the superior building size and lot size of the 11447 U.S. Highway 50 property compared to those features of the 12396 Backtrail Road property. The two properties have essentially the same location, vintage, style, and utilities. Therefore, although the two properties give the impression of being similar in many categories, the much higher per square foot sale price for the 12396 Backtrail Road property appears not to support a finding that there is a negative impact on value resulting from the distance of the 12396 Backtrail Road property to a wind turbine.

Indiana Analysis - White County Matched Pair No. 1

White County Matched Pair No. 1 considers the sale of a house located at 8365 West State Road 18, Brookston, that sold in December 2017 for $159,900. This house is located approximately 2,340 feet from the nearest turbine of the Meadow Lake Wind Farm, which came online in 2009, and there are several turbines visible in each direction.

The following photograph is an aerial view of the turbines visible surrounding the house.

This property is compared with a similar property located at 1105 South Airport Road, Monticello, that sold in December 2017 for $173,200. This property is not located near wind turbines. Both properties are situated in rural locations. The salient details of these two properties are summarized in the table below.

WHITE COUNTY MATCHED PAIR NO. 1

	1A - Proximate to a Wind Turbine	1B - Not Proximate to a Wind Turbine
Address	8365 W State Road 18 Brookston, IN 47923	1105 S Airport Rd. Monticello, IN 47960
Distance from Turbine (Ft.)	2,340	N/A
Sale Date	December 27, 2017	December 18, 2017
Sale Price	$159,900	$173,200
Sale Price/Sq. Ft. (A.G.)	$90.34	$70.78
Year Built	2003	1927
Building Size (Sq. Ft.)	1,770	2,447
Lot Size (Acres)	2.09	1.64
Style	One-story; frame (brick) 3 bedrooms, 2 bath	Two-story; frame (vinyl) 5 bedrooms, 2.5 bath
Basement	Crawlspace	Partial/Crawlspace
Utilities	Central-air; forced-air heat; well & septic	Central-air; other heating; well & septic
Other	2-car attached garage; deck	1-car attached garage; 2-car detached garage; pool

8365 West State Road 18

1105 South Airport Road

The house at 8365 West State Road 18, is located approximately 2,400 feet away from the nearest turbine, in a rural area. Both houses are located in a similar rural location, have similar utilities, and were sold in similar market conditions. The 8365 West State Road 18 property is of superior vintage and has a superior lot size. The 1105 South Airport Road property has a superior building size, a superior building style, and has a superior basement and outbuildings.

ADJUSTMENT GRID MATCHED PAIR NO. 1

Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
1B	1105 S Airport Rd. Monticello, IN 47960	o	+	-	+	o	-	-	o	-
+	Positive adjustment based on comparable being inferior in comparison to property #1A									
-	Negative adjustment based on comparable being superior in comparison to property #1A									
o	No adjustment necessary									

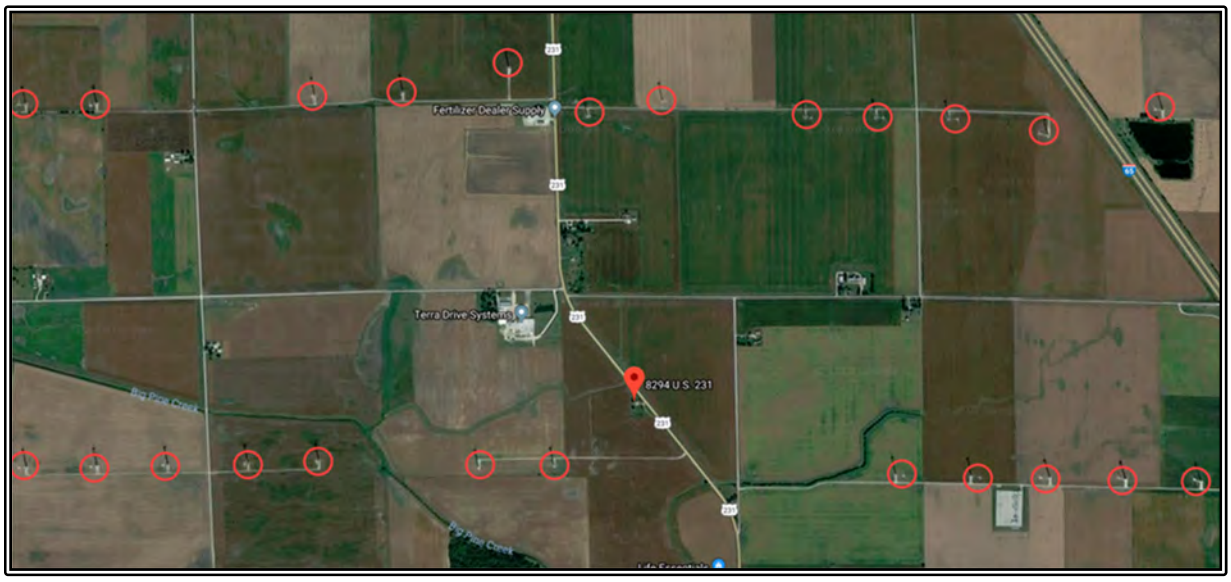
Upward adjustments are made to the 1105 South Airport Road property for the superior vintage and the larger lot size of the 8365 West State Road 18 property. Downward adjustments are made for the superior building size, building style, basement, and outbuildings of the 1105 South Airport Road property compared to those features of the 8365 West State Road 18 property. The two properties have essentially the same location, utilities, and were sold in similar market conditions. Therefore, although the 1105 South Airport Road property give the impressions of being superior in many categories, the much higher per square foot sale price for the 8365 West State Road 18 property appears to not support a finding that there is a negative impact on value resulting from the proximity of the 8365 West State Road 18 property to a wind turbine.

Indiana Analysis - White County Matched Pair No. 2

White County Matched Pair No. 2 considers the sale of a house located at 8294 South US Highway 231, Brookston, that sold in September 2016 for $157,000. This house is located approximately 1,410 feet from the nearest turbine of the Meadow Lake Wind Farm, which came online in 2009, and there are several turbines visible in each direction.

This property is compared with a similar property located at 6288 East Ash Court, Monticello, that sold in June 2017 for $150,800. This property is not located near wind turbines. Market conditions are considered to be similar. The salient details of these two properties are summarized in the following table.

The following photograph is an aerial view of the turbines visible surrounding the house.



WHITE COUNTY MATCHED PAIR NO. 2		
	2A - Proximate to a Wind Turbine	**2B - Not Proximate to a Wind Turbine**
Address	8294 S US Highway 231 Brookston, IN 47923	6288 E Ash Ct. Monticello, IN 47960
Distance from Turbine (Ft.)	1,410	N/A
Sale Date	September 23, 2016	June 22, 2017
Sale Price	$157,000	$150,800
Sale Price/Sq. Ft. (A.G.)	$80.60	$59.23
Year Built	1926	1968
Building Size (Sq. Ft.)	1,948	2,546
Lot Size (Acres)	1.35	1.44
Style	One-story; frame (vinyl)	Two-story; frame (vinyl/brick)
Basement	5 bedrooms, 2 bath Crawlspace	5 bedrooms, 2.5 bath Crawlspace
Utilities	Central-air; forced-air heat; well & septic	Central-air; forced-air heat; well & septic
Other	2-car attached garage	1-car attached garage; 2-car detached garage; deck

8294 South US Highway 231

6288 East Ash Court

The house at 8294 South US Highway 231, is located approximately 1,410 feet away from the nearest turbine, in a rural area. Both houses have a similar lot size, a similar rural location, have similar basements, and similar utilities. The 6288 East Ash Court property is of superior building size, building style, vintage, outbuildings, and was sold in superior market conditions.

ADJUSTMENT GRID MATCHED PAIR NO. 2

Sale No.	Address	Sale Date	Year Built	Building Size	Lot Size	Location	Style	Basement	Utilities	Out-Buildings
2B	6288 E Ash Ct. Monticello, IN 47960	-	-	-	o	o	-	o	o	-
+	Positive adjustment based on comparable being inferior in comparison to property #2A									
-	Negative adjustment based on comparable being superior in comparison to property #2A									
o	No adjustment necessary									

Downward adjustments were made for the superior market conditions, vintage, building size, building style, and outbuildings of the 6288 East Ash Court property compared to the 8294 South US Highway 231 property. The two properties have essentially the same location, lot size, basement, and utilities. Therefore, although the 6288 East Ash Court property give the impressions of being superior in many categories, the much higher per square foot sale price for the 8294 South US Highway 231 property appears to support the conclusion that there is not any negative impact in value resulting from the proximity of the 8294 South US Highway 231 property to a wind turbine.

Matched Pair Analysis Conclusions

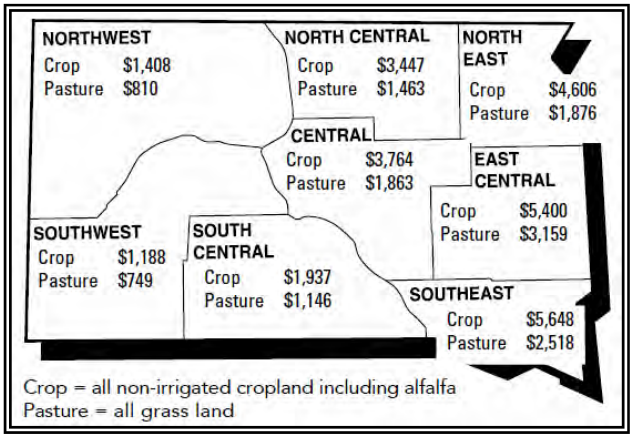
Studies in South Dakota and studies in rural counties of Illinois, Minnesota, Iowa, Kansas, and Indiana comparing sales of properties proximate to wind turbines with similar properties selling under similar market conditions without proximity to wind turbines have not discovered any sales in which proximity to wind turbines appears to have had a negative impact on property values. Therefore, the conclusion is that there does not appear to have been any measurable negative impact on surrounding residential property values due to the proximity of a wind farm.

Agricultural Land Values

Agricultural land values are typically tied to the productivity of the land and to the commodity prices of crops like corn and soybeans. Other factors include favorable interest rates, and the supply of land compared to the number of buyers. The third-quarter 2018 agricultural credit conditions survey, *Low crop prices, trade worrying ag lenders,* from the 9th District, which includes South Dakota, and is published by the Federal Reserve of Minneapolis, stated that "[t]hough harvests in some areas were stalled by heavy late-season rains, crop production this year was strong, hitting records in some Ninth District states. But low crop prices and trade woes dealt a financial blow to farmers from July through September 2018, according to the Federal Reserve Bank of Minneapolis' third-quarter (October) agricultural credit conditions survey." The survey also stated that "[l]and values were stable on average across district states, and interest rates on loans rose modestly from the previous quarter. The outlook for the fourth quarter is similar, with lenders in the district generally expecting farm incomes to decrease further."[4]

The *South Dakota Agricultural Land Market Trends, 1991-2019,* produced by South Dakota State University,[5] reported non-irrigated agricultural cropland values in the northeast region of South Dakota averaged $4,606 per acre in 2019 and $4,546 per acre in 2018, while pastureland still remains at a much lower value of $1,876 per acre in 2019 and $2,178 per acre in 2018. The most likely buyer of agricultural land in South Dakota is an existing farmer or investor, with neighboring farmers paying higher prices than investors. The prognosis appears that land values of all cropland have held steady since 2018. The following table, chart, and map illustrate values as of February 1, 2019, by region, including Deuel County in the northeast region.

[4] *https://www.minneapolisfed.org/publications/agricultural-credit-conditions-survey/low-crop-prices-trade-worrying-ag-lenders, Federal Reserve Bank of Minneapolis*
[5] *https://extension.sdstate.edu/sites/default/files/2019-06/P-00117.pdf, 2018 SDSU South Dakota Farm Real Estate Survey*



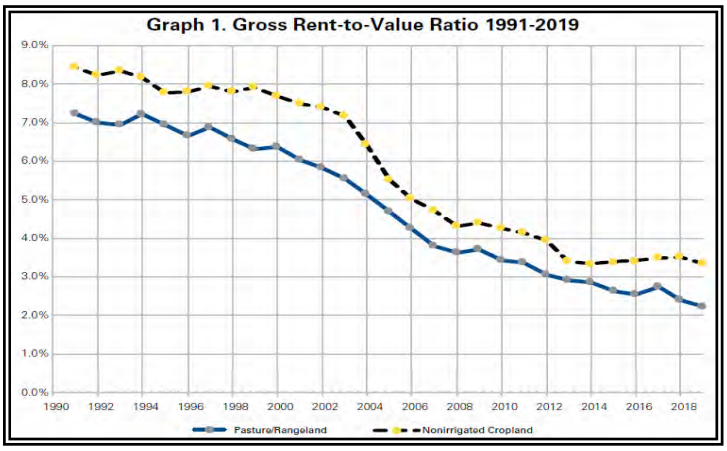


Table 4. Average reported value and annual percentage change in value of South Dakota agricultural land by type of land by region, February 2014-2019.

Type of Land	South-east	East Central	North-east	North Central	Central	South Central	South-west	North-west	STATE
	dollars per acre								
Nonirrigated Cropland									
Average value, 2019	$5,648	$5,400	$4,606	$3,447	$3,764	$1,937	$1,188	$1,408	$3,747
Average value, 2018	$6,361	$6,237	$4,546	$3,534	$3,347	$2,125	$1,207	$1,369	$3,937
Average value, 2017**	$5,569	$6,160	$4,654	$4,030	$3,291	$2,203	$1,427	$1,142	$3,903
Average value, 2016	$5,653	$6,116	$4,613	$4,177	$3,843	$2,168	$1,264	$1,187	$4,094
Average value, 2015	$5,887	$6,329	$5,066	$4,275	$3,895	$2,283	$1,347	$1,193	$4,265
Annual % change 19/18	-11.2%	-13.4%	1.3%	-2.5%	12.5%	-8.8%	-1.6%	2.8%	-4.8%
Pasture/ Rangeland**									
Average value, 2019	$2,518	$3,159	$1,876	$1,463	$1,863	$1,146	$749	$810	$1,203
Average value, 2018	$2,829	$2,624	$2,178	$1,718	$1,882	$1,241	$839	$781	$1,252
Average value, 2017**	$2,450	$2,546	$2,089	$1,914	$2,011	$1,150	$887	$650	$1,215
Average value, 2016	$2,566	$2,781	$2,028	$1,957	$2,219	$1,330	$715	$760	$1,222
Average value, 2015	$2,719	$2,727	$2,136	$1,758	$2,100	$1,338	$851	$630	$1,187
Annual % change 19/18	-11.0%	20.4%	-13.8%	-14.8%	-1.0%	-7.7%	-10.7%	3.8%	-3.9%

Source: 2019 and earlier South Dakota Farm Real Estate Market Surveys
*cropland now includes all alfalfa acres
** 2017 pasture land variable has been redefined and includes all grass acres
Statewide average land values are based on 2002 land use weights

Type of Land	Southeast	East Central	Northeast	North Central	Central	Western
	dollars per acre					
Irrigated land						
Average value, 2019	$7,300	$6,000	***	***	$3,972	$2,182
High Productivity	***	$7,320	***	***	$5,942	$2,636
Low Productivity	***	$4,680	***	***	$3,462	$1,955
Average value, 2018	$6,876	$6,500	$5,417	$4,808	$4,375	$2,035
Average value, 2016	$6,717	$6,350	$6,143	$5,250	$4,314	$2,688
Average value, 2015	$7,330	$6,750	***	$7,000	$4,380	$2,450
Average value, 2014	$7,940	$7,190	$6,250	$6,340	$4,430	$1,490
Annual % change 19/18	6.2%	-7.7%	***	***	-9.2%	7.2%

Source: 2019 and earlier South Dakota Farm Real Estate Market Surveys
Statewide average land values are based on 2002 land use weights

RECENT LAND SALES SUMMARY
IN THE AREA NEAREST TO THE TATANKA RIDGE WIND PROJECT

No.	Owner Mailing Address & Parcel Identification	Sale Price	Sale Date	Land Area (Acres)	NCCPI*	Sale Price Per Acre
1	19758 480th Avenue Astoria, South Dakota Deuel County - 113N 49W – 25, 36 APN: 512					
	Land Sale #1 - 1 Field	$315,000	4/22/15	50.04	57.2	$6,294.96
2	Ottertail Power Company – PO Box 496 Fergus Falls, Minnesota Deuel County - 113N 48W – 22 APN: 235					
	Land Sale #2 - 1 Field	$372,000	10/16/14	25.99	42.4	$14,313.20
3	2315 East Saint George Drive Sioux Falls, South Dakota Deuel County - 113N 49W – 26, 27 APN: 457					
	Land Sale #3 - 1 Field	$375,000	2/2/16	80.18	49.6	$4,676.98
4	19035 477th Avenue Brandt, South Dakota Deuel County - 113N 49W – 9, 10, 15, 16 APN: 395 & 400					
	Land Sale #4 - 2 Fields	$1,077,000	12/2/14	240.46	46.4	$4,478.92
5	Four D Farms LLC – PO Box 389 Sheldon, Iowa Deuel County - 113N 48W – 29, 30 APN: 283					
	Land Sale #3 - 1 Field	$1,440,000	1/27/16	160.32	53.9	$8,982.04
				Average NCCPI =	49.9	

*National Commodity Crop Productivity Index - Deuel County average NCCPI = 35.6

The above land sales reveal that the agricultural land nearest to the area of the project footprint is of above-average quality for Deuel County, South Dakota, with an average National Commodity Crop Productivity Index of 49.9 compared to the county's overall average National Commodity Crop Productivity Index of 35.6, and adding wind turbines and land leases should only add benefit to the superior crop productivity, overall land prices, and farm revenue.

Agricultural Land Sales near Wind Farms

Research did discover data on one sale of central South Dakota farmland in which the transaction included a wind turbine. The sale occurred in Jerauld County, South Dakota, which is home to the Wessington Springs Wind Farm and has similar demographics to the project area. The property is situated on pastureland of poor quality with significant topography issues, which would reflect a lower price per acre than the region's average price of $2,011 per acre. However, the sale included multiple wind turbine leases and sold with an above average price per acre of $2,800, which signifies a direct correlation to the benefit associated with the turbines on the land.

Wind turbines typically are considered to be of significant benefit to farmers. For example, Iowa farmers interviewed by the *Omaha World-Herald*, were positive about the stable income as opposed to the vicissitudes of commodity prices.[6] Franklin County, Iowa reported lowering real estate taxes for the county as a whole because of the taxes generated by the wind turbines in that county. Support for good prices comes from the lack of land for sale, stable commodity prices, and low interest rates. Marginal land in areas where wind turbines are located or proposed is popular with investors.[7]

Although there has been no study of the impact of wind turbines on agricultural land sales for South Dakota that I could discover, a report in Illinois, the *2016 Illinois Land Values and Lease Trends*, indicated that the impact of wind turbine leases is being experienced in McLean, Livingston, and Woodford counties, where turbine leases have provided "income diversification, beyond agriculture, which makes these tracts more attractive to an outside investor."[8] Further, they noted that "investors are still paying a little more of a premium for the wind turbines just as they had in the past few years."[9] The report notes that the premium is related directly to the number of years left on the lease.

A report in Illinois, *Wind Energy and Farmland Values* in the *2018 Illinois Land Values and Lease Trends*, indicated that as of March 22, 2018, Illinois was home over to 27 wind projects that individually have a nameplate capacity of 50 megawatts or more. Understanding Illinois and its major involvement in wind energy have allowed for several positive side effects besides allowing for cleaner energy. The first benefit is that it appears to impact land values in a positive way significantly. The typical capitalization rate for well-managed farmland in Illinois is usually between 2.5% to 3.5%. The capitalization rate for land with lease payments associated with wind projects is approximately 9%; appearing to be both far more lucrative and more efficient use of the land. A few more of the positive improvements that are associated with wind projects is that the municipalities within the project area typically create plans with the project developers to repair and improve roads that were used during construction. In addition, the

[6] *http://www.omaha.com/money/turning-to-turbines-as-commodity-prices-remain-low-wind-energy/article_2814e2cf-83a3-5 47d-a09e-f039e935f399.html Accessed September 18, 2107.*
[7] *http://www.agriculture.com/farm-management/farm-land/farmland-sales-hard-to-find-as-growers-hold-tight-keeping-land-value Accessed September 18, 2017.*
[8] *Klein, David E., and Schnitkey, Gary, 2016 Illinois Land Values and Lease Trends, Illinois Society of Professional Farm Managers and Rural Appraisers, Page 38.*
[9] *Ibid. Page 42.*

land that is undeveloped by the project developer is available for the discretionary use of the landowners. Different improvements like paved areas around turbines and gravel roads are left once the work is completed. With any improvements, there are always concerns and potential issues that may come to mind, but it appears that with each wind turbine project completed in Illinois derives a far better outcome than worse, when speaking of land values.[10]

Overall, it appears that there is little or no relationship between agricultural land values and the location of wind farms, with productivity being the driving force behind land values. However, wind farm lease revenue does appear to increase the marketability and value of the land benefiting from the lease.

[10] *Klein, D., Baker, S., Sherrick, B., & Haight, B. (2018). Wind Energy and Farmland Values. 2018 Illinois Land Values and Lease Trends.*

Real Estate Professionals & Assessor Surveys 2016-2019

Real estate professionals from the surrounding market areas and in the Midwest were contacted to discuss market conditions, specific market transactions, and to investigate whether they had experience with or knowledge of any impact of wind farms on residential property values.

Jim Aesoph of Aesoph Real Estate, Inc. is a broker with 27 years of experience in northeast South Dakota. MaRous and Company contacted Mr. Aesoph due to his highly regarded reputation in the region. He stated that he contacted the assessors of the adjacent Codington, Grant, and Roberts counties to discuss land prices in each respective county, and each of them informed Mr. Aesoph that they are not aware of any effect on land prices due to new wind projects in the area. He also stated that 5 years ago, land prices were roughly $6,000 per acre, and now the average acre price is approximately $4,000. The reduction in land prices, he mentioned, is not due to the wind project, but due to the production of corn on the land.

Interviews were conducted with six auctioneers throughout South Dakota. Marshall Hansen of Bob Hansen Auction stated that while turbines closer to homes could possibly keep a buyer away, in areas of low population the development of turbines has a positive effect on the area. Mr. Hansen also stated that chemicals, such as insecticides, pose a larger impact on wildlife and game birds than turbines. Lenny Burlage of Burlage-Peterson Auctions stated that turbines do not negatively affect residential values but can affect each individual person differently. Jackson Hagerfeld of Advantage Land Company stated that he does see any impact on land from wind turbines, and the recent land sale prices are driven up by the limited amount of properties on the market. Jim Thorpe of Thorpe Realty & Auction stated that turbine leases have positively impacted landowners with turbines on their land. Mr. Thorpe also stated that he had noticed a movement of buyers from larger cities buying properties that are being sold off by the aging population that is moving out of the area. Jeff Juffer of Juffer Incorporated stated that from the existing turbines within the Beethoven Wind Farm footprint have not had any effect, positive or negative, on the local market. Mr. Juffer also states that Avon and the immediate surrounding area is lacking in industry and would benefit from an outside influence to attract businesses to the area. Lastly, Glen Peterson of Peterson Auctioneers states that in the past two years there has been a demand for land that is not dependent on if a turbine is on the land or not, which can be assumed that turbines do not affect land sales in any way, positively or negatively.

Rick Mummert of Ron Holton Real Estate reported that residential conditions in both Freeborn and Mower counties in Minnesota had been stable through the last 3 years, primarily due to the very rural nature of the area; however, the area is benefitting from the low-interest rates. He reported that the Highway 14 corridor had experienced increases in residential values; in his opinion, the difference was due to the more developed nature of the area and the availability of jobs.

Real estate professional, Joseph M. Webster, MAI, of Webster & Associates, Inc., Decatur, Illinois, was previously consulted within 2016 and 2017 for his extensive experience with agricultural, commercial, and residential values in the Decatur, and Macon County area, as well as the broader market area. Mr. Webster provided background information on the economic conditions as well as information on agricultural and residential values of the central Illinois area.

Interviews with brokers proximate to wind farms in Illinois yielded similar results. Although a number of them wished to remain anonymous, they stated that they did not believe that the proximity to wind turbines had any bearing on the sale prices of residential properties in the area. Michael Crowley, Sr., SRA of Real Estate Consultants, Ltd., Spring Valley, Illinois was consulted. Mr. Crowley has had extensive experience with wind farm development in Central Illinois, including projects in counties with similar demographics and character, such as Bureau, Whiteside, and Lee counties. Mr. Crowley has been unable to document any loss in property values attributable to the proximity of wind turbines.

South Dakota Assessors Survey - November 2017, Updated April 2018

In November 2017 my office conducted a survey of the supervisor of assessments or a deputy supervisor in eight counties in South Dakota, then two additional counties in April 2018, in which wind farms with more than 25 turbines currently are operational, and South Dakota has more than nine wind farms with more than 510 wind turbines. As of the third quarter of 2018, the AWEA reported there were 14 wind projects online with 583 wind turbines in the state with additional farms being added each year. The interviews were intended to allow the assessment officials to share their experience regarding the wind farm(s) impact upon the market values and/or assessed values of surrounding properties. The detailed analysis is attached in the addenda at the end of this report. The following is a summary of the results of that survey:

- Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a wind farm facility. In some counties, this results from the very rural nature of the area in which the projects are located;
- In the past 5 years, the only assessor's office to have experienced a real estate tax appeal based upon wind farm-related concerns was Aurora County, but the appeal was denied by the county. There have been no reductions in assessed valuations related to wind turbines;
- As the available market data does not support the claim of a negative impact upon residential or agricultural values, residential and agricultural assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a wind farm;
- Virtually all assessors volunteered that the wind farms provided positive economic benefits to their counties and, in fact, had a positive impact on real estate values.

Illinois Assessors Survey - Updated October 2016

In March 2015, and updated in October 2016, my office conducted a survey of the supervisor of assessments or a staff member in 18 counties in Illinois in which wind farms currently are operational. As of the third quarter of 2018, the AWEA reported there were 49 wind projects online with 2,632 wind turbines in the state with additional farms being added each year. The interviews were intended to allow the assessment officials to share their experience regarding the wind farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a wind farm facility. In some counties, this results from the very rural nature of the area in which the projects are located;
- In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based on wind farm-related concerns. There have been no reductions in assessed valuations related to wind turbines;[11]
- As the available market data do not support the claim of a negative impact upon residential values, residential assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a wind farm;
- Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and external influences.

Minnesota Assessors Survey - January 2017

In late January 2017, my office conducted a survey of the supervisor of assessments or a deputy supervisor in eight Minnesota counties where large numbers of wind turbines currently are operational. There are several counties with small numbers of wind turbines that were not included in the survey. As of the third quarter of 2018, the AWEA reported there were 98 wind projects online with 2,428 wind turbines in the state with additional farms being added each year. The interviews were intended to allow the assessment officials to share their experience regarding the wind farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- With one exception, the interviewees reported that there was no market evidence to support a finding that there has been a negative impact upon residential property values as a result of the development of and the proximity to a wind farm facility. In some counties, the assessors believed this to be the result of the very rural nature of the area in which the projects are located;

[11] *A lawsuit was apparently filed in 2013 against the Supervisor of Assessments in Vermilion County by a homeowner proximate to wind turbines; however, there has been no further action on the matter.*

- The exception, the Dodge County Assessor, reported receiving two complaints from residential property owners regarding the value impact of proximity to wind turbines; however, the Assessor was unable to find data to support the contentions;
- Without exception, where there was sufficient data to analyze, the County Assessors reported that both residential and agricultural assessed property values within the wind farm footprints had fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a wind farm.

Bruce Nielson, Lincoln County Assessor, reported a recent residential transaction in a township in which wind turbines are located that sold $70,000 higher than the assessor's opinion of market value.

Iowa Assessors Survey - August/September 2017

In August and September 2017, my office conducted a survey of the supervisor of assessments or a staff member in 26 counties in Iowa in which wind farms with more than 25 turbines currently are operational. As of the third quarter of 2018, the AWEA reported there were 107 wind projects online with 4,145 wind turbines in the state with additional farms being added each year. The interviews were intended to allow the assessment officials to share their experience regarding the wind farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a wind farm facility. In some counties, this results from the very rural nature of the area in which the projects are located;
- In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based on wind farm-related concerns. There have been no reductions in assessed valuations related to wind turbines;
- As the available market data do not support the claim of a negative impact upon residential values, residential assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a wind farm;
- Virtually all assessors volunteered that the wind farms provided positive economic benefits to their counties and, in fact, had a positive impact on real estate values;
- Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and external influences.

Kansas Appraiser Survey – January 2019

In January 2019, MaRous & Company conducted a survey of the county appraiser or a staff member in 21 counties in Kansas in which wind farms with more than 25 turbines currently are operational. Of the wind farms with more than 25 turbines, Kansas contains more than 29 wind farms with more than 2,856 wind turbines. As of 2018, the AWEA reported there were approximately 37 wind projects with approximately 2,996 wind turbines in the state with additional farms being added each year. The interviews were intended to allow the assessment officials to share their experience regarding the wind farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a wind farm facility. In some counties, this results from the very rural nature of the area in which the projects are located;
- In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon wind farm-related concerns. There have been no reductions in assessed valuations related to wind turbines;
- As the available market data does not support the claim of a negative impact upon residential values, residential assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a wind farm;
- Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and external influences.

Indiana Assessors Survey – January 2019

In January 2019, MaRous & Company conducted a survey of the supervisor of assessments or a staff member in 5 counties in Indiana in which wind farms with more than 25 turbines currently are operational. Of the wind farms with more than 25 turbines, Indiana contains more than 14 wind farms with more than 1,190 wind turbines. As of 2018, the AWEA reported there were approximately 16 wind projects with approximately 1,203 wind turbines in the state with additional farms being added each year. The interviews were intended to allow the assessment officials to share their experience regarding the wind farm(s) impact upon the market values and/or assessed values of surrounding properties. The following is a summary of the results of that survey:

- Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a wind farm facility. In some counties, this results from the very rural nature of the area in which the projects are located;

- In the past 18 months, the assessor's offices have not experienced a real estate tax appeal based upon wind farm-related concerns. There have been no reductions in assessed valuations related to wind turbines;
- As the available market data does not support the claim of a negative impact upon residential values, residential assessed values have fluctuated consistently within counties as influenced by market conditions, with no regard for proximity to a wind farm;
- Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and external influences.

Literature Review

I am familiar with several academic and peer-reviewed studies on the impact of wind turbines on residential property values. There are no peer-reviewed studies for the state of South Dakota. However, the following studies are consistent with our findings in South Dakota. These are summarized below:

Municipal Property Assessment Corporation (MPAC) Study, 2008, 2012, and 2016

Ontario, Canada

This study originally was conducted in 2008 and was updated in 2012 and 2016. The conclusions in all three studies are similar: "there is *no statistically significant impact on sale prices* of residential properties in these market areas resulting from proximity to an IWT [Industrial Wind Turbine] when analyzing sale prices." (2012 Study, Page 5; emphasis in original) Using 2,051 properties and generally accepted time adjustment techniques, MPAC "cannot conclude any loss in price due to the proximity of an IWT." (2012 Study, Page 29) Further, Appendix G of the 2012 MPAC report "Re-sale Analysis" states in the "Summary of Findings" "MPAC's own re-sale analysis using a generally accepted methodology for time adjustment factors indicates no loss in price based on proximity to the nearest IWT."

Lawrence Berkeley National Laboratory (LBNL) Studies, 2009, 2010, 2013, and 2014

Nationwide

The 2009 LBNL study included analysis of 7,489 sales within 10 miles of 11 wind farms and 125 post-construction sales within 1 mile of a wind turbine. The study used rural settings and wind farms of more than 50 turbines, and considered area stigma, scenic vista sigma, and nuisance stigma in varying distances from a wind turbine. The 2010 LBNL study included 7,500 single-family residential sales located in nine states and proximate to 24 wind farms, and 4,937 post-construction sales within 10 miles of a wind turbine. The 2013 LBNL study included 51,276 sales located in nine states and proximate to 67 wind farms, and 376 post-construction sales within 1 mile of a wind turbine. The 2014 LBNL study included over 50,000 sales located in nine states and proximate to 67 wind farms, and 1,198 post-construction sales within 1 mile of a wind turbine. All were located in rural settings and near wind farms of more than 0.5 megawatts. Theses study concentrated on nuisance stigma in varying distances from a wind turbine. The study found no statistically significant evidence that turbines affect sale prices. Neither study found statistical evidence that home values near turbines were affected.

University of Rhode Island, 2013

Rhode Island

Structured similarly to the LBNL studies, this study included 48,554 total sales proximate to 10 wind farms, and 412 post-construction sales within 1 mile of a turbine. These wind farms were mostly small facilities in urban settings. The study included nuisance and scenic vista stigmas. Page 421 of the report stated, "Both the whole sample analysis and the repeat sales analysis indicate that houses within a half mile had essentially no price change ..." after the turbines were erected.

The University of Guelph, Melancthon Township, 2013

Ontario, Canada

This study analyzed two wind farms in the township, using 5,414 total sales and 18 post-construction sales within 1 kilometer of a wind turbine. The study included nuisance and scenic vista stigmas. Page 365 of the study stated that "These results do not corroborate the concerns regarding potential negative impacts of turbines on property values."

University of Connecticut/LBNL, 2014

Massachusetts

This study included 312,677 total sales proximate to 26 wind farms, and 1,503 post-construction sales within 1 mile of a wind turbine. These wind farms were located in urban settings and primarily were proximate to small wind farms. The study included wind turbines and other environmental amenities/disamenities (including beaches and open spaces/landfills, prisons, highways, major road, and transmission lines) together, for nuisance stigma. "Although the study found the effects from a variety of negative features ... and positive features ... the study found no net effects due to the arrival of turbines."

Wichita State University, 2019

Kansas

This study strived to decipher and develop a better understanding of wind projects and their effect on rural properties in Kansas. The study's data is based on 23 operational wind projects in Kansas which came online between 2005 to 2015. The properties and their values, which were appraised at the county level, have sale dates ranging from 2002 to 2018. The study and its results suggest that property values do not spike once the project is completed. Rather, it was noted that they have a more "modest" growth, and that the three-year average for property value growth was 0.3 % after a project had been completed and operational.

These studies had a combined number of over 3,700 transactions within 1 mile of operating turbines and found no evidence of value impact. [12]

[12] *Although I have read these studies, the substance of these summaries was taken from a seminar conducted by the Appraisal Institute on March 5, 2015.*

Conclusions

As a result of the market impact analysis undertaken, I concluded that there is no market data indicating the project will have a negative impact on either rural residential or agricultural property values in the surrounding area. Further, market data from South Dakota, as well as from other states, supports the conclusion that the project will not have a negative impact on rural residential or agricultural property values in the surrounding area. Finally, for agricultural properties that host turbines, the additional income from the wind lease may increase the value and marketability of those properties. These conclusions are based on the following:

- There are significant financial benefits to the local economy and to the local taxing bodies from the development of the wind farm;
- The proposed wind farm will create well-paid jobs in the area which will benefit overall market demand;
- An analysis of recent residential sales proximate to existing wind farms did not support any finding that proximity to a wind turbine had a negative impact on property values;
- An analysis of agricultural land values in South Dakota did not support any finding that agricultural land values are negatively impacted by the proximity to wind turbines;
- Reports from South Dakota, Illinois, Iowa, Minnesota, Kansas, and Indiana indicate that wind turbine leases add value to agricultural land; and
- A survey of County Assessors in 18 Illinois counties, 8 South Dakota counties, 26 Iowa counties, 8 Minnesota counties, 21 Kansas counties, and 5 Indiana Counties in which wind farms with more than 25 turbines are located determined that there was no market evidence to support a negative impact upon residential property values as a result of the development of and the proximity to a wind farm and that there were no reductions in assessed valuation.

This report is based on market conditions proposed as of June 11, 2019. This market impact study has been prepared specifically for the use of the client and to support the development of the Tatanka Ridge Wind Project, in Deuel County, South Dakota. Any other use or user of this report is considered to be unintended.

Respectfully submitted,

MaRous & Company

Michael S. MaRous, MAI, CRE
South Dakota Certified General #1467CG (9/30/19 expiration)
Illinois Certified General - #553.000141 (9/21 expiration)

CERTIFICATE OF REPORT

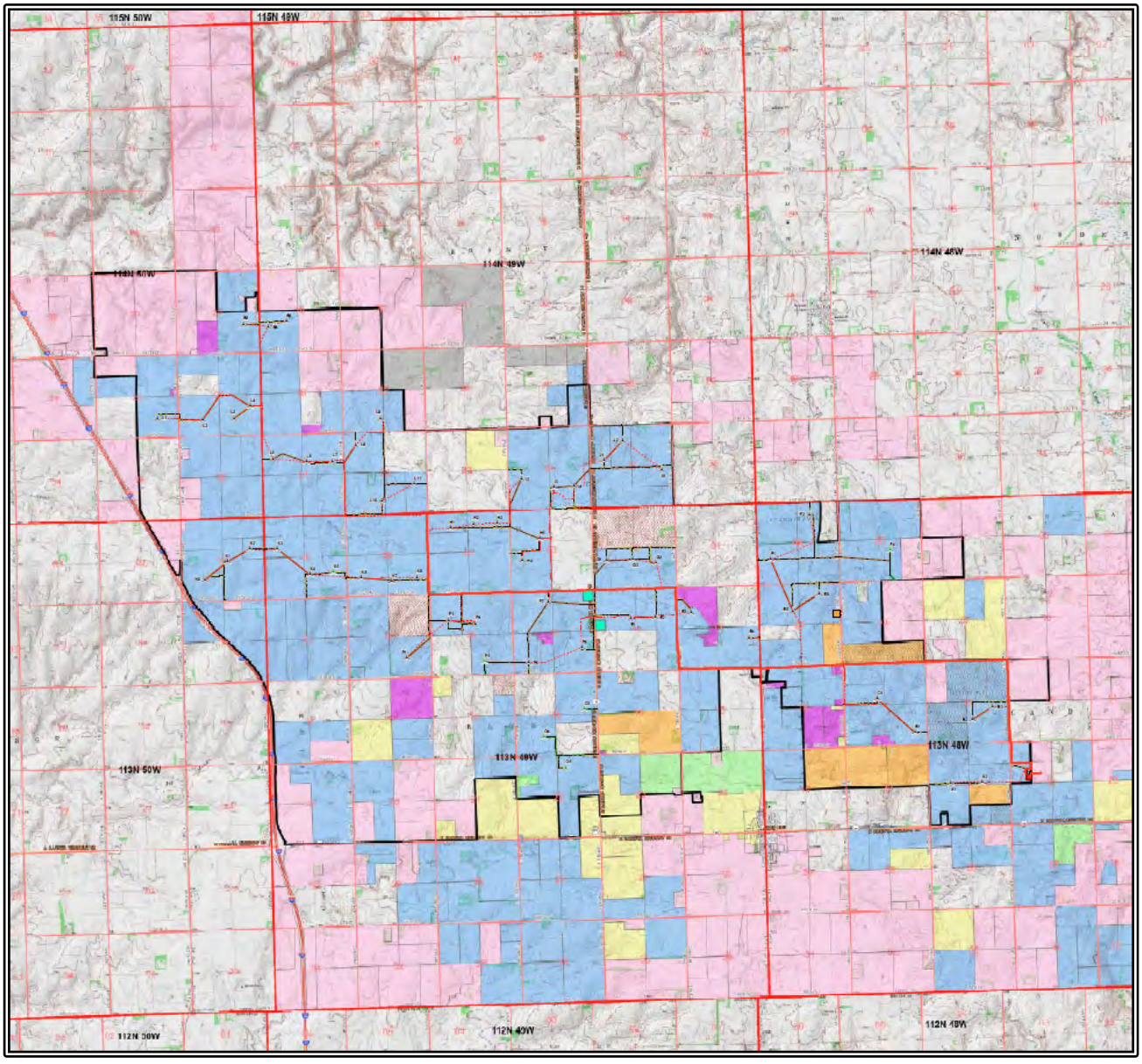
I do hereby certify that:

1. The statements of fact contained in this report are true and correct;
2. The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions and are my personal, impartial, and unbiased professional analyses, opinions, conclusions, and recommendations:
3. I have no present or prospective personal interest in the property that is the subject of this report and no personal interest with respect to the parties involved;
4. I have performed no services, as an appraiser or in any other capacity, regarding the property that is the subject of this report within the three-year period immediately preceding acceptance of this assignment;
5. I have no bias with respect to the property that is the subject of the work under review or to the parties involved with this assignment;
6. My engagement in this assignment was not contingent upon developing or reporting predetermined results;
7. My compensation for completing this assignment is not contingent upon the development or reporting of predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal consulting assignment;
9. My analyses, opinions, and conclusions were developed, and this report has been prepared in conformity with the *Uniform Standards of Professional Appraisal Practice;*
10. I have made a personal inspection of the subject of the work under review;
11. Joseph M. MaRous provided significant appraisal review assistance to the person signing this certification;
12. The reported analysis, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Foundation;
12. The use of the report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives; and
13. As of the date of this report, Michael S. MaRous, MAI, CRE, has completed the continuing education requirements for Designated Members of the Appraisal Institute.

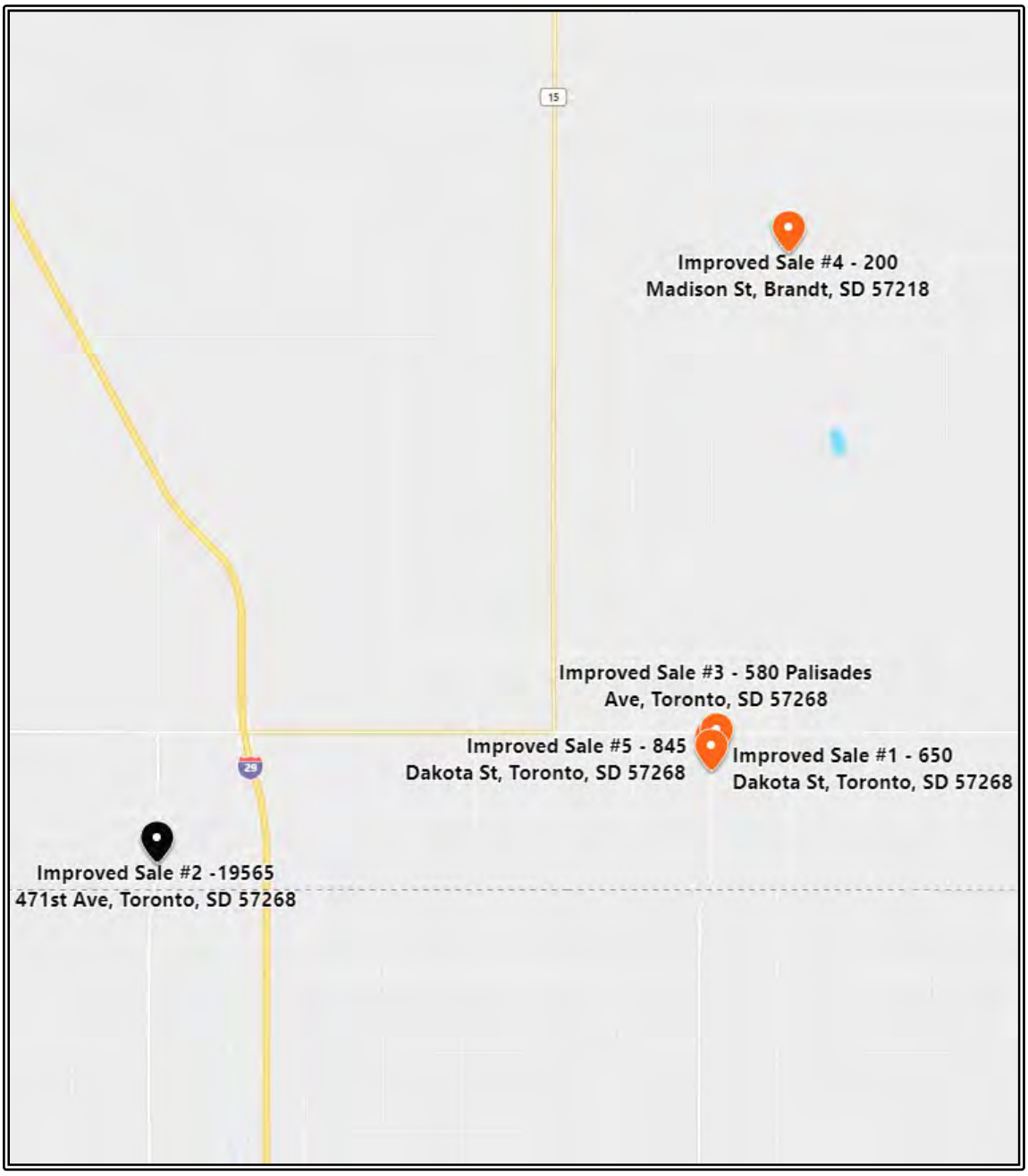
Respectfully submitted,
MaRous & Company

Michael S. MaRous, MAI, CRE
South Dakota Certified General #1467CG (9/30/19 expiration)
Illinois Certified General - #553.000141 (9/21 expiration)

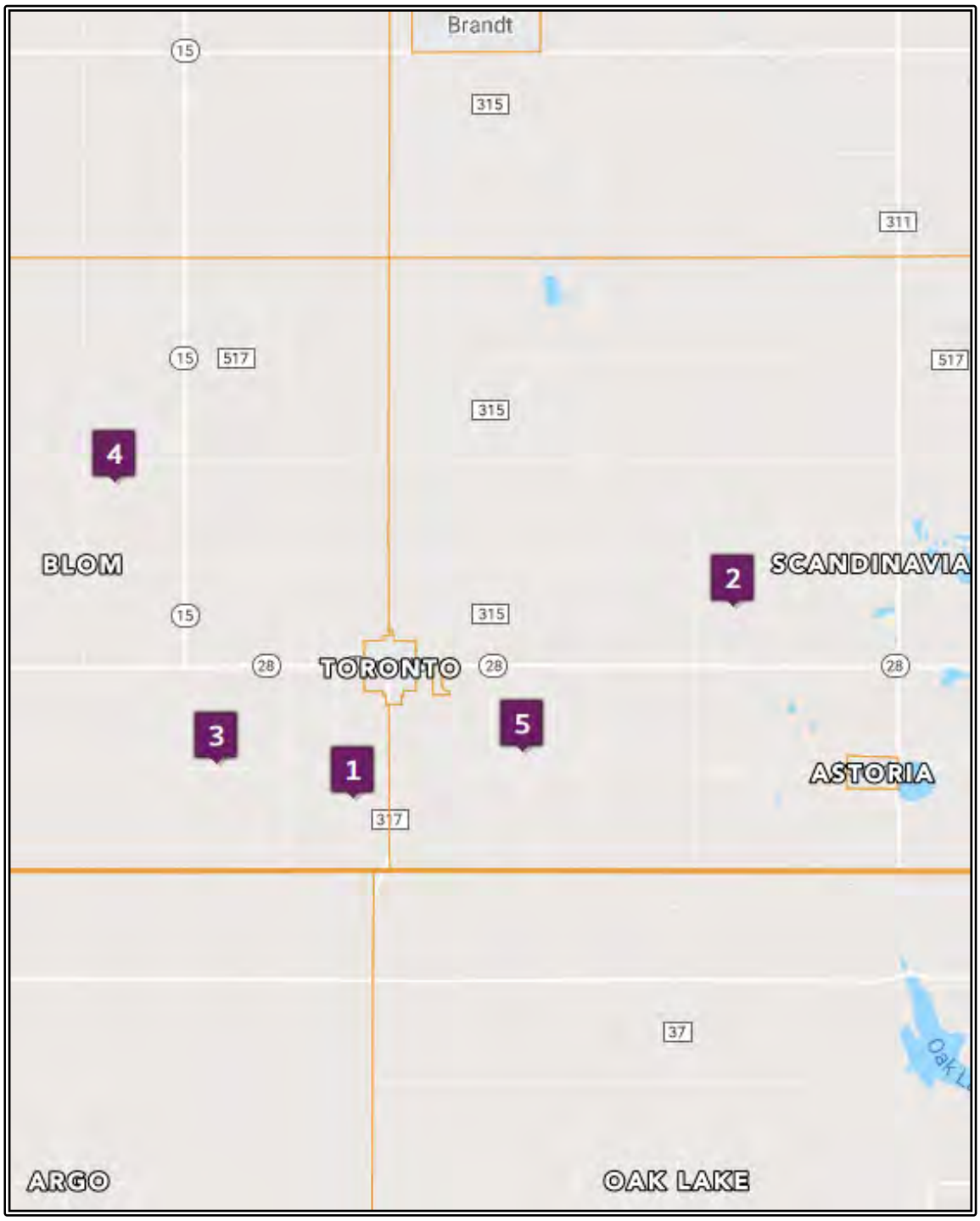
ADDENDA



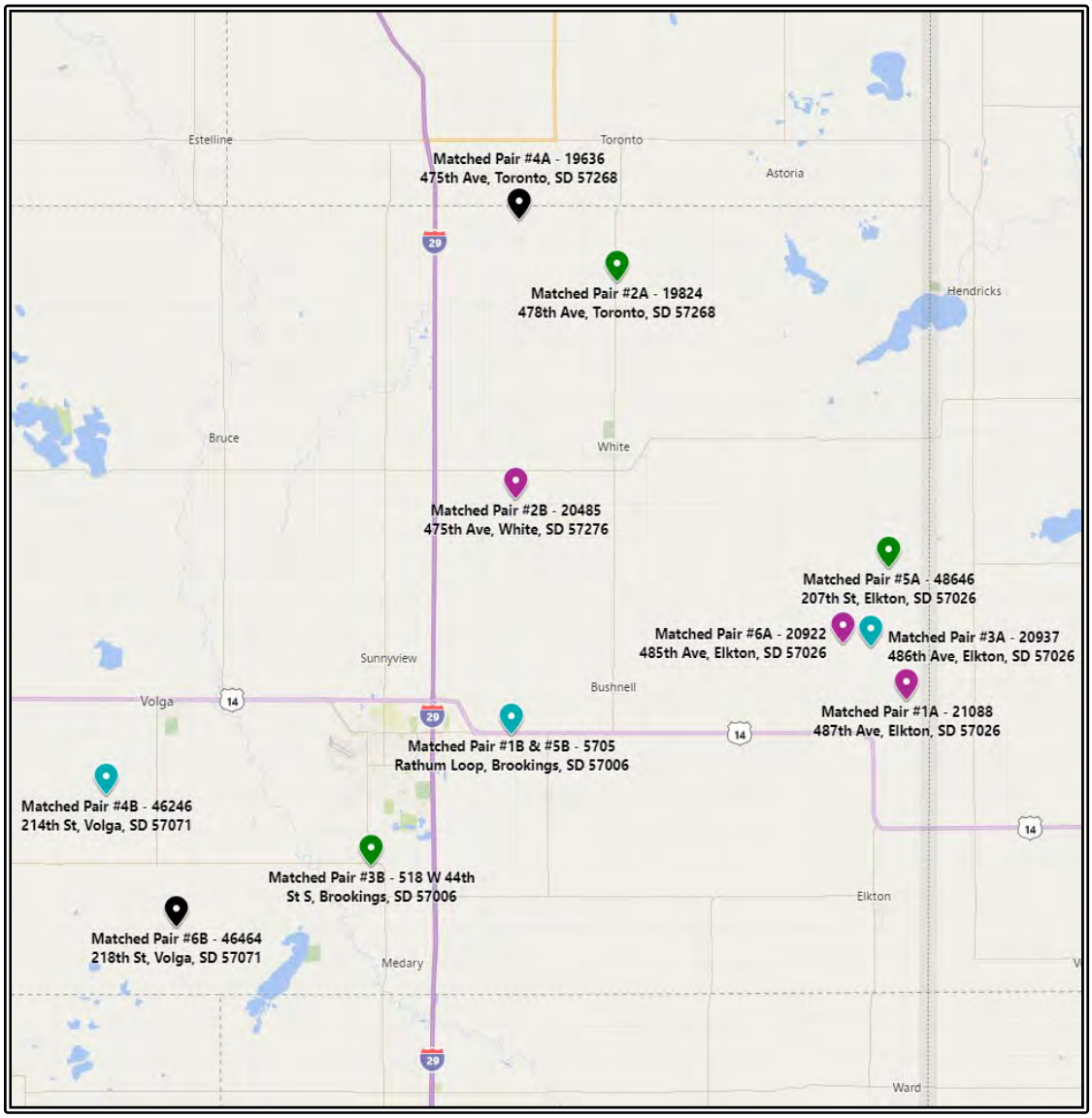
TATANKA RIDGE WIND PROJECT FOOTPRINT



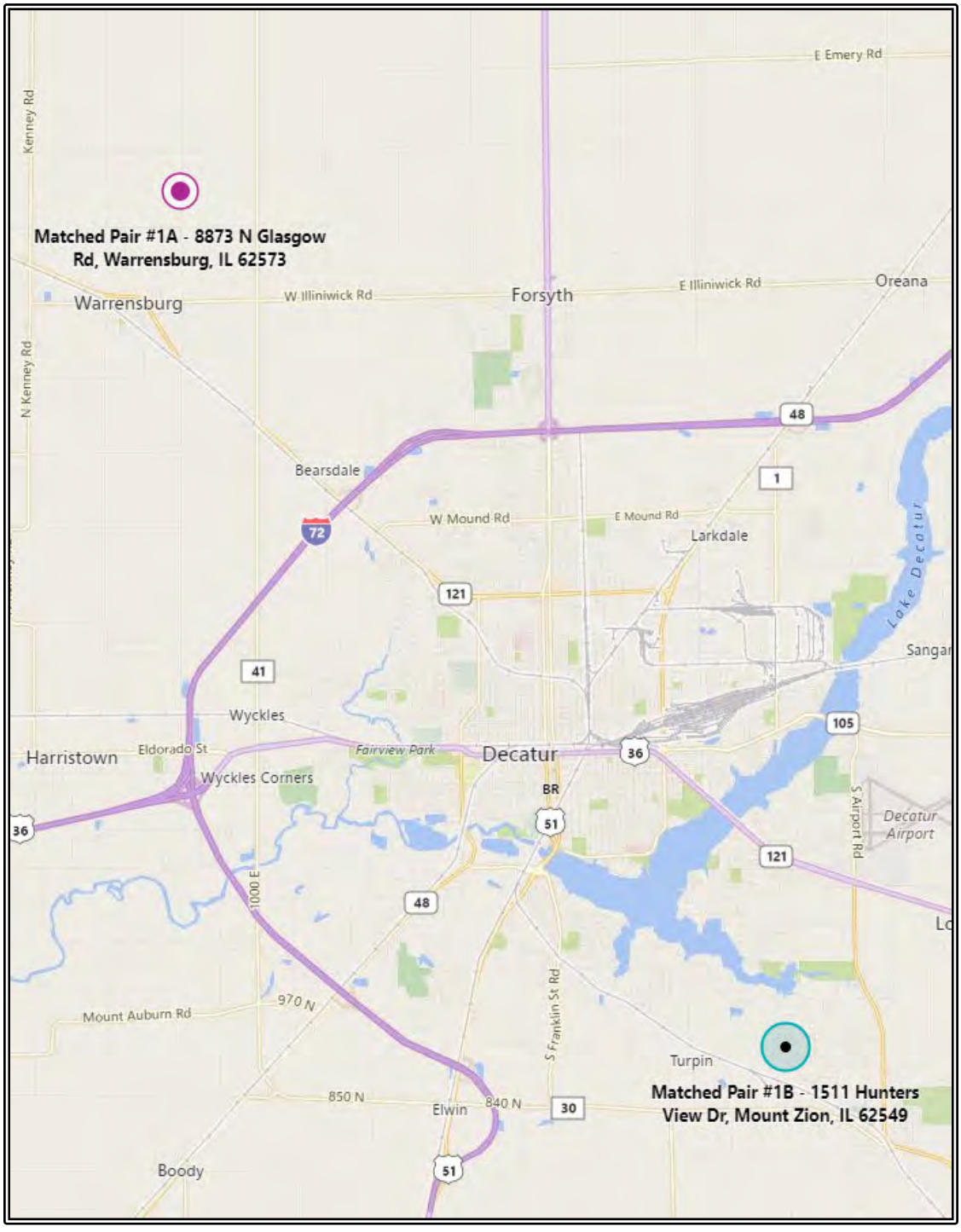
RECENT SINGLE-FAMILY HOUSE SALES LOCATION MAP



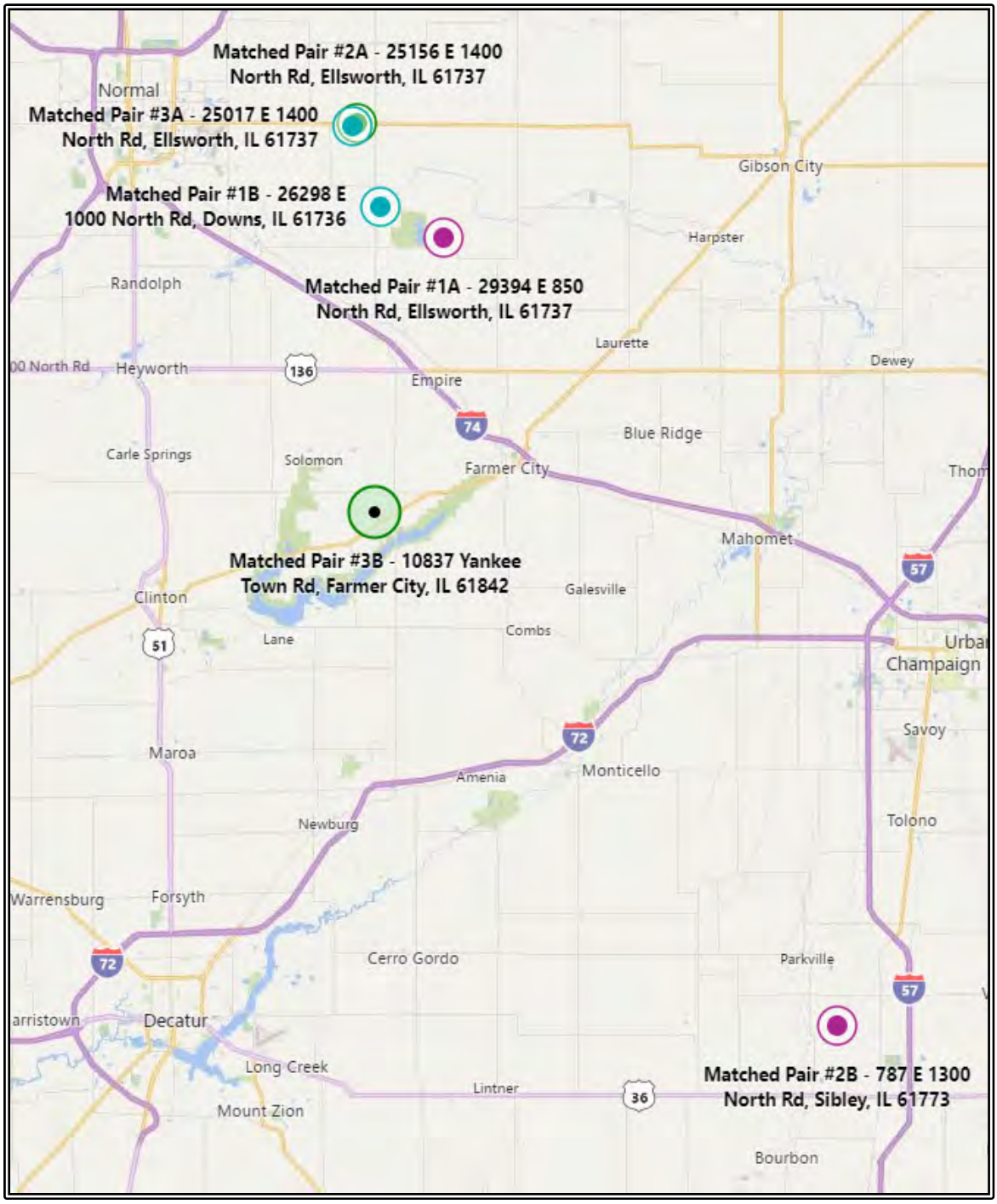
LAND SALES LOCATION MAP



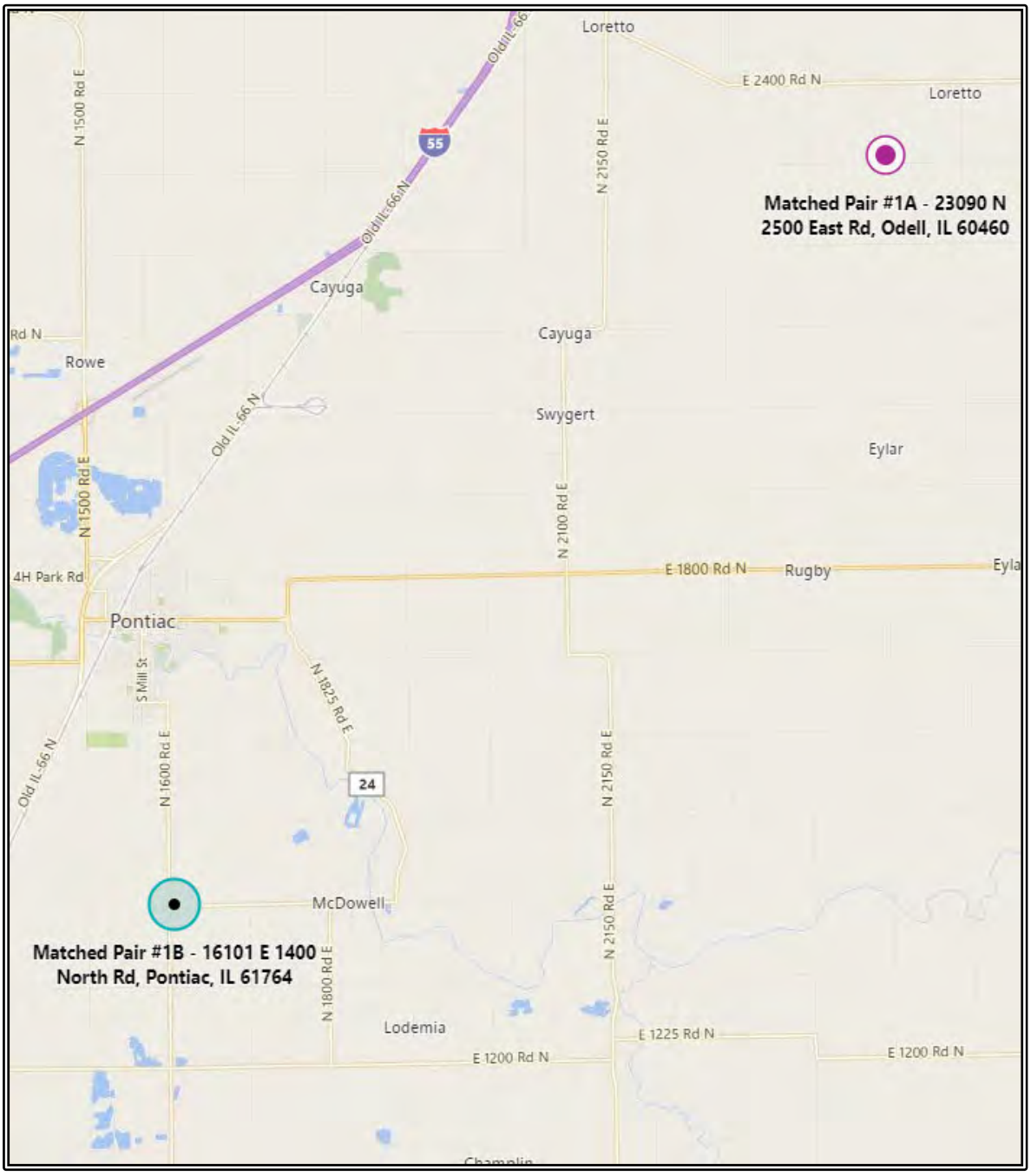
BROOKINGS COUNTY, SOUTH DAKOTA MATCHED PAIR LOCATION MAP



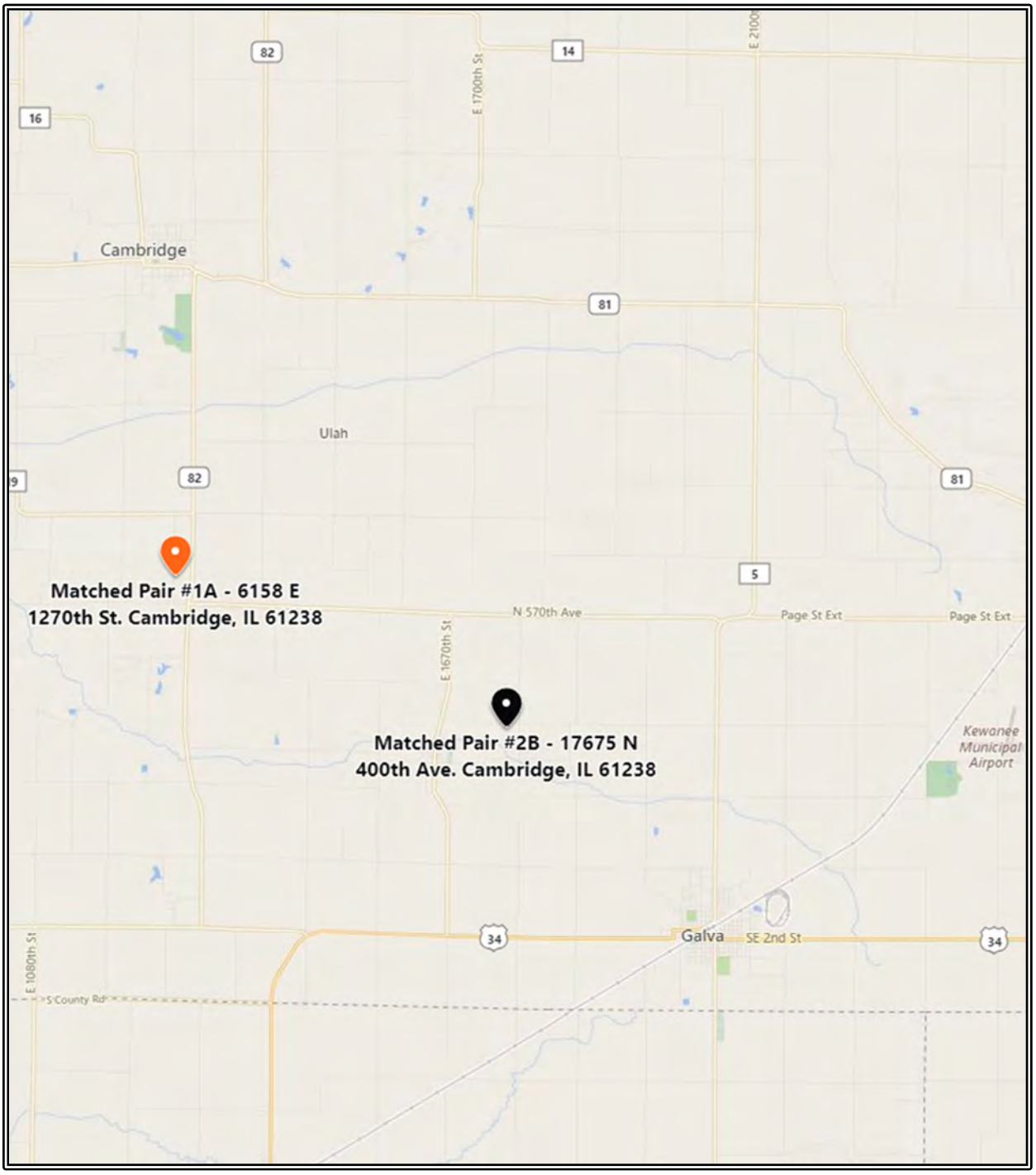
MACON COUNTY, ILLINOIS MATCHED PAIR LOCATION MAP



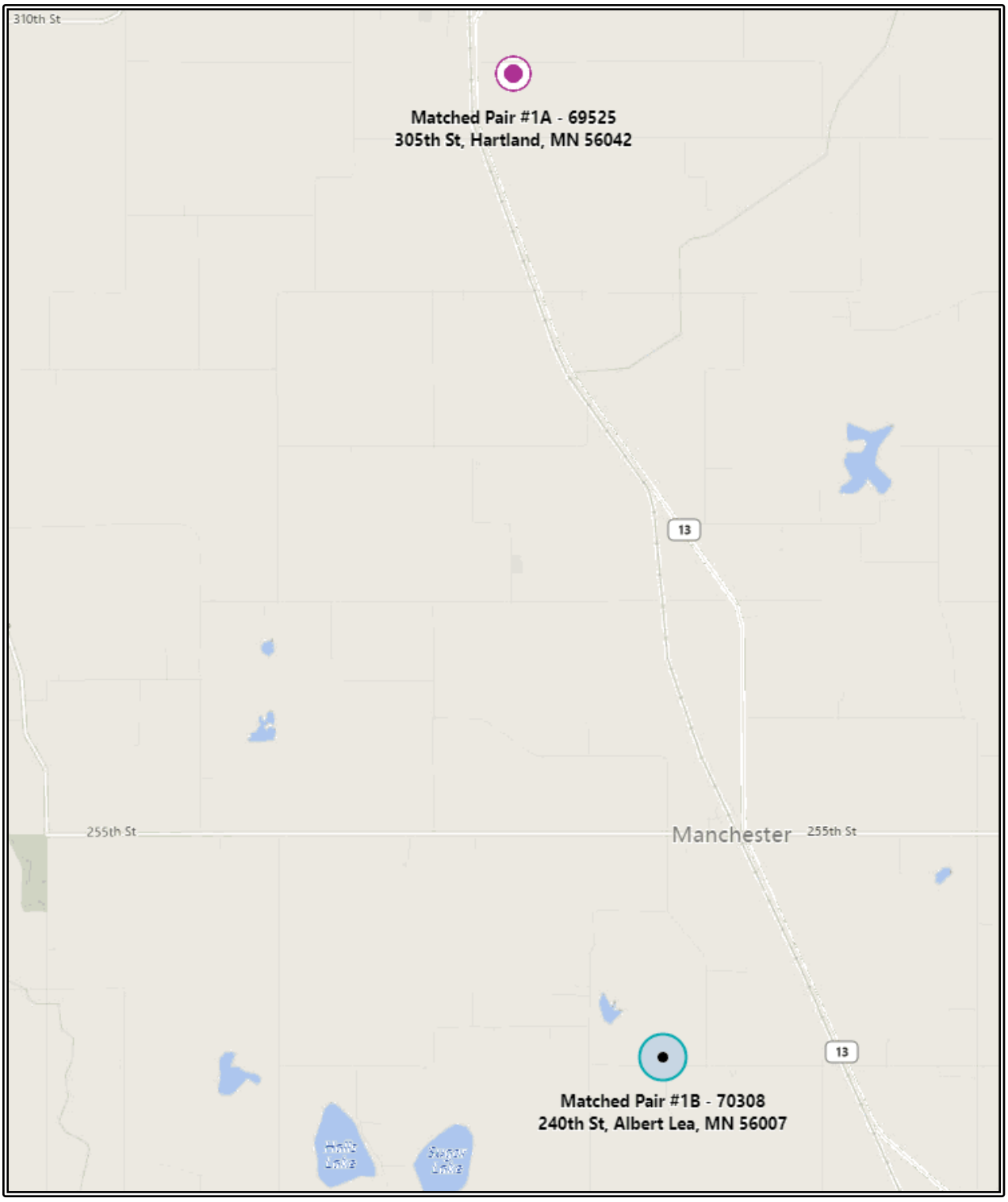
MCLEAN COUNTY, ILLINOIS MATCHED PAIR LOCATION MAP



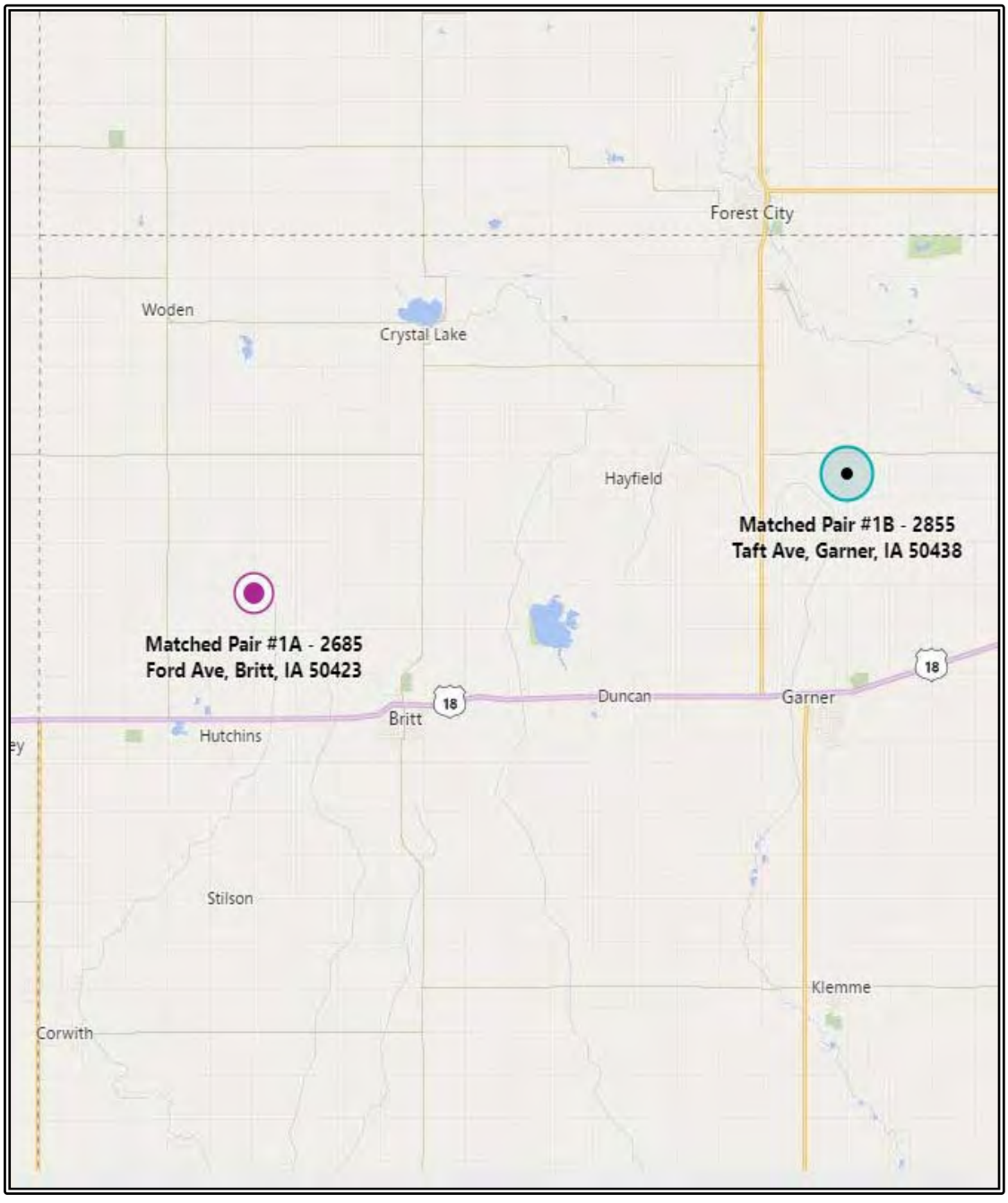
LIVINGSTON COUNTY, ILLINOIS MATCHED PAIR LOCATION MAP



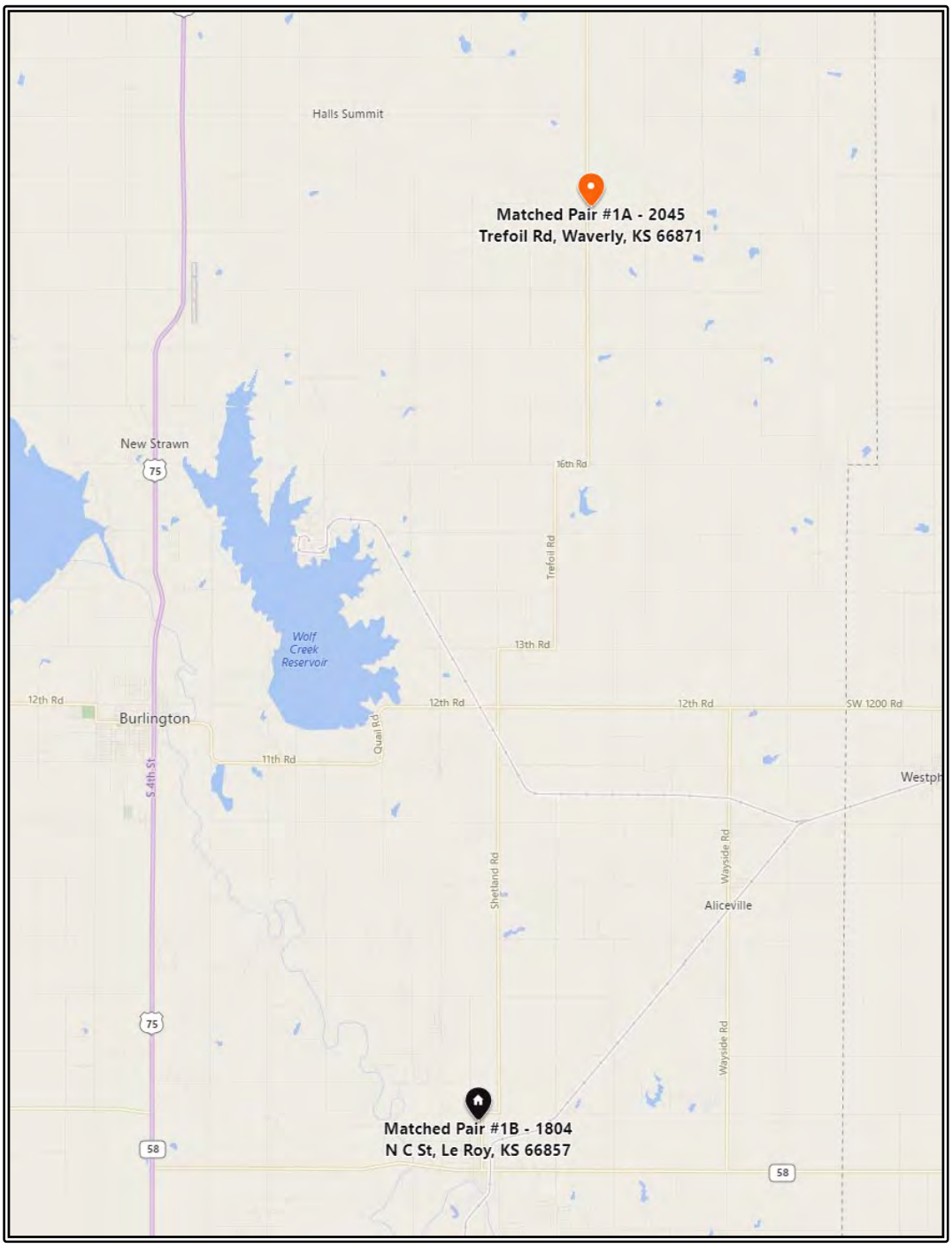
HENRY COUNTY, ILLINOIS MATCHED PAIR LOCATION MAP



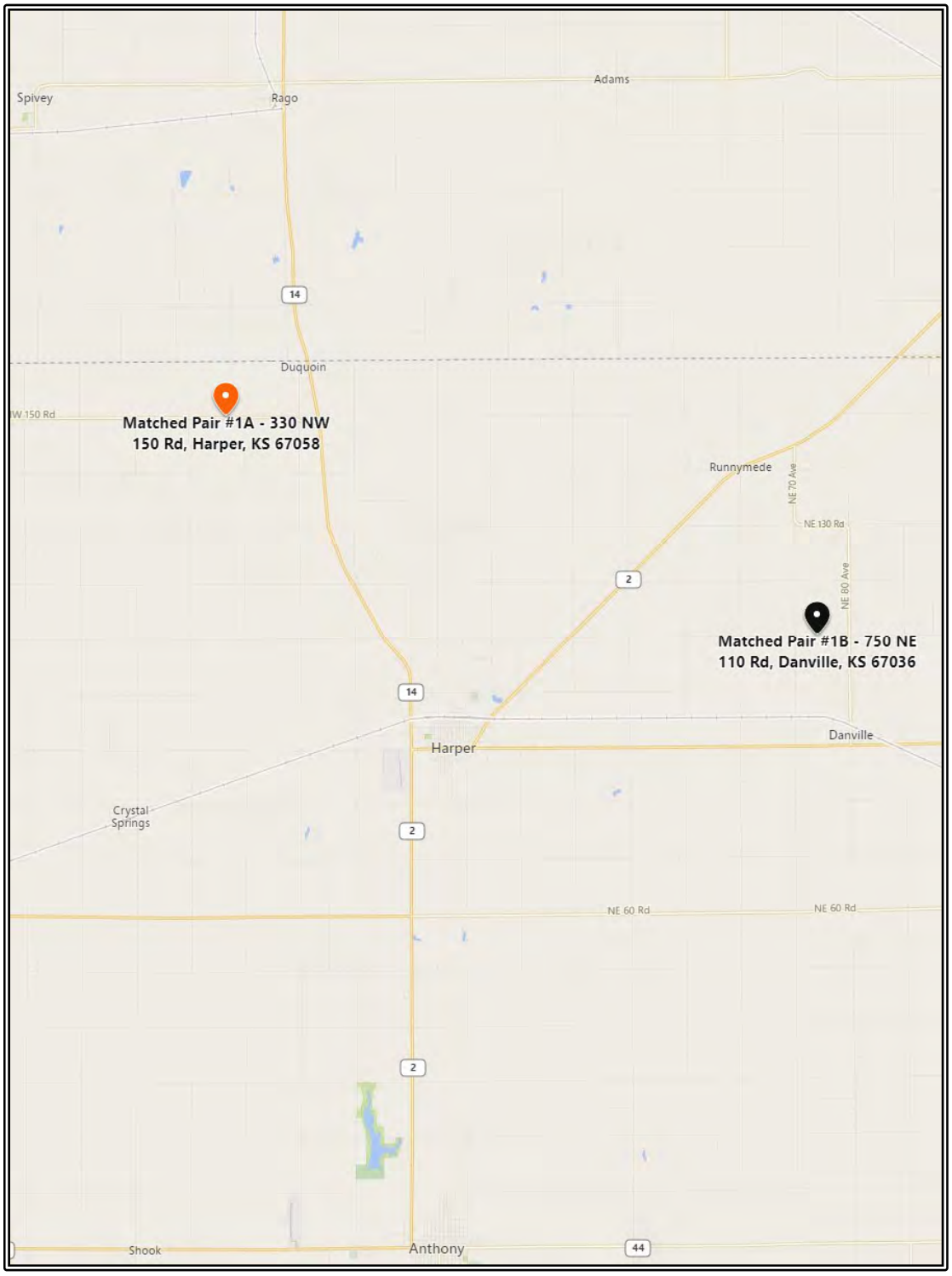
FREEBORN COUNTY, MINNESOTA MATCHED PAIR LOCATION MAP



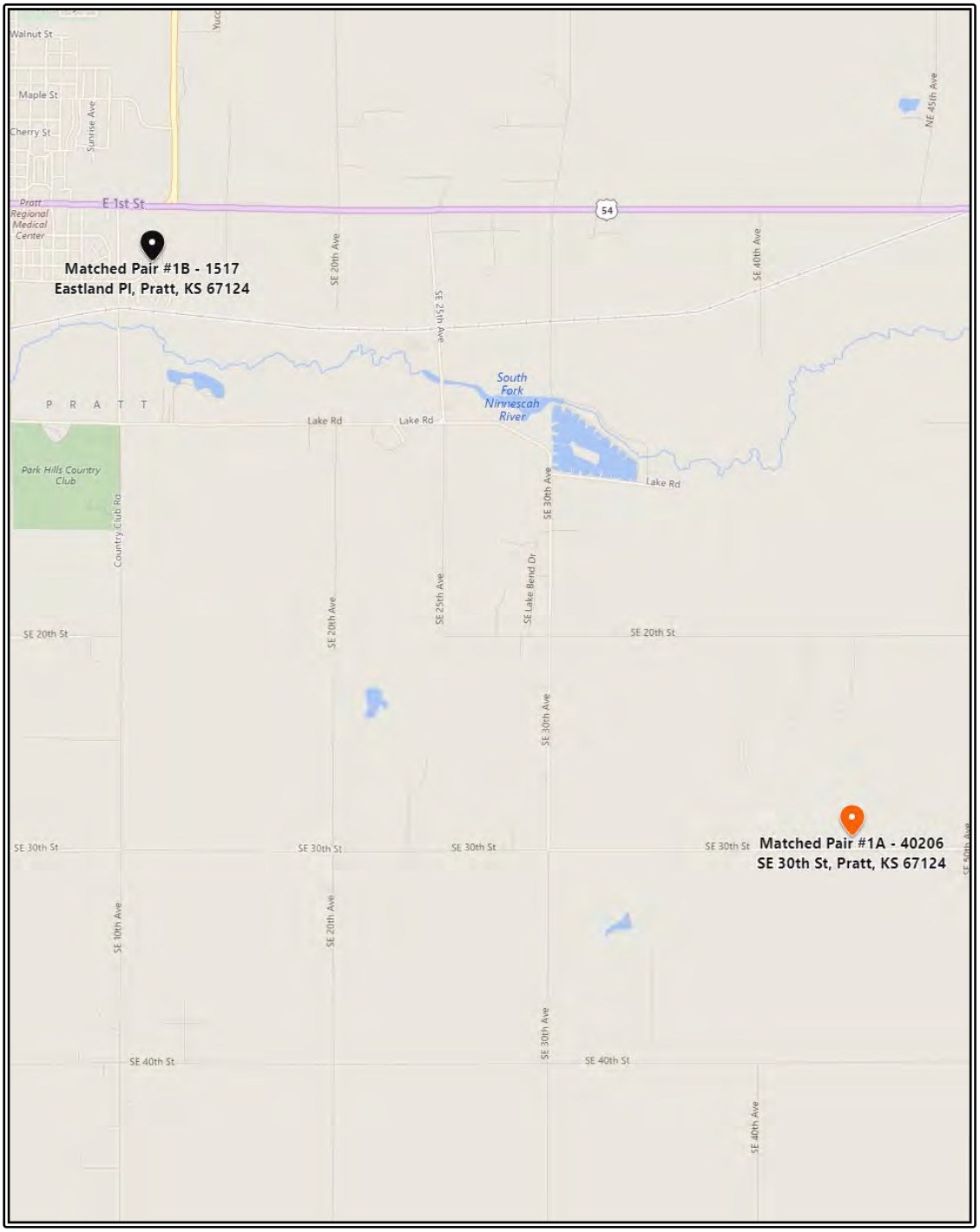
HANCOCK COUNTY, IOWA MATCHED PAIR LOCATION MAP



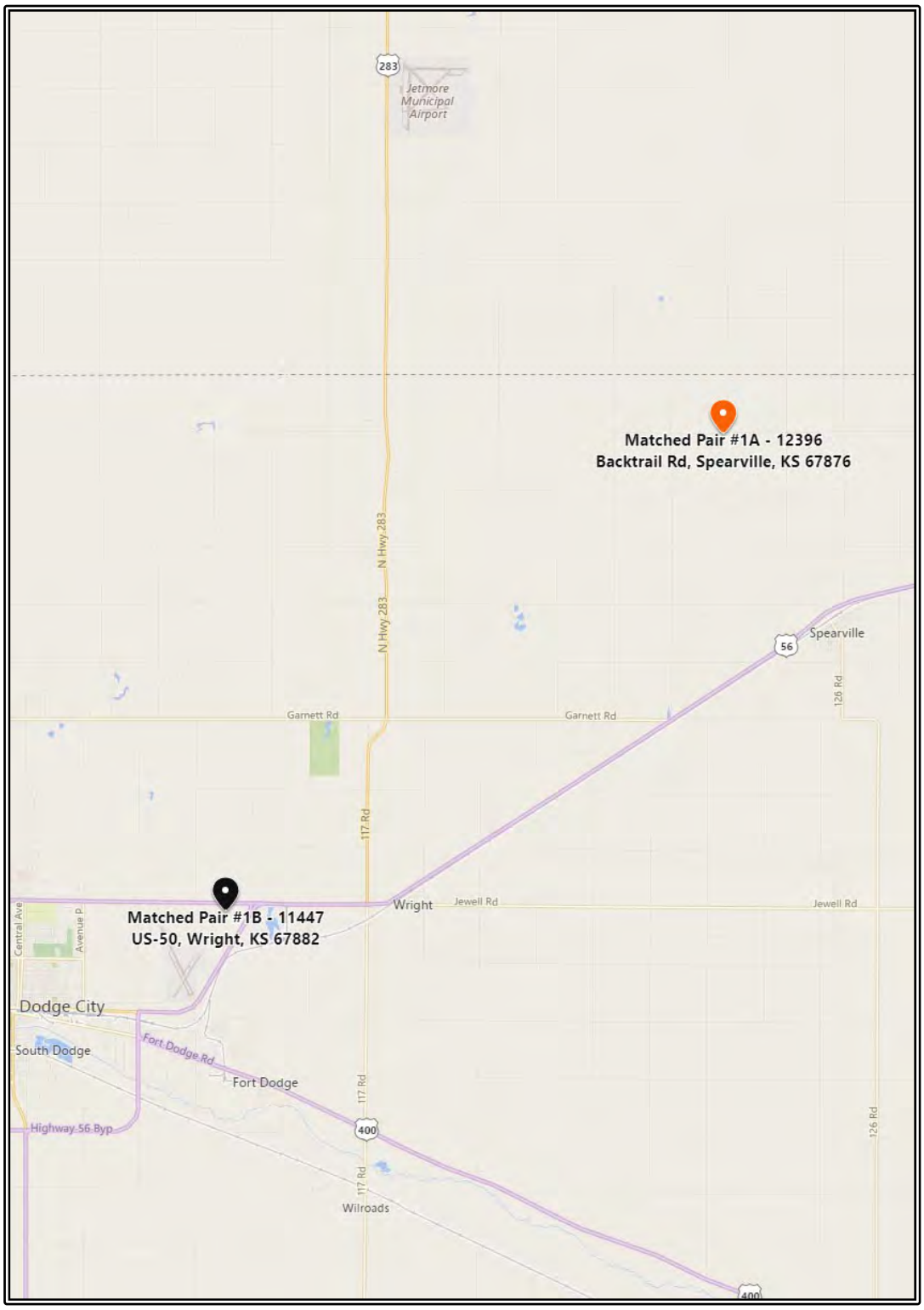
COFFEY COUNTY, KANSAS MATCHED PAIR LOCATION MAP



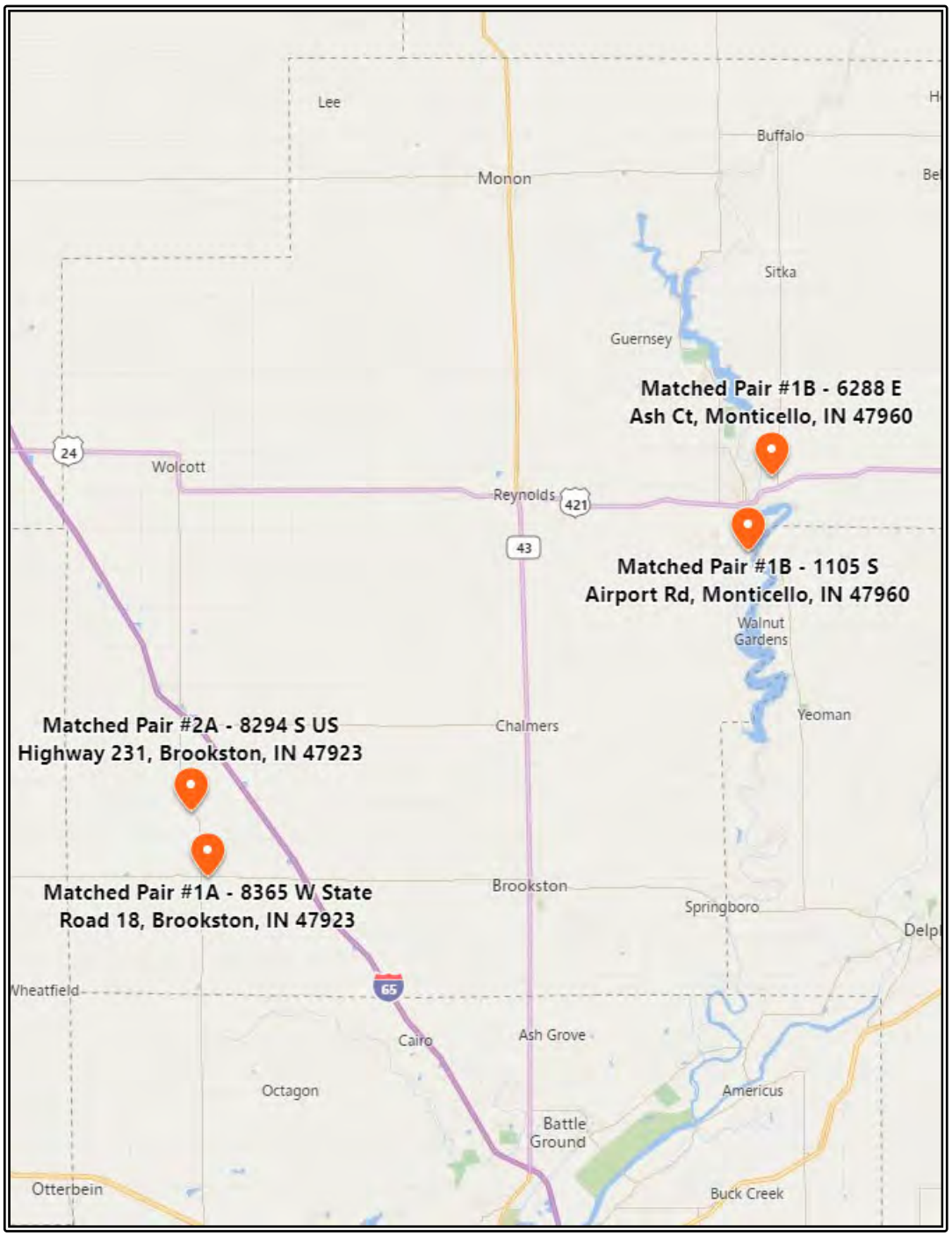
HARPER COUNTY, KANSAS MATCHED PAIR LOCATION MAP



PRATT COUNTY, KANSAS MATCHED PAIR LOCATION MAP



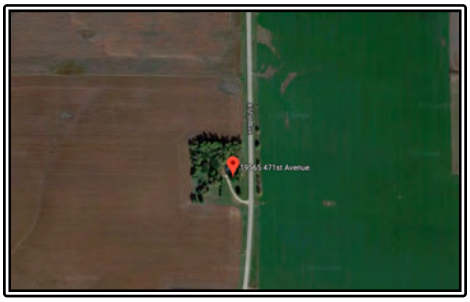
FORD COUNTY, KANSAS MATCHED PAIR LOCATION MAP



WHITE COUNTY, INDIANA MATCHED PAIR LOCATION MAP

IMPROVED SALE PHOTOGRAPHS

650 Dakota Street



19565 471st Avenue

580 Palisades Avenue

200 Madison Street

845 Dakota Street

South Dakota County Assessor Survey Analysis

A survey of assessors in 8 counties in South Dakota which wind farms currently are operational has been undertaken. The supervisors or deputy supervisors of assessments were interviewed. The interviews were intended to allow the assessment officials to share their experiences regarding the impact of the wind farm(s) upon the market values and/or the assessed values of surrounding properties. The interviews were conversational but thoroughly discussed residential and agricultural values and impacts. The interviews were conducted on November 7, 2017, and updated on April 12, 2018.

Conclusions of the Study

Based on these interviews:

- Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of, and the proximity to, a wind farm facility. In some counties, this results from the very rural nature of the area in which the projects are located.
- In the past 18 months, two assessor's offices have experienced a real estate tax appeal based upon wind farm-related concerns, but the appeals were denied by both counties, Aurora County and Campbell County. As of the date of this report, there are more than 7 wind farms with 400 wind turbines within these counties. There have been no reductions in assessed valuations related to wind turbines.
- Residential assessed values have fluctuated consistently countywide as influenced by market conditions, with no regard for proximity to a wind farm.
- Agricultural properties are taxed based upon a productivity formula that is not impacted by market data and by external influences.

Scope of Project

The supervisors or deputy supervisors of assessments were interviewed. Each of the interviewees was familiar with the wind farm(s) located within their respective county. The following is the list of County Supervisors of Assessments/Directors of Equalization contacted and the wind projects in their respective counties as of April 12, 2018:

COUNTY SUPERVISORS OF ASSESSMENTS/DIRECTORS OF EQUALIZATION

Professionals Surveyed and Wind Farms Considered[13]

County	County Assessor (Director of Equalization)	County Assessor Phone Number	Wind Farm *Over 25 Turbines*	Turbine Count	Capacity (MW)	Year Online
Aurora	Leah Vissia	(605) 942-7164	Crow Lake Wind	101	151.5	2010
Brookings	Chris Lilla Jacob Brehmer (Deputy)	(605) 696-8220	Buffalo Ridge Wind Power Buffalo Ridge Wind Power II	24 105	50.4 210	2009 2010
Campbell	Jill Hoogeveen	(605) 955-3577	Campbell County Wind *(Added to Survey 4/12/18)*	55	95	2015
Charles Mix	Denise Weber	(605) 487-7382	Beethoven Wind, LLC	43	79.55	2015
Day	Dari Schlotte	(605) 345-9502	Day County Wind	66	99	2010
Hyde	Carrie Stevenson	(605) 852-2070	South Dakota Wind	27	40.5	2003
Jerauld	Janice Bender	(605) 539-9701	Wessington Springs	34	51	2009
McPherson	Lanette Butler	(605) 439-3663	Tatanka Wind Park #2 *(Added to Survey 4/12/18)*	59	88.5	2008

Maps indicating the number of wind farms used for the survey in each of these counties and the location of all wind farms located in each of these counties at the time of the survey are included at the end of this memorandum.

[13] *AWEA U.S. Wind Industry Map -http://gis.awea.org/arcgisportal/apps/webappviewer/index.html*

Residential Market Values

Without exception, the interviewees reported that there was no market evidence to support a negative impact upon residential property values as a result of the development of, and the proximity to, a wind farm facility. Either as a request by a county board, in an attempt to appropriately assess newly constructed residences, or to support current assessed values, the supervisors of assessments have been particularly attentive to market activity in the area of the wind farms.

Aurora, Brookings, Day, and McPherson Counties' Supervisors of Assessments all stated that a majority of the wind turbines were placed with grazing and pastureland used for raising cattle. Each one of the assessors made it a point to note that they had personally witnessed the cows grazing right alongside turbines, indicating that the turbines had no effect, of any kind, on the animals.

Ms. Lanette Butler, the McPherson County Supervisor of Assessments, lives proximate to wind farm and is a participating landowner with five wind turbines on her property. She also stated that she is a former employee of Acciona Energia (owner of Tatanka Wind) prior to becoming the McPherson County Supervisor of Assessments and has been pleased with the work the company performs and the strict policies the company carries out for noise and wildlife safety. She also stated that the only way the turbines are audibly noticeable is on very quiet days with very minimal wind.

Residential Assessed Values, Complaints/Tax Appeal Filings

The assessors reported that there have been no successful tax appeal filings based upon wind farm issues. Although there have been two counties with tax appeals that were denied by the county boards in Aurora County and Campbell County

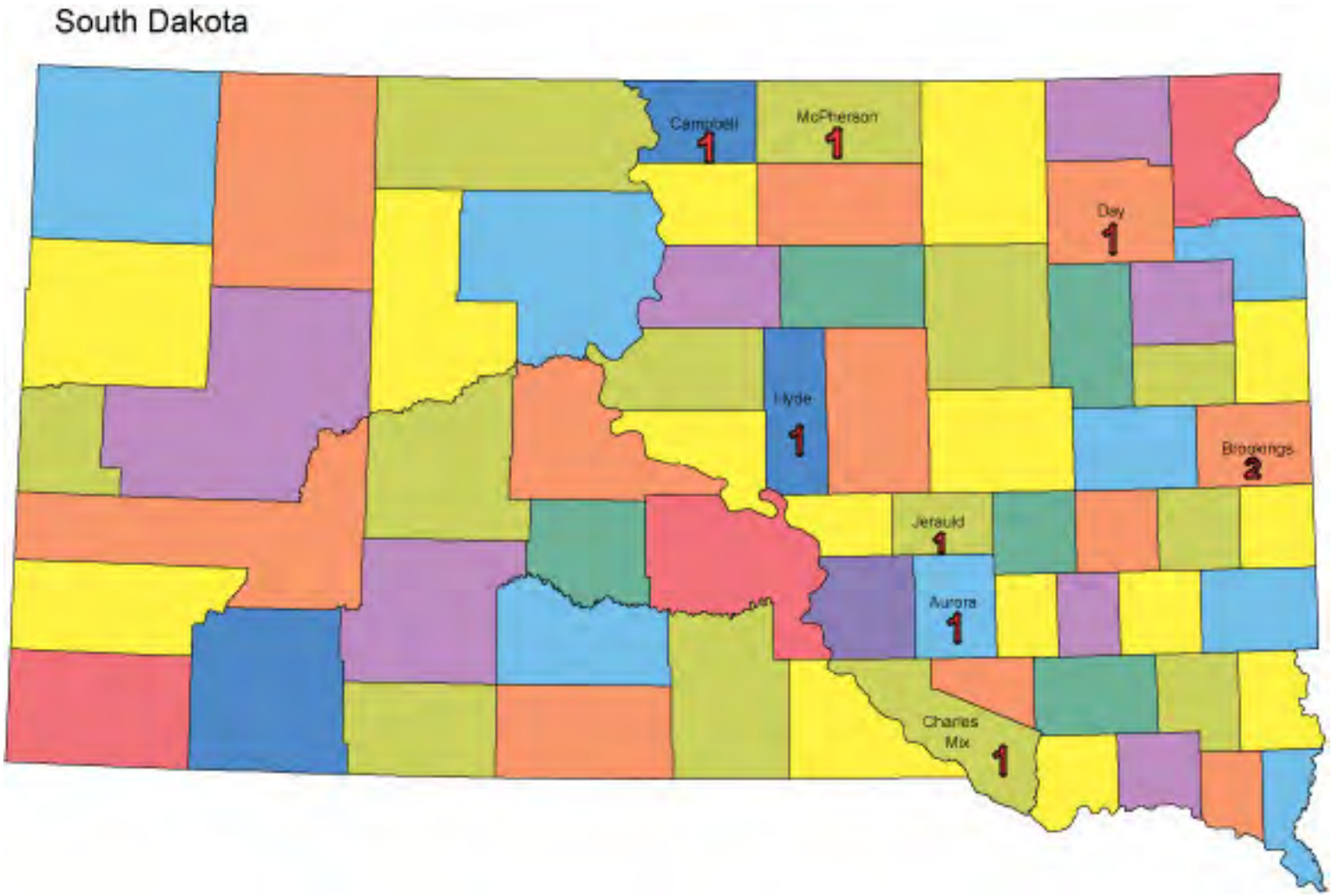
Ms. Carrie Stevenson, the Hyde County Supervisor of Assessments, did mention that the morning on the day the survey was taken Hyde County held its County Commissioners meeting. The topic of some of the meeting revolved around wind farms in the county. In attendance were approximately 30 residents or a little over 2% of the total population of Hyde County. These residents showed up to voice their various complaints to the County Commissioners. The complaints were listened to and validated, yet in the end, there were no changes to property values given.

Consistently, the assessors reported that whatever initial concern there may have been regarding property values during the planning and approval stages of the various wind farms dissipated once the wind farm was constructed. Repeatedly, the assessors would state that the revenue that would come into the county and to each individual farmer would outweigh any initial concern that the residents would have about the wind farms joining their communities.

Agricultural Values/Assessed Values

The assessed values of agricultural properties are established based upon a productivity formula and are not driven by market data. Reportedly, assessed values of agricultural properties have been steady or increasing in recent years and are projected to continue increasing for the near future. The assessors reported that no major complaints have been received and/or no tax appeal filings have been filed for agricultural properties within the wind farm footprint.

Based on this survey, it does not appear that the Supervisors of Assessments in the 6 surveyed in South Dakota have reason to believe that the location of wind turbines in their county has had a negative impact on property values.



Map of South Dakota Counties Surveyed

Wind Farm Count by County

25 Turbines or Higher

Note: As depicted on this map from the AWEA, as of the date of this survey, April 12, 2018, the locations of certain wind farms are approximations. In some instances, the wind farms are incorrectly shown to be located in adjacent counties. This map also shows the locations of smaller wind farms, but for the accuracy of this study we have only focused on the farms with 25 turbines or higher.

MICHAEL S. MAROUS
STATEMENT OF QUALIFICATIONS

Michael S. MaRous, MAI, CRE, is president and owner of MaRous and Company. He has appraised more than $15 billion worth of primarily investment-grade real estate in more than 25 states. In addition to providing documented appraisals, he has served as an expert witness in litigation proceedings for many law firms; financial institutions; corporations; builders and developers; architects; local, state, county, and federal governments and agencies; and school districts in the Chicago metropolitan area. His experience in partial interest, condemnation, damage impact, easement (including aerial and subsurface), marital dissolutions, bankruptcy proceedings, and other valuation issues is extensive. He has provided highest and best use, marketability, and feasibility studies for a variety of properties. Many of the largest redevelopment areas and public projects, including Interstate 355, the Chicago O'Hare International Airport expansion, the Chicago Midway International Airport expansion, and the McCormick Place expansion, are part of Mr. MaRous' experience. Mr. MaRous also has experience with regard to mediation and arbitration proceedings. Also, he has purchased and developed real estate for his own account.

APPRAISAL AND CONSULTATION EXPERIENCE

Industrial Properties

Business Parks	Manufacturing Facilities	Self-storage Facilities
Distribution Centers	Research Facilities	Warehouses

Commercial Properties

Auto Sales/Service Facilities	Gasoline Stations	Restaurants
Banquet Halls	Hotels and Motels	Shopping Centers
Big Box Stores	Office Buildings	Theaters

Special-Purpose Properties

Bowling Alleys	Nurseries	Tank Farms
Cemeteries	Riverboat Gambling Facilities	Underground Gas Aquifers
Farms	Schools	Utility Corridors
Golf Courses	Stadium Expansion Issues	Waste Transfer Facilities
Lumber Yards	Solar Farms	Wind Farms

Residential Properties

Apartment Complexes	Condominium Developments	Subdivision Developments
Condominium Conversions	Single-family Residences	Townhouse Developments

Vacant Land

Agricultural	Easements	Rights of Way
Alleys	Industrial	Streets
Commercial	Residential	Vacations

Clients

Corporations	Law Firms	Private Parties
Financial Institutions	Not-for-profit Associations	Public Entities

EDUCATION

B.S., Urban Land Economics, University of Illinois, Urbana-Champaign
Continuing education seminars and programs through the Appraisal Institute
and the American Society of Real Estate Counselors, and real estate brokerage classes

PUBLIC SERVICE

Mayor, City of Park Ridge, Illinois (2003-2005)
Alderman, City of Park Ridge, including Liaison to the Zoning Board of Appeals and Planning and Zoning and Chairman of the Finance and Public Safety Committees (1997-2005)

PROFESSIONAL AFFILIATIONS AND LICENSES

Appraisal Institute, MAI designation, Number 6159
Counselors of Real Estate, CRE designation
Illinois Certified General Real Estate Appraiser, License Number 553.000141 (9/19)
Indiana Certified General Real Estate Appraiser, License Number CG41600008 (6/20)
Wisconsin Certified General Real Estate Appraiser, License Number 1874-10 (12/19)
Minnesota Certified General Real Estate Appraiser, License Number 40330656 (8/20)
Pennsylvania Certified General Real Estate Appraiser, License Number GA004181 (6/19)
Iowa Certified General Real Estate Appraiser, License Number CG03468 (6/19)
South Dakota Certified General Real Estate Appraiser, License Number 1467CG (9/19)
Kansas Certified General Real Estate Appraiser, License Number 19.TP.125 (6/19)
Licensed Real Estate Broker (Illinois)

PROFESSIONAL ACTIVITIES

Mr. MaRous is a past president of the Chicago Chapter of the Appraisal Institute. He is former chair and vice chair of the National Publications Committee and has sat on the board of The Appraisal Journal. In addition, he has served on and/or chaired more than 15 other committees of the Appraisal Institute, the Society of Real Estate Appraisers, and the American Institute of Real Estate Appraisers.

Mr. MaRous served as chair of the Midwest Chapter of the Counselors of Real Estate in 2006 and 2007 and has served on the National CRE Board since 2011. He sat on the Midwest Chapter Board of Directors, the Editorial Board of Real Estate Issues, and on various other committees.

Mr. MaRous also is a past president of the Illinois Coalition of Appraisal Professionals. He also has been involved with many other professional associations, including the Real Estate Counseling Group of America, the Northwest Suburban Real Estate Board, the National Association of Real Estate Boards, and the Northern Illinois Commercial Association of Realtors.

PUBLICATIONS AND PROFESSIONAL RECOGNITION

Mr. MaRous has spoken at more than 20 programs and seminars related to real estate appraisal and valuation.

Author

"Low-income Housing in Our Backyards," *The Appraisal Journal*, January 1996
"The Appraisal Institute Moves Forward," *Illinois Real Estate Magazine*, December 1993
"Chicago Chapter, Appraisal Institute," *Northern Illinois Real Estate Magazine*, February 1993
"Independent Appraisals Can Help Protect Your Financial Base," *Illinois School Board Journal*, November-December 1990
"What Real Estate Appraisals Can Do for School Districts,"
School Business Affairs, October 1990

Awards

Appraisal Institute - George L. Schmutz Memorial Award, 2001
Chicago Chapter of the Appraisal Institute – Heritage Award,
2000
Chicago Chapter of the Appraisal Institute - Herman O. Walther, 1987 (Distinguished Chapter Member)

Reviewer or Citation in the Following Books

Rural Property Valuation, 2017
Real Estate Damages, 1999, 2008, and 2016
Golf Property Analysis and Valuation, 2016
Dictionary of Real Estate Appraisal, Fourth Edition, 2002 and Sixth Edition, 2015
Market Analysis for Real Estate, 2005 and 2014
Appraisal of Real Estate, Twelfth Edition, 2001, Thirteenth Edition, 2008, Fourteenth Edition, 2013
Shopping Center Appraisal and Analysis, 2009
Subdivision Valuation, 2008
Valuation of Apartment Properties, 2007
Valuation of Billboards, 2006
Appraising Industrial Properties, 2005
Valuation of Market Studies for Affordable Housing, 2005
Valuing Undivided Interest in Real Property: Partnerships and Cotenancies, 2004
Analysis and Valuation of Golf Courses and Country Clubs, 2003
Valuing Contaminated Properties: An Appraisal Institute Anthology, 2002
Hotels and Motels: Valuation and Market Studies, 2001
Land Valuation: Adjustment Procedures and Assignments, 2001
Appraisal of Rural Property, Second Edition, 2000
Capitalization Theory and Techniques, Study Guide, Second Edition, 2000
Guide to Appraisal Valuation Modeling Land, 2000
Appraising Residential Properties, Third Edition, 1999
Business of Show Business: The Valuation of Movie Theaters, 1999
GIS in Real Estate: Integrating, Analyzing and Presenting Locational Information, 1998
Market Analysis for Valuation Appraisals, 1995

REPRESENTATIVE WORK OF MICHAEL S. MAROUS

Headquarters/Corporate Office Facilities in Illinois
Fortune 500 corporation facility, 200,000 sq. ft., Libertyville
Corporate headquarters, 300,000 sq. ft. and 500,000 sq. ft., Chicago
Fortune 500 corporation facility, 450,000 sq. ft., Northfield
Major airline headquarters, 1,100,000 million sq. ft. on 47 acres, Elk Grove Village
Former communications facility, 1,400,000 million sq. ft. on 62 acres, Skokie and Niles
Corporate Headquarters, 1,500,000+ sq. ft., Lake County
Former Sears Headquarters Redevelopment Project, Chicago

Office Buildings in Chicago
401 South LaSalle Street, 140,000 sq. ft.
134 North LaSalle Street, 260,000 sq. ft.
333 North Michigan Avenue, 260,000 sq. ft.
171 West Randolph Street, 360,000 sq. ft.
20 West Kinzie Street, 405,000 sq. ft.
55 East Washington Street, 500,000 sq. ft.
10 South LaSalle Street, 870,000 sq. ft.
222 West Adams Street, 1,000,000 sq. ft.
141 West Jackson Boulevard, 1,065,000 sq. ft.
333 South Wabash Avenue, 1,125,000 sq. ft.
155 North Wacker Drive, 1,406,000 sq. ft.
70 West Madison Street, 1,430,000 sq. ft.
111 South Wacker Drive, 1,454,000 sq. ft.
175 West Jackson Boulevard, 1,450,000 sq. ft.
227 West Monroe Street, 1,800,000 sq. ft.
10 South Dearborn Street, 1,900,000 sq. ft.

Hotels in Chicago
One West Wacker Drive (Renaissance Chicago Hotel)
10 East Grand Avenue (Hilton Garden Inn)
106 East Superior Street (Peninsula Hotel)
120 East Delaware Place (Four Seasons)
140 East Walton Place (The Drake Hotel)
160 East Pearson Street (Ritz Carlton)
301 East North Water Street (Sheraton Hotel)
320 North Dearborn Street (Westin Chicago River North)
401 North Wabash Avenue (Trump Tower)
505 North Michigan Avenue (Hotel InterContinental)
676 North Michigan Avenue (Omni Chicago Hotel)
800 North Michigan Avenue (The Park Hyatt)

Large Industrial Properties in Illinois
Large industrial complexes, 400,000 sq. ft., 87th Street and Greenwood Avenue, Chicago
Distribution warehouse, 580,000 sq. ft. on 62 acres, Champaign
Publishing house, 700,000 sq. ft. on 195 acres, U.S. Route 45, Mattoon
AM Chicago International, 700,000± sq. ft. on 41 acres, 1800 West Central Road, Mount Prospect
Nestlé distribution center, 860,000 sq. ft. on 153 acres, DeKalb
U.S. Government Services Administration distribution facility, 860,000 sq. ft., 76th Street and Kostner Avenue, Chicago Fortune 500 company distribution center, 1,000,000 sq. ft., Elk Grove Village
Caterpillar Distribution Facility, 2,231,000 sq. ft., Morton
Self-storage facilities, various Chicago metropolitan locations

Airport-Related Properties
Mr. MaRous has performed valuations on more than 100 parcels in and around Chicago O'Hare International Airport, Chicago Midway International Airport, Palwaukee Municipal Airport, Chicago Aurora Airport, DuPage Airport, and Lambert-St. Louis International Airport

Vacant Land in Illinois
15 acres, office, Northbrook
250 acres, Island Lake

20 acres, residential, Glenview
25 acres, Hinsdale
55 acres, mixed-use, Darien
68 acres, Roosevelt Road and the Chicago River
75 acres, I-88 at I-355, Downers Grove
100± acres, various uses, Lake County
100 acres, Western Springs
140 acres, Flossmoor
142 acres, residential, Lake County
160 acres, residential, Cary
200 acres, mixed-use, Bartlett
450 acres, residential, Wauconda
475± acres, various uses, Lake County
650 acres, Hawthorne Woods
650 acres, Waukegan/Libertyville
800 acres, Woodridge
900 acres, Matteson
1,000± acres, Batavia area
2,000± acres, Northern Lake County
5,000 acres, southwest suburban Chicago area
Landfill expansion, Lake County

Retail Facilities

20 Community shopping centers, various Chicago metropolitan locations
Big-box uses, various Chicago metropolitan locations and the Midwest
Gasoline Stations, various Chicago metropolitan locations
More than 50 single-tenant retail facilities larger than 80,000 sq. ft., various Midwest metropolitan locations

Residential Projects

Federal Square townhouse development project, 118 units, $15,000,000+ sq. ft. project, Dearborn Place, Chicago
Marketability and feasibility study, 219 East Lake Shore Drive, Chicago
Riverview II, Chicago; Old Town East and West, Chicago; Museum Park Lofts II, Museum Park Tower 4, University Commons, Two River Place, River Place on the Park, Chicago;
Timber Trails, Western Springs, Illinois

Market Impact Studies

Land-fill projects in various locations
Quarry expansions in Boone and Kendall counties
Commercial development and/or parking lots in various communities
Zoning changes in various communities
Waste transfer stations in various communities

Energy Projects

Oakwood Hills Energy Center, McHenry County, Illinois
Walnut Ridge Wind Farm, Bureau County, Illinois
Radford's Run Wind Farm, Macon County, Illinois
Twin Groves Wind Farm, McLean County, Illinois
Otter Creek Wind Farm, LaSalle County, Illinois
Pleasant Ridge Wind Farm, Livingston County, Illinois
Alta Farms Wind Project II, DeWitt County, Illinois
Harvest Ridge Wind Farm, Douglas County, Illinois
Midland Wind Farm, Henry County, Illinois
McLean County Wind Farm, McLean County, Illinois
Ida Grove II Wind Farm, Ida County, Iowa
Tippecanoe County Wind Farm, Tippecanoe County, Indiana
Roaming Bison Wind Farm, Montgomery County, Indiana
Neosho Ridge Wind Farm, Neosho County, Kansas
Orangeville Wind Farm, Wyoming County, New York
Deuel Harvest Wind Farm, Deuel County, South Dakota
Dakota Range Wind Project I-III, Codington County, Grant County, & Roberts County, South Dakota
Crocker Wind Farm, Clark County, South Dakota
Prevailing Wind Park, Bon Homme County, Charles Mix County, & Hutchinson County, South Dakota
Brookhaven, South Dakota, solar energy production facility
Badger Hollow Solar Farm, Iowa County, Wisconsin
Dorchester County Solar Farm, Dorchester County, Maryland
Lone Oak Solar Farm, Madison County, Indiana
Lackawanna Power Plant, Lackawanna County, Pennsylvania
Commonwealth Edison, high tension lines

Business and Industrial Parks

Chevy Chase Business Park, 30 acres, Buffalo Grove
Carol Point Business Center, 300-acre industrial park, Carol Stream, $125,000,000+ project
Internationale Centre, approximately 1,000 acre-multiuse business park, Woodridge

Properties in Other States

330,000 sq. ft., Newport Beach, California
Former government depot/warehouse and distribution center, 2,500,000 sq. ft. on 100+ acres, Ohio

Shopping Center, St. Louis, Missouri, Office Building, Clayton, Missouri
Condominium Development, South Dakota, South Dakota
Hormel Foods, various Midwest locations
Wisconsin Properties including Lowes, Menards, Milwaukee Zoo, CVS Pharmacy's in Milwaukee, Dairyland Racetrack, Major Industrial Property in Manawa, Class A Office Buildings and Vacant Land

REPRESENTATIVE CLIENT LISTING OF MICHAEL S. MAROUS

Law Firms

Alschuler, Simantz & Hem LLC Ancel, Glink, Diamond, Bush, DiClanni & Krafthefer
Arnstein & Lehr LLP
Berger, Newmark & Fenchel P.C.
Berger Schatz
Botti Law Firm, P.C.
Carmody MacDonald P.C.
Carr Law Firm
Crane, Heyman, Simon, Welch & Clar
Daley & Georges, Ltd.
Day, Robert & Morrison, P.C. Dentons US LLP
DiMonte & Lizak LLC
DLA Piper
Dreyer, Foote, Streit, Furgason & Slocum, P.A.
Drinker, Biddle & Reath LLP Figliulo & Silverman, P.C.
Foran, O'Toole & Burke LLC Franczek Radelet P.C.
Fredrikson & Byron, P.A.
Freeborn & Peters LLP
Gould & Ratner LLP
Greenberg Traurig LLP
Helm & Wagner
Robert Hill Law, Ltd.
Hinshaw & Culbertson LLP
Holland & Knight LLP
Ice Miller LLP
Jenner & Block
Katz & Stefani, LLC
Kinnally, Flaherty, Krentz, Loran, Hodge & Mazur PC
Kirkland & Ellis LLP
Klein, Thorpe & Jenkins, Ltd.
McDermott, Will & Emery
Mayer Brown
Michael Best & Friedrich LLP
Morrison & Morrison, Ltd.
Bryan E. Mraz & Associates
Neal, Gerber & Eisenberg, LLP
Neal & Leroy LLC
O'Donnell Haddad LLC
Prendergast & DelPrincipe
Rathje & Woodward, LLC
Righeimer, Martin & Cinquino, P.C.
Robbins, Salomon & Patt, Ltd.
Rosenfeld Hafron Shapiro & Farmer
Rosenthal, Murphey, Coblentz & Donahue Rubin & Associates, P.C.
Ryan and Ryan, P.C.
Reed Smith LLP
Sarnoff & Baccash
Scariano, Himes & Petrarca, Chtd.
Schiff Hardin LLP
Schiller, DuCanto & Fleck LLP
Schirott, Luetkehans & Garner, LLC
Schuyler, Roche & Crisham, P.C.
Sidley Austin LLP
Storino, Ramello & Durkin
Thomas M. Tully & Associates
Thompson Coburn, LLP
Tuttle, Vedral & Collins, P.C.
Vedder Price
von Briesen & Roper, SC
Winston & Strawn LLP
Worsek & Vihon LLP

Financial Institutions

AmericaUnited Bank Trust
BMO Harris Bank
Charter One
Citibank
Cole Taylor Bank
First Bank of Highland Park
First Financial Northwest Bank
First Midwest Bank
First State Financial
Glenview State Bank
Itasca Bank & Trust Co.
Lake Forest Bank & Trust Co.
MB Financial Bank
Midwest Bank
Northern Trust
Northview Bank & Trust
The Private Bank
Wintrust

Corporations

Advocate Health Care System
Alliance Property Consultants
American Stores Company
Archdiocese of Chicago
Arthur J. Rogers and Company
Avangrid Renewables, LLC
BHE Renewables
BP Amoco Oil Company
Christopher B. Burke Engineering, Ltd. Cambridge Homes
Canadian National Railroad
Capital Realty Services, Inc.
Chicago Cubs
Children's Memorial Hospital
Chrysler Realty Corporation
Citgo Petroleum Corporation
CorLands
CVS
Edward R. James Partners, LLC
Enterprise Development Corporation
Enterprise Leasing Company
Exxon Mobil Corporation
Hamilton Partners
Hollister Corporation
Imperial Realty Company
Invenergy LLC
Kimco Realty Corporation
Kinder Morgan, Inc.
Lakewood Homes
Lowe's Companies, Inc.
Loyola University Health System
Marathon Oil Corporation
Meijer, Inc.
Menards
Mesirow Stein Real Estate, Inc.
Paradigm Tax Group
Prime Group Realty Trust
Public Storage Corporation
RREEF Corporation
Shell Oil Company
Union Pacific Railroad Company
United Airlines, Inc.

Public Entities
Illinois Local Governments and Agencies

Village of Arlington Heights
Village of Barrington
Village of Glenview
Glenview Park District
Village of Orland Park
City of Palos Hills

Village of Bartlett
Village of Bellwood
Village of Brookfield
Village of Burr Ridge
City of Canton
Village of Cary
City of Chicago
Village of Deer Park
City of Des Plaines
Des Plaines Park District
Downers Grove Park District
City of Elgin
Elk Grove Village
City of Elmhurst
Village of Elmwood Park
City of Evanston
Village of Forest Park
Village of Franklin Park
Village of Harwood Heights
City of Highland Park
Village of Hinsdale
Village of Inverness
Village of Kenilworth
Village of Kildeer
Village of Lake Zurich
Leyden Township
Village of Lincolnshire
Village of Lincolnwood
Village of Morton Grove
Village of Mount Prospect
Village of North Aurora
Village of Northbrook
City of North Chicago
Village of Northfield
Northfield Township
Village of Oak Brook
City of Peoria
City of Prospect Heights
City of Rolling Meadows
Village of Rosemont
City of St. Charles
Village of Schaumburg
Village of Schiller Park
Village of Skokie
Village of South Barrington
Village of Streamwood
Metropolitan Water Reclamation District of Greater Chicago
City of Waukegan
Village of Wheeling
Village of Wilmette
Village of Willowbrook
Village of Winnetka
Village of Woodridge

County Governments and Agencies

Boone County State's Attorney's Office
Forest Preserve of Cook County
Cook County State's Attorney's Office
DuPage County Board of Review
Forest Preserve District of DuPage County
Kane County
Kendall County Board of Review
Lake County
Lake County Forest Preserve District
Lake County State's Attorney's Office
Morton Township
Peoria County

State and Federal Government Agencies

Federal Deposit Insurance Corporation
U.S. General Services Administration
Illinois Housing Development Authority
Illinois State Toll Highway Authority
Internal Revenue Service
The U.S. Postal Service

Schools

Argo Community High School District No. 217
Arlington Heights District No. 25 Township High School District No. 214, Arlington Heights
Barrington Community Unit District No. 220
Chicago Board of Education
Chicago Ridge District No. 127½
College of Lake County
Community Consolidated School District No. 15
Community Consolidated School District No. 146
Community School District No. 200
Consolidated High School District No. 230
Darien District No. 61
DePaul University
Elk Grove Community Consolidated District No. 59
Elmhurst Community Unit School District No. 205
Glen Ellyn School District No. 41
Glenbard High School District No. 87
Indian Springs School District No. 109
LaGrange School District No. 105
Lake Forest Academy
Leyden Community High School District No. 212
Loyola University
Lyons Township High School District No. 204
Maine Township High School District No. 207
Niles Elementary District No. 71
North Shore District No. 112, Highland Park
Northwestern University
Orland Park School District No. 135
Palatine High School District #211
Rhodes School District No. 84-1/2
Riverside-Brookfield High School District No. 208
Rosalind Franklin University
Roselle School District No. 12
Schaumburg Community Consolidated District No. 54
Sunset Ridge School District No. 29
Township High School District No. 211
Township High School District No. 214
Triton College
University of Illinois
Wheeling Community Consolidated District No. 21
Wilmette District No. 39

JOSEPH M. MaROUS
STATEMENT OF QUALIFICATIONS

Joseph M. MaRous is an Energy Consultant with MaRous and Company, with a focus on the renewable and alternative energy industry.
For more details visit: linkedin.com/in/joemarous

EDUCATION

Purdue University - West Lafayette, Indiana
Bachelor of Science – Building Construction Management
Focus in residential and green build construction

CERTIFICATIONS

OSHA Safety Certified
Certified Green Build Professional
USPAP Certified

CONSTRUCTION

Professional in the construction industry for 10 years

- Residential
- Commercial
- Industrial
- Municipal
- Tenant Improvement
- Schools
- Media Studios
- Automobile Dealerships

MaROUS & COMPANY

Wind Projects

- Illinois
  - Alta Farms Wind Project II, *Dewitt County*
  - Harvest Ridge Wind Farm, *Douglas County*
  - Midland Wind Farm, *Henry County*
  - McLean County Wind Farm, *McLean County*
  - Radford's Run Wind Farm, *Macon County*
- Indiana
  - Tippecanoe County Wind Farm, *Tippecanoe County*
  - Roaming Bison Wind Farm, *Montgomery County*
- Iowa
  - Ida Grove II Wind Farm, *Ida County*
- Kansas
  - Neosho Ridge Wind Farm, *Neosho County*
- New York
  - Orangeville Wind Farm, *Wyoming County*
- South Dakota
  - Deuel Harvest Wind Farm, *Deuel County*
  - Dakota Range Wind Project I-III, *Codington County, Grant County, & Roberts County*
  - Crocker Wind Farm, *Clark County*
  - Prevailing Wind Park, *Bon Homme County, Charles Mix County, & Hutchinson County*
  - Triple H Wind Farm, *Hyde County*

Solar Projects

- Indiana
  - Lone Oak Solar Farm, *Madison County*
- Maryland
  - Dorchester County Solar Farm, *Dorchester County*
- Wisconsin
  - Badger Hollow Solar Farm, *Iowa County*

Appraisal Assistance

- Vacant Land
- Auto Dealerships
- Religious Facilities
- Residential
- Commercial
- Retail

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-27) Refer to the Applicant's response to Commission Staff Data Request 1-6. Please provide an update on the status of the pending easements

Response:

2-27) Tatanka Ridge Wind has no updates re: the status of pending easements.

Response Prepared by: Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-28) Refer to the ARSD 20:10:22:11. Please identify the figure(s) submitted with the Application that provides a map showing:

(1) Cemeteries;
(2) Places of historical significance;
(3) Transportation facilities; or
(4) Other public facilities adjacent to or abutting the plant or transmission site.

If a figure was not provided with the Application providing this information, please provide additional map(s) with the information required by rule.

Response:

2-28) Please see Figure 3

Response Prepared by: Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-29) Refer to the ARSD 20:10:22:14. Please identify the figure(s) submitted with the Application that provides a map showing a topographic map of the wind energy facility. If a figure was not provided with the Application providing this information, please provide additional map(s) with the information required by rule.

Response:

2-29) Please see Figure 2.

Response Prepared by: Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-30) Refer to the ARSD 20:10:22:15(1). Please identify the figure(s) submitted with the Application that provides a map showing surface water drainage patterns before and anticipated patterns after construction. If a figure was not provided with the Application providing this information, please provide additional map(s) with the information required by rule.

Response:

2-30) Please see Figure 4. Surface water drainage patterns will not significantly change after construction.

Response Prepared by: Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: July 29, 2019

Data Request:

2-31) Refer to the Applicant's response to Commission Staff Data Request 1-8. The Applicant states Deuel County regulations do not establish a maximum dBA requirement for participating landowners. Has Tatanka made any voluntary commitments for a maximum dBA requirement for participating landowners? If yes, what was the basis for that commitment?

Response:

2-31) The Applicant is committed to complying with the Deuel County regulations which requires a minimum 1,500 feet setback from participating residences. Tatanka has not made any other commitments.

Response Prepared by:
Mark Bastasch

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-32) Refer to the Applicant's response to Commission Staff Data Request 1-16.

a) Does Tatanka Ridge Wind, LLC, intend to construct, operate, and maintain the turbines in a manner consistent with the turbine manufacturer's manual?
b) How is the safety of the inhabitants being ensured if the Applicant is unaware of the turbine manufacturer's recommendations for safe construction and operation of the turbines?

Response:

2-32a) Tatanka Ridge Wind intends to construct, operate, and maintain the turbines in a manner consistent with the turbine manufacturer's manual

2-32b) Tatanka Ridge Wind will follow the manufacture's installation and operation instructions.

Response Prepared by: Mark Mullen

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-33) Refer to the Applicant's response to Commission Staff Data Request 1-3, Figure 8 of the Application, and Appendix N of the Application.

a) Does Mr. Bastasch assert that his sound study results provided in Attachment N to the Application would not change if the wind turbines associated with the Buffalo Ridge II wind energy facility were included in his sound modeling? Please explain.

b) How close does Mr. Bastasch believe an adjacent wind project needs to be to a proposed wind project before it should be included in a sound model to evaluate the cumulative sound impacts? Please explain.

c) Referring to Figure 8, is it Tatanka's position that it does not need to analyze the cumulative sound impacts associated with the proposed Deuel Harvest South project? Please explain.

d) How does Mr. Bastasch determine which residences to analyze in his sound study in Appendix N? Is it based on the distance of a residence from a proposed turbine? Please explain.

e) Are any of the non-participating receptors modeled in Attachment N within 1 mile of an existing Buffalo Ridge II turbine? If yes, please identify which receptors and the distance.

Response:

2-33)

a) No. Please see table of predicted sound levels provided in response to c below. Mathematically the addition of turbines to the sound model may result in changes to the predicted levels. These predicted increase however would not be substantial and at most would be 3 dBA if the levels from both projects at the point of interest were the same. If the difference between the two project levels at the point of interest was 4 dBA, the increase over the highest of the two levels would be 1.5 dBA and when the two sound levels are 10 dBA apart, the increase is 0.4 dBA. When comparing similar sources of sound an increase of 3 dBA is generally considered the threshold of a perceivable difference.

b) How or if cumulative sound levels are to be evaluated in an application for wind or other projects is a regulatory decision. The legislative rule making process may or may not wish to consider consistency with how other sound sources evaluate

cumulative levels. The distance will vary depending on the regulatory approach, if the regulation utilizes a relative (increase over existing) or fixed limit approach, the threshold established for negligible or significant cumulative increase and the likelihood of the operational or other conditions leading to a cumulative event (i.e., for a wind project, how likely is it that the point of interest will be downwind from both projects at the same time).

c) Based on new information provided by Deuel County and a review of information on the South Dakota Public Utilities Commission website, Figure 8 has been revised to depict the layout of the proposed Crown Ridge and Deuel Harvest projects (see Attachment 2-33). The Applicant understands that Deuel Harvest South does not have an active application with Deuel County nor the State.

d) A fixed distance is not relied on. Rather sound contours are developed based on the proposed turbine and turbine layout. These contours are used to prioritize areas to verify residential uses with emphasis on those approaching the applicable regulatory threshold.

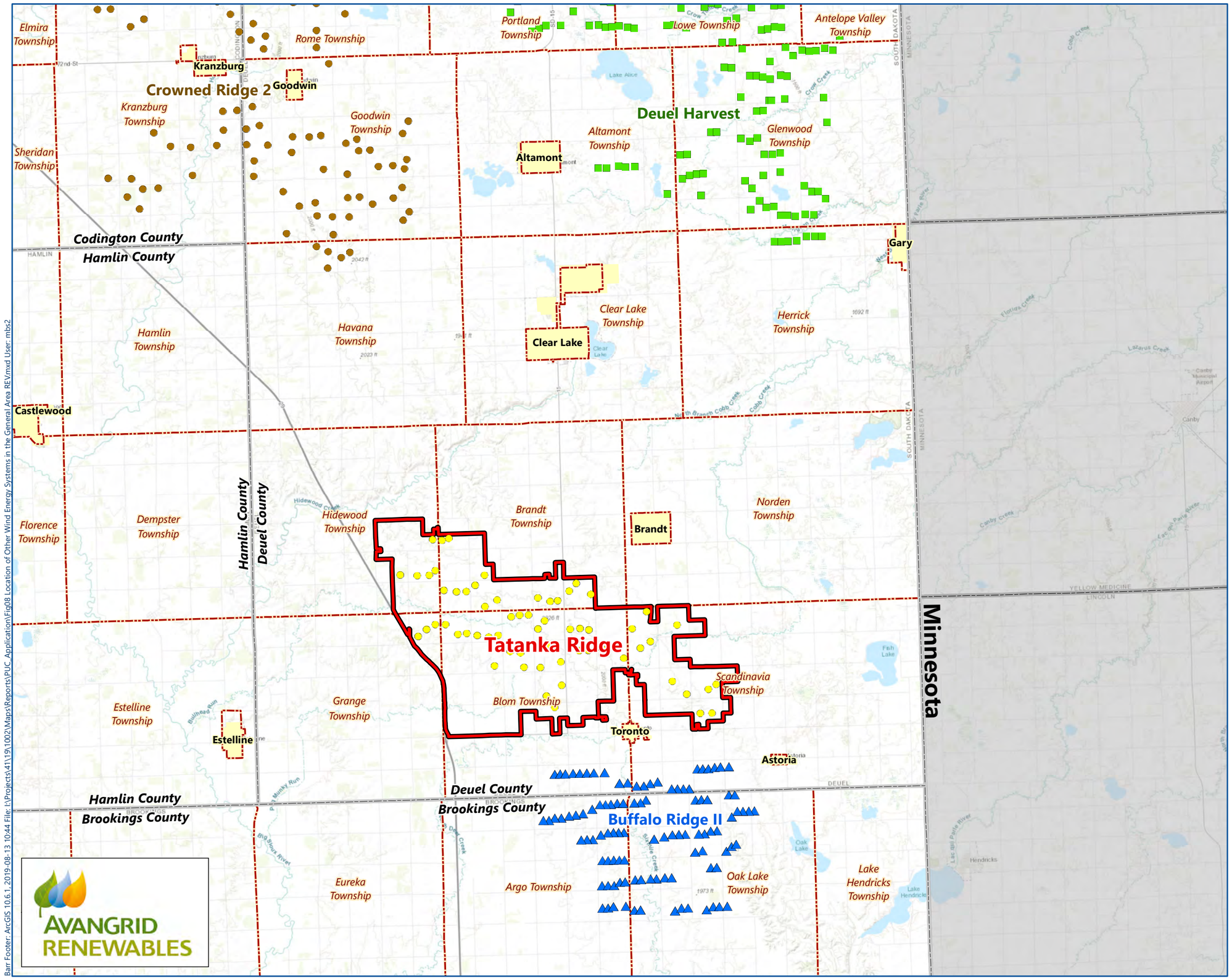
e) The following non-participating receptors modeled in Attachment N are within 1 mile of an existing Buffalo Ridge II turbine. Note, the distance from the nearest Tatanka turbine is also noted for these receptors as well as the predicted individual project sound levels as well as their combined cumulative sound level based on the NARUC method.

ID	Property Owner	Distance to Nearest Buffalo Ridge II Turbine (feet)	Distance to Nearest Tatanka Turbine (feet)
H14	Kurtenbach, W. & K.	2,727	6,803
H17	Landsman, W.	4,790	6,949
H25	Gass, J. & A.	5,020	4,416

ID	Buffalo Ridge II Project Sound Level (dBA)	Tatanka Project Sound Level (dBA)	Cumulative Sound Level (dBA)
H14	41.2	31.2	41.6
H17	37.7	31.6	38.7
H25	37.3	34.8	39.2

Response Prepared by:
Mark Bastasch

Attachment 2-33
Revised Figure 8



- Project Boundary
- Proposed Tatanka Ridge Turbine
- Proposed Crowned Ridge 2 Turbine
- Proposed Deuel Harvest Wind Turbine
- Existing Buffalo Ridge II Wind Turbine
- Municipality
- Civil Township Boundary
- County Boundary

Miles
3 0 3

Kilometers
6 0 6

Revised Figure 8 (8/13/2019)

LOCATION OF OTHER WIND ENERGY SYSTEM IN THE GENERAL AREA
Tatanka Ridge Wind Project
Tatanka Ridge Wind, LLC
Deuel County, South Dakota

AVANGRID RENEWABLES

Barr Footer: ArcGIS 10.6.1, 2019-08-13 10:44 File: I:\Projects\41\19\1002\Maps\Reports\PUC_Application\Fig08 Location of Other Wind Energy Systems in the General Area REV.mxd User: mbs2

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Second Data Request

Date: August 16, 2019

Data Request:

2-34) Refer to the ARSD 20:10:22:18. Please identify the figure(s) submitted with the Application that provides a map showing the following classification system. If a figure was not provided with the Application providing this information, please provide additional map(s) with the information required by rule.

a) Irrigated lands
b) Existing and potential extractive nonrenewable resources
c) Other Major industries
d) Municipal water supply and water sources for organized rural water systems
e) Noise sensitive land uses

Response:

2-34a) Please see Figure 14.

2-34b) There are no oil and gas resources near the project; however, there is the potential for aggregate mining. The lack of oil and gas wells and potential infrastructure are not shown on figures.

2-34c) As described in Section 16.2 of the application, there are no commercial or industrial facilities within the project area. The lack of commercial and industrial facilities is not shown on figures.

2-34d) According to the Brookings Deuel Rural Water System 2017 Annual Report, there are two sources of ground water that supply the system: a well north of Bruce, SD that draws from the Big Sioux aquifer, and a well northeast of Clear Lake, SD that draws from the Prairie Coteau aquifer. These two wells are not in the vicinity of the Project and are not shown on the figures.

2-34e) Occupied residences are shown on figures 6a through 6d. No additional noise sensitive receptors were identified and they are not shown on the figures.

Response Prepared by: Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Third Data Request

Date: September 6, 2019

Data Request:

3-1) Regarding the Deuel County Izaak Walton League club grounds and shooting facility north of Toronto, SD:

a) Please provide the distance (ft.) and turbine identification number of the closest wind turbine from the property line of the Izaak Walton League property.

b) Please provide the distance (ft.) and turbine identification number of the closest wind turbine from the building on the Izaak Walton League property.

c) Please explain if the Applicant will need to make any special accommodations during the construction and operation of the wind energy facility as a result of a shooting facility adjacent to the Project Area.

Response:

3-1

a) See Sept 3, 2019 response to Commissioner Fiegen filed in the docket.

3-1

b) See Sept 3, 2019 response to Commissioner Fiegen filed in the docket

3-1

c) Tatanka Ridge will use public roads in this area and will keep all construction activities/workers at a safe distance.

Response Prepared by:
Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Third Data Request

Date: September 6, 2019

Data Request:

3-2) For each non-participating residence that is located less than 1 mile from the closest turbine in the Project Layout, please provide the following information:

(a) Name of property owner
(b) Address
(c) Distance from closest turbine
(d) Receptor ID
(e) Predicted Shadow Flicker (Hours per Year)
(f) Predicted Sound Level

Response:

3-2) Tatanka Ridge Wind responded to this question, as part of Data Request #2, on August 21, 2019.

Response Prepared by:
Mark Bastasch

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Third Data Request

Date: September 6, 2019

Data Request:

3-3) Regarding turbines L1 and K0, please provide the distance (ft.) from the turbine to east fence line next to Interstate 29.

Response:

3-3) See Sept 3, 2019 response to Commissioner Fiegen filed in the docket.

Response Prepared by:
Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Third Data Request

Date: September 6, 2019

Data Request:

3-4) Please provide the distance (ft.) and turbine identification number of the closest wind turbine from the property line of Shelly Blashko's father's feedlot.

Response:

3-4) See Sept 3, 2019 response to Commissioner Fiegen filed in the docket.

Response Prepared by:
Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Third Data Request

Date: September 6, 2019

Data Request:

3-5) Refer to the Applicant's response to Commission Staff Data Requests 1-6 and 2-27. The Applicant stated in response to Staff Data Request 1-6 that there are pending easements with two landowners that were expected to be signed before the end of July 2019. Does the Applicant currently have signed agreements with these two landowners? If no, please explain and provide a revised timeline for when these easements will be signed

Response:

3-5) One landowner is reviewing a wind lease, easement, and option to purchase being reviewed with their attorney. Discussions are on-going and an agreement will likely be signed within two weeks.

The other landowner is reviewing a Good Neighbor Agreement with their attorney. Discussions are still ongoing.

Response Prepared by:
Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Third Data Request

Date: September 6, 2019

Data Request:

3-6) Referring to Page 2 of the Application regarding the Generator Interconnection Agreement:

a) Please provide a copy of the executed Generator Interconnection Agreement.

b) When will the Applicant have the final interconnection and network upgrade costs identified by Otter Tail Power Company and/or MISO? If the Applicant is aware of these costs, please provide

Response:

3-6

a) A copy of the executed GIA is attached. Note that the GIA shows the Interconnection Customer to be Flying Cow Wind, LLC, and Applicant is in the process of changing the Interconnection Customer to be Tatanka Ridge Wind, LLC.

3-6

b) The final interconnection and network upgrade costs have been finalized. A copy of the executive summary from the final study report is attached and shows these costs for Tatanka Ridge wind.

Response Prepared by:
Jesse Bermel

Table ES-2: Total Cost of Network Upgrades for DPP 2016 February West Area Generation Projects

Project Num	ERIS Network Upgrades ($)								NRIS Network Upgrades ($)	Interconnection Facilities ($)		SNU ($)	Total Cost (Exclude TOIF) ($)
	MISO Thermal & Voltage	Voltage Stability	Short-circuit	OTP LPC	CIPCO Affected System	MPC Affected System	PJM Affected System	SPP Affected System		TO Network Upgrades	TO - Owned Direct assigned		
[redacted]													
[redacted]													
[redacted]													
[redacted]													
[redacted]													
J493	$10,145,953	$0	$0	$0	$0	$0	$0	$0	$0	$4,050,492	$1,073,340	$0	$14,196,445
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South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Third Data Request

Date: September 11, 2019

Data Request:

3-7) Referring to Page 29 of the Application, the Applicant states the following:

> "Tatanka Ridge, in combination with these facilities, could result in the construction and operation of up to 271 wind turbines and associated infrastructure in the southern portion of Deuel County and northeastern Brookings County."

a) Please provide the wind energy facilities included in the total wind turbine count of 271.

b) If the wind turbine count provided in the above referenced section of the Application did not include Tatanka Ridge, Buffalo Ridge I, Buffalo Ridge II, Coyote Ridge, and the South Dakota portion of MinnDakota, please provide the total wind turbine count associated with those facilities.

c) Please explain why no analysis of the cumulative environmental effects associated with the following wind energy facilities was provided in the Application: Tatanka Ridge, Buffalo Ridge I, Buffalo Ridge II, Coyote Ridge, and the South Dakota portion of MinnDakota.

Response:

3-7-a) Tatanka Ridge LLC included the following energy facilities in their turbine count:

- Buffalo Ridge II - 105 turbines
- Proposed Deuel Harvest Wind Energy LLC - 110 turbines
- Tatanka – 56 turbines
- 105 + 110 + 56 = 271

3-7-b)

- Buffalo Ridge II - 105 turbines
- Proposed Deuel Harvest Wind Energy LLC - 110 turbines
- Proposed Tatanka – 56 turbines
- MinnDakota, 54 MW in SD, 36 turbines in Brookings County
- Buffalo Ridge 1, 50.4 MW, 24 turbines in Brookings County
- Coyote Ridge (under construction) 96.7 MW, 39 turbines in Brookings County

- 105 + 110 + 56 + 36 + 24 + 39 = **370 total proposed or existing turbines in all of Deuel and Brookings Counties, as of September 2019.**
- Broken down, that comes to:
    - Existing Turbines = 165
    - Proposed Turbines = 166
    - Under Construction = 39

3-7-c) In an email dated August 28, 2019 to Brett Koenecke, South Dakota Public Utilities Commission (SD PUC) staff provided additional guidance relating to data request 3-7-c, requesting that Tatanka Ridge Wind, LLC's response to this data request focus on grassland conversion and birds of conservation concern. Therefore, this response to data request 3-7-c first addresses cumulative effects associated with the Project as a whole, and then describes potential cumulative effects relating to grassland conversion and birds of conservation concern.

Operation of Buffalo Ridge I, Buffalo Ridge II, Coyote Ridge, and the portion of MinnDakota within South Dakota have been sited in accordance with federal, state, and local regulations, and the potential adverse impacts to environmental resources have been avoided, minimized, and mitigated during the design of each project. Because construction and operation of the Tatanka Ridge Wind Project is not expected to result in irreversible adverse environmental effects, and the other projects listed above have not been determined to pose a threat or serious injury to the environment, adverse cumulative impacts are not anticipated.

Of the 260 turbines associated with Buffalo Ridge I, Buffalo Ridge II, Coyote Ridge, the portion of MinnDakota within South Dakota, and Tatanka Ridge, 5 turbines are within land classified as herbaceous or hay/pasture by U.S. Geological Survey Land Use Land Cover Modeling. Tatanka Ridge Wind, LLC modified the Project layout to place turbines and other aboveground facilities within croplands and other disturbed communities, and no Project-related activities will occur within the USFWS grassland easement within the Project boundary. As described in Section 9.1.2 of the Application, grasslands impacted by construction of the Tatanka Ridge Wind Project are highly fragmented and relatively small in size. Further, grasslands within the Project Construction Footprint are almost entirely composed of either disturbed grasslands (44.5 acres) or non-native undisturbed grasslands (15.2 acres); impacts to undisturbed native grasslands will be limited to a 100-foot crossing in the southeastern portion of the Project. No grasslands will be converted to another land use classification as a result of the Project, and Tatanka Ridge Wind, LLC will voluntarily re-seed grasslands temporarily impacted by construction with a weed-free native plant seed mixture, if available. Because construction and operation of the Project will be limited to temporary impacts to less than 60 acres of highly fragmented grasslands, and less than 2 percent of the turbines in the immediate vicinity are sited within lands classified as herbaceous or hay/pasture by U.S. Geological Survey Land Use Land Cover Modeling, a negligible cumulative impact on grassland communities in the immediate area is anticipated.

As described in Section 9.2.1.1.1 of the Application, the U.S. Fish and Wildlife Service (USFWS) lists 27 species as Birds of Conservation Concern within the Prairie Potholes Bird Conservation Region 11 (which includes the Project); of these, the USFWS identified seven species of particular concern at the Project (see Table 9-4 in the Application). A review of publicly available data indicated that these species

have been observed near the Project in recent years, but that sightings are infrequent and primarily occur east of the Project near Oak Lake. Field surveys at the Project resulted in similar infrequent observations; four of the seven species identified by the USFWS were observed in low numbers during field surveys at the Project. Of these, Franklin's gull (*Leucophaeus pipixcan*) was observed in the highest numbers (nine groups containing 542 individuals). To minimize impacts to birds, including Birds of Conservation Concern, Tatanka Ridge Wind, LLC sited project components outside of sensitive habitats (e.g., grasslands, forest, wetlands, publicly owned or managed lands), and a Bird and Bat Conservation Strategy will be developed and implemented that will include standards for minimizing impacts during operation of the Project and be consistent with the USFWS Land-Based Wind Energy Guidelines. Based on the overall low numbers of Birds of Conservation Concern observed at the Project, Project siting to avoid higher quality habitat, and implementation of the USFWS Land-Based Wind Energy Guidelines, operation of the Project is expected to have a negligible impact to Birds of Conservation Concern. As such, the Project's contribution to cumulative impacts to Birds of Conservation Concern will be imperceptible.

Response Prepared by: Dan Flo and Janelle Rieland

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Third Data Request

Date: September 6, 2019

Data Request:

3-9) Refer to the Applicant's response to Commission Staff Data Requests 1-17.

a) Does the 12-year contract with Google and 10-year contract with Dairyland Power Cooperative provide sufficient revenues to cover all costs over the 40-year useful life of the Project? Please explain.

b) What risks are the Applicant taking on by entering into contracts that are shorter than the forecasted useful life of the Project?

Response:

3-9

a) Yes, the contracts provide sufficient revenue to cover the costs of the projects. The company takes into account revenue provided by PPAs as well as expected revenue after the PPAs expire when it decides to move forward with construction of a project.

3-9

b) As we explained above, the Applicant assumes a level of revenue from the projects after the PPAs are completed. There is a risk that this revenue could be lower than expected levels. As an experienced wind developer, Applicant is confident in its revenue assumptions and perceives this risk as low.

Response Prepared by:
Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Third Data Request

Date: September 6, 2019

Data Request:

3-10) Refer to the Applicant's response to Commission Staff Data Request 2-1. Is the Applicant requesting a waiver of ARSD 20:10:22:07? If yes, please provide the statutory authority which allows a waiver to be granted. If no, please provide the name of the individual at Tatanka Ridge Wind Project, LLC or Avangrid Renewables, LLC who is the primary contact for the Tatanka Ridge Wind Farm until a dedicated Project Manager is identified in June 2020.

Response:

3-10) Tatanka Ridge Wind, LLC is not requesting a waiver of ARSD 20:10:22:07. Jesse Bermel and Mark Croissant will act as the primary points of contact until a project manager is identified in June 2020.

Response Prepared by:
Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Third Data Request

Date: September 6, 2019

Data Request:

3-11) Refer to the Applicant's response to Commission Staff Data Requests 2-16.

a) Please explain how the as-builts could materially change the project decommissioning estimates provided to the Commission in the Application.

b) Please explain why it is necessary to adjust the decommissioning cost estimate and associated financial assurance after year 1 to address any immaterial cost changes rather than waiting until after year 5 or 10.

Response:

3-11

a) Based on previous experience from other wind plant projects, it is not anticipated that using the as-built configuration of the facility will materially change the decommissioning estimates.

3-11

b) It is not necessary to adjust the decommissioning estimate and associated financial assurance after year 1 to address immaterial cost changes. The applicant is open to waiting until after year 5 or 10 to adjust the estimate.

Response Prepared by:
Mark Mullen

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Third Data Request

Date: September 6, 2019

Data Request:

3-12) Refer to Section 17.0, Employment Estimates, in the Application. The Applicant states that after construction, an expected 12 to 15 permanent employees will be necessary for ongoing maintenance and operation of the Project.

a) Table 17-2 of the Application shows a range of 10-12 permanent employees by adding up the number of employees in the table. Please clarify the number of permanent employees associated with this project.

b) Will Tatanka Ridge Wind Project, LLC share any employees with the four other wind facilities owned by Avangrid Renewables, LLC affiliates (Buffalo Ridge II, Buffalo Ridge I, Coyote, MinnDakota) for the facility manager, wind turbine technician, or administrative job classifications? If yes, please explain.

Response:

3-12

a) Tatanka Ridge Wind, LLC will need a plant manager and plant administrator and the number of technicians. Based on our previous experience, two technicians were required per 10 turbines. For this project, the total number of technicians will be approximately 12, bringing the total to 14. Tatanka Ridge Wind, LLC will coordinate with GE to determine how many technicians they will require for this project, which is why a range is provided.

3-12

b) It is possible that a plant administrator could be shared from Coyote Ridge or additional employees will be needed in the regional warehouse at the Buffalo Ridge 2 site. This is a commercial operations decision that will be made in the next year.

Response Prepared by:
Jesse Bermel

South Dakota Public Utilities Commission
Tatanka Ridge Wind Project, LLC
Docket EL 19-026
Response to Staff's Fourth Data Request

Date: September 11, 2019

Data Request:

4-1) Referring to Page 53 of the Application, the Applicant states the following:

> "The assessment for the western portion of the Project (2019 Project boundary) was conducted in March 2019 and will be provided in a subsequent filing."

Please provide the desktop assessment for the western portion of the Project referenced above.

Response:

4-1) On behalf of Tatanka Ridge Wind, LLC, Janelle Rieland provided Supplemental Testimony on September 11, 2019, which included the desktop assessment for the western portion of the Project.

Response Prepared by:
Janelle Rieland