



UTILITIES CO.
A Division of MDU Resources Group, Inc.

400 North Fourth Street
Bismarck, ND 58501
(701) 222-7900

June 27, 2018

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

RE: Updated Wind Facility Decommissioning
Plan and Cost
Thunder Spirit Wind Facility
Case No. PU-18-105

In accordance with Chapter 69-09-09 of the North Dakota Administrative Code (NDAC), Montana-Dakota Utilities Co. (Montana-Dakota), a Division of MDU Resources Group, Inc., respectfully submits an original and two (2) copies of an updated Decommissioning Study (Attachment A) including an updated cost estimate for the Thunder Spirit Wind Facility (Thunder Spirit). The initial Decommissioning Plan was filed by Allete Clean Energy on October 13, 2015 in Docket No. PU-11-601.

Thunder Spirit is a wind-powered electric generating facility located north of Hettinger, North Dakota. The facility consists of 43 Nordex N100 wind turbine generators rated at 107.5 MW. The facility was placed into commercial operation in 2015.

Montana-Dakota's updated decommissioning plan includes the following information as required by 69-09-09-01(6) of the NDAC:

- (a) The current anticipated life of the Thunder Spirit wind turbines is 25 years.
- (b) A cost estimate was prepared by Wanzek Construction, Inc. and reviewed by a professional engineer licensed by the state of North Dakota and employed by Ulteig Engineers, Inc. As shown on Attachment A, Page 5-A, the total cost to decommission and restore at the end of Thunder Spirit's useful life is estimated to be \$11,799,331 before considering an estimated salvage value.
- (c) The description of the method used for determining the decommissioning cost estimate can be found in Attachment A on pages 7-A and 8-A.
- (d) A description of the decommissioning process is provided in Attachment A on pages 7-A and 8-A.

- (e) There are no anticipated effects on present or future natural resource development.
- (f) A detailed plan of financial assurance will be provided after Thunder Sprit's tenth year of operations.

Please refer all inquiries regarding this filing to:

Tamie A. Aberle
Director of Regulatory Affairs
Montana-Dakota Utilities Co.
400 N 4th St.
Bismarck, ND 58501
Tamie.aberle@mdu.com

Alan Welte
Director of Generation
Montana-Dakota Utilities Co.
400 N 4th St.
Bismarck, ND 58501
Alan.welte@mdu.com

Montana-Dakota respectfully requests that this filing be accepted as being in full compliance with the filing requirements of this Commission.

Please acknowledge receipt by stamping or initialing the duplicate copy of this letter attached hereto and returning the same in the enclosed self-addressed stamped envelope.

Sincerely,



Tamie A. Aberle
Director of Regulatory Affairs

Attachments
CC: Alan Welte
Karl Liepitz

Attachment A

Attachment A

BUILDINGSTRONG

Every project, Every day.



WANZEK

a MasTec company 

Date: April 2018

Budgetary Proposal for Decommissioning: Montana Dakota Utilities

Thunder Spirit Wind Farm Phase 1

701.282.6171

wanzek.com

Proposal Contents

Executive Summary

Budgetary Pricing

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Proposed Means and Methods

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Culture of Safety

Wanzek Experience



Wanzek Construction, Inc. is pleased to provide the following proposal for your review.

With over forty years of experience driving excellence through all stages of construction, Wanzek has the experience and breadth of knowledge to provide continuing presence and direct management involvement to each project. Wanzek is continuously investing in equipment, technology and teams to provide innovative, efficient and cost-effective construction services that meet client needs. Wanzek is a relationship-driven company with growth largely due to repeat clients. We are further strengthened by the backing of our parent company. As a wholly-owned subsidiary of MasTec North America, Inc./MasTec, Inc., Coral Gables, FL (NYSE: MTZ), Wanzek has the geographic reach, scalability and overall financial stability to deliver high quality and innovative solutions.

Safety is the cornerstone of our company culture and our dedicated safety personnel and employees work to make sure safe behavior is instinctive and automatic. Our focus on safety starts long before we mobilize to the field. It is a crucial part of reviewing and finalizing proposals, continues through project planning and is the responsibility of every Wanzek employee, every day. Wanzek follows an Operator Qualification Plan designed to ensure all team members are OQ-certified to perform tasks safely.

Wanzek addresses quality at all stages of the job, from planning through operations and execution, to lessons learned at job closure. We work collaboratively with our clients, using lean continuous improvement methodologies to optimize all aspects of construction and operations.

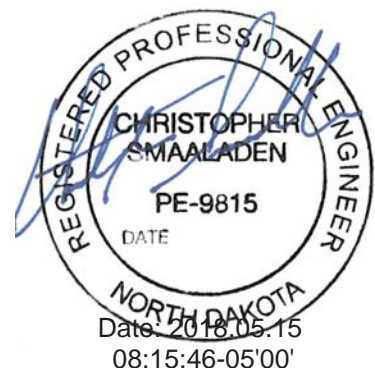
Our teams are built on strength, stability and experience. Wanzek self-performs the majority of our work. To ensure safety, quality and repeat clients, we employ skilled, proficient and dedicated teams. Company-wide our craftspeople have an average of fifteen years of experience in their trade and work in a senior-level to junior-level ratio of approximately 1:4.

On behalf of Wanzek Construction, thank you for the opportunity to present our capabilities as a qualified contractor. I welcome your comments and questions as you review the proposal, and look forward to working with you.

Regards,



Jacob Nikle, Renewable Services Division Manager
Wanzek Construction, Inc.
(701) 893-3629
jnikle@wanzek.com



Pricing

Our pricing methodology includes requesting multiple bids from reputable subcontractors and material suppliers to achieve the best value. Our knowledge and expertise allow us to maximize efficiency while providing clients with all-inclusive pricing. Our quotation for the Thunder Spirit Wind Farm follows.





a MasTec company

Project:	Thunder Spirit Decommissioning
Proposal Type:	BOP Budget
Proposal Date:	4/20/2018
WTG # & Type:	43 x Nordex 2.5 MW, 80M HH, 100M rotor
Total MW:	107.5
Phase:	1
Location:	Hettinger, ND

OVERALL PRICING WORKSHEET

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	SITE CIVIL WORK	1	LS	\$ 1,420,952	\$ 1,420,952
2	REMOVE FOUNDATION PEDESTALS (Down to 42")	43	EA	\$ 8,805	\$ 378,610
3	WTG DISMANTLE	43	EA	\$ 68,710	\$ 2,954,522
4	DEMO AND HAUL AWAY WTG	43	EA	\$ 129,950	\$ 5,587,850
5	OTHER/MISCELLANEOUS				
5a	Surveying/Engineering/Testing	1	LS	\$ 7,625	\$ 7,625
5b	O&M Building	1	SF	\$ 70,380	\$ 70,380
5c	Taxes, if Applicable	1	LS	\$ -	EXCLUDED
5d	Met Tower(s)	1	EA	\$ 41,055	\$ 41,055
5e	General Conditions	1	LS	\$ 279,661	\$ 279,661
5f	Mob/Demob	1	LS	\$ 316,624	\$ 316,624
5	COLLECTION SYSTEM (Down to 42")	1	LS	\$ 176,794	\$ 176,794
6	SUBSTATION (Down to 42")	1	LS	\$ 276,616	\$ 276,616
7	TRANSMISSION LINE	1	LS	\$ 288,643	\$ 288,643
8	INTERCONNECT	1	LS	\$ -	Included in T-Line
TOTAL PRICE (EXCLUDING PERFORMANCE BOND)					\$ 11,799,331

ALTERNATES

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
A	SCRAP VALUE OF COMPONENTS (See next page)	1	LS		\$ (3,161,600)



a MasTec company

Project:	Thunder Spirit Decommissioning
Proposal Type:	BOP Budget
Proposal Date:	4/20/2018
WTG Type:	Nordex 2.5 MW, 80M HH, 100M rotor X 43
Total MW:	107.5
Location:	Hettinger, ND

Salvage Value Worksheet

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Mixed Steel					
1	Concrete WTG Foundation - Spread Footing Pedestal Rebar	172	TN	\$ (120.00)	\$ (20,640)
2	WTG Steel Towers - 80 Meter	8,170	TN	\$ (120.00)	\$ (980,400)
3	WTG Equipment - Hub Assemblies	1,183	TN	\$ (120.00)	\$ (141,900)
4	WTG Equipment - Nacelles	2,838	TN	\$ (120.00)	\$ (340,560)
5	WTG Equipment - Generators	258	TN	\$ (120.00)	\$ (30,960)
6	Electrical Equipment - WTG Transformer 34.5KV	215	TN	\$ (120.00)	\$ (25,800)
7	Electrical Equipment - MP Transformer 34.5KV	67	TN	\$ (120.00)	\$ (8,040)
8	Electrical Equipment - Grounding Transformer 34.5KV	7	TN	\$ (120.00)	\$ (840)
9	Electrical Equipment - Poles, Risers, Structural, Misc.	60	TN	\$ (120.00)	\$ (7,200)
Copper					
10	WTG Equipment - Tower Cable	69	TN	\$ (4,000.00)	\$ (275,200)
11	WTG Equipment - Generators	172	TN	\$ (4,000.00)	\$ (688,000)
12	Electrical Equipment - WTG Transformer 34.5KV	86	TN	\$ (4,000.00)	\$ (344,000)
13	Electrical Equipment - MP Transformer 34.5KV	65	TN	\$ (4,000.00)	\$ (260,000)
14	Electrical Equipment - Grounding Transformer 34.5KV	5	TN	\$ (4,000.00)	\$ (20,000)
Aluminum					
15	Cable - Misc Wiring	90	TN	\$ (200.00)	\$ (18,060)
SALVAGE VALUE SUBTOTAL					\$ (3,161,600)
Unit Cost					\$ (73,526)

Clarifications to Budgetary Pricing

General Clarifications

1. Wanzek has prepared pricing for strictly budgetary purposes, based on current market prices.
2. Wanzek has excluded any prevailing wage or union requirements.
3. Wanzek has excluded taxes. Applicable taxes will be paid by owner.

Site Clarifications

4. Wanzek assumes that access to and from the jobsite along with an adequate work area will be available without restriction.
5. Owner to provide adequate lay down area for storage of contractor materials, supplies and equipment storage and maintenance area.
6. Owner responsible for Landowner communications and dealings.
7. Wanzek excludes any state, or county road improvements and/or traffic control measures, barricades, or utility control, that may be required to operate at the jobsite.

Turbine Disassembly

8. Wanzek's pricing assumes the turbines will be deconstructed with a crane, following construction industry safety processes.
9. Wanzek's pricing includes downsizing the WTG components on site and hauling away for scrap. Approximate salvage value is listed on the second page of the pricing sheet, based on current market prices.

Civil Works

10. Pricing includes removal of 8" (average) of road aggregate and turbine beauty rings. Pricing assumes all removed material will be placed on nearby aggregate roads.
11. Foundation demo work assumes concrete will be disposed of offsite at 42" at Thunder Spirit Wind Farm, as per the land lease agreement. Structural steel will be removed and scrapped.
12. All areas will be de-compacted and graded to facilitate drainage using surrounding material. No imported fill has been considered.
13. Seeding has been included where necessary.

Collection System

14. Wanzek has included removal of pad mount transformers and box pads. Junction Boxes will also be removed.
15. Wanzek has included the removal of the substations and reclamation of the aggregate yards.
16. Wanzek has excluded the removal of underground collection cable deeper than 24" but will remove electrical components to a depth of 24" for the substation, transmission, and collection systems.

O&M Building

17. Removal of O&M buildings has been included.



Proposed Means and Methods

Mobilization

Wanzek will mobilize the main crane (LR1750), support cranes, equipment and crews a week before disassembly will begin. Wanzek will also bring in a single wide trailer for site management to work.

Take Down Turbines

Wanzek will have two crews taking down the turbines. Crew #1 will prep the towers ahead of the main erection crane. Crew #2 will disassemble the turbines. Wanzek predicts that four-five towers per week will be taken down and placed on the ground.

Remove Collection System

Wanzek will remove the pad mount transformers and box pads. Collection cables will be removed to a depth of 24", all collection materials below that depth will remain in place. All areas requiring reseeding will be seeded with approved seed mix.

Remove Substation

Wanzek will remove all fixtures and steel and haul off site. Foundations will be removed to a depth of 42" at Thunder Spirit, in compliance with the respective land lease agreements. All materials below that depth will remain in place. Substation fence will be removed and hauled away. Aggregate yard will be removed and distributed on nearby gravel roadways. All areas requiring reseeding will be seeded with approved seed mix.

Remove Transmission Line and Interconnect

Wanzek will remove conductor wire, ground wire, insulators and brackets from the poles. Risers and switches will be removed. Poles will be lifted out of the ground and hauled off site. Holes will be filled with native material and all areas requiring reseeding will be seeded with approved seed mix.

Remove Met Tower

Wanzek will remove 1 existing lattice MET tower at Thunder Spirit, including foundations to a depth of 42". Electrical cables will be removed to a depth of 24", all materials below that depth will remain in place. All areas requiring reseeding will be seeded with approved seed mix.

Remove O&M Building

Wanzek will demo and remove the building including foundation to a depth of 42". All materials below that depth will remain in place. All areas requiring reseeding will be seeded with approved seed mix.

Remove Foundations

Wanzek will excavate around the foundation following all OSHA requirements for excavations. We will remove the concrete to a depth of 42" using an excavator with a concrete breaker attachment. Once concrete is all broken up, the rebar and bolts will be removed (using a torch if needed) and placed in a steel dumpster. The excavations will be backfilled and compacted to 85%.

Remove Roads, Turbine Rings, and Crane Pads

Wanzek will utilize motor grader, excavator and gravel truck to remove the existing gravel. All road gravel is assumed to be installed on adjacent gravel roads. All areas requiring seeding will be seeded with an approved seed mixture.



Equipment

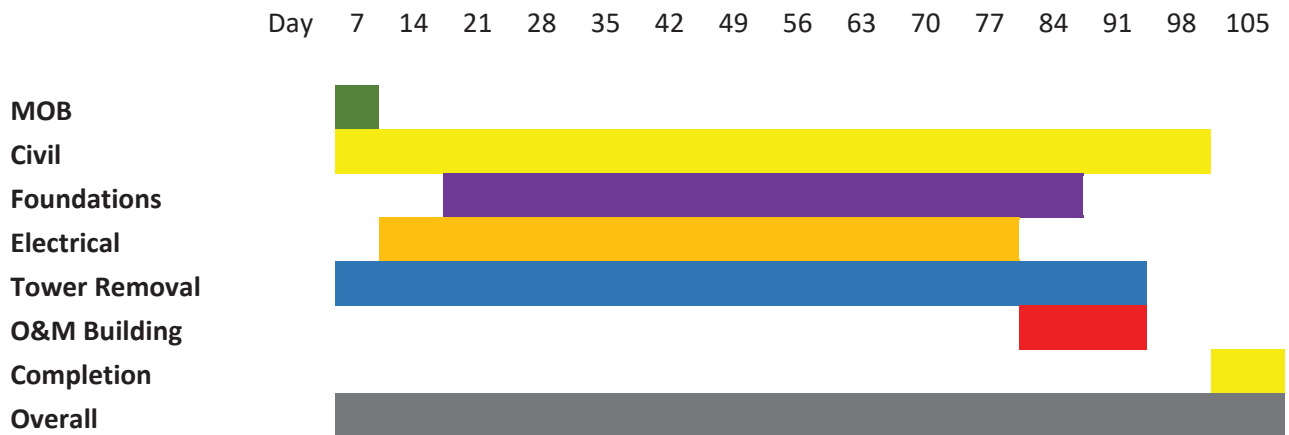
Wanzek has include one main crane, support crane, two fork lifts, excavator, loader, generators, light plants, pickups, skidsteer and all required tooling to disassemble a tower.

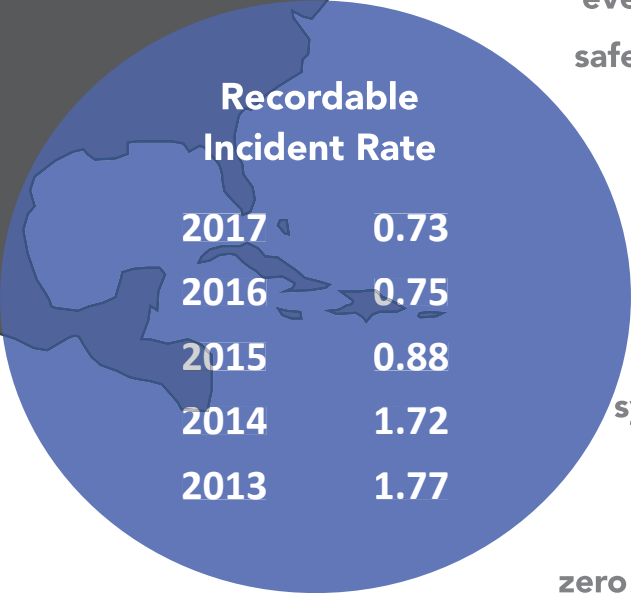
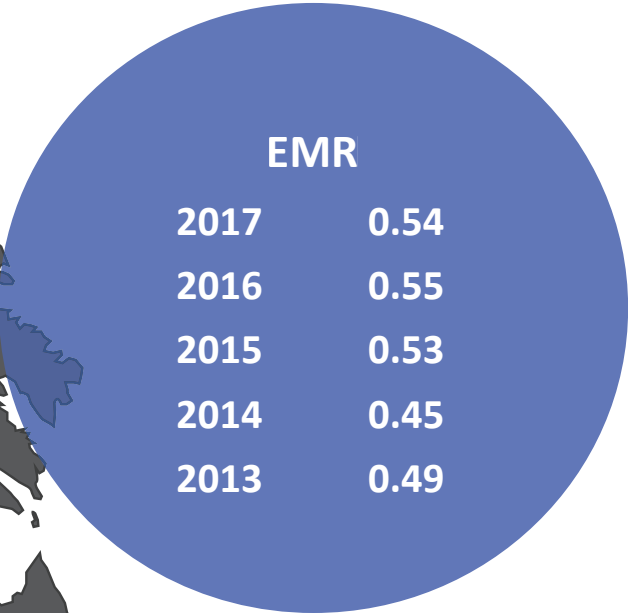


Project Schedule

Our project schedulers focus on defined goals, realistic milestones and the resources needed to mitigate risk. Wanzek has included a high-level overview of the anticipated activity durations below:

Thunder Spirit Wind Farm
Phase 1
Hettinger, ND





Our Safety Culture

Wanzek’s safety process starts long before we ever mobilize to the field. Our focus on safety begins with reviewing proposals, continues through project planning and is the responsibility of every Wanzek employee every day. We continuously work to improve our safety training and management systems, to hold every team member accountable and to ensure we hold ourselves to our vision of zero injuries. Our commitment includes a Zero Injury process to instill safety values in each employee and to ensure safe behavior is instinctive.



ZERO INJURIES

WANZEK

Continual safety training and coaching is ongoing with each project. Our Zero Injury System of Safety Excellence contains eight critical safety elements that focus on how we manage safety with the company.

LEADERSHIP	Defines our expectations to lead and support the process
TRAINING	Outlines how we train and our expectations for training
R4	Provides the opportunity for employee engagement through active participation in our systems and through our employee observation and feedback program
PLANNING	Outlines the expectations of our pre-job planning activities such as the Pre-Task Plan (PTP), Job Hazard Analysis (JHA) Process and the Integrated Work Plan (IWP)
ASSESSMENTS	Defines how we review our safety process
INCIDENT MANAGEMENT	Is how we identify causes and system improvements to prevent recurrence
SUBCONTRACTOR MANAGEMENT	Ensures subcontractors' safety policies and procedures are equal to or greater than Wanzek's
ASSESSMENTS	Is how we use both leading and lagging indicators



The R4 Observation Process was developed to reinforce safe behaviors and allows employees to contribute to the overall safety success of Wanzek. The process promotes the ongoing involvement of employees via employee R4 teams who conduct observations of peer employees performing work.



Renewable Services Experience

Please see the following wind maintenance experience for Wanzek Construction.

Project Name	Company	State	Year
Dempsey Ridge Transfer Switch	Acciona Energy	Oklahoma	2017
Tatanka TLine Poles	Acciona Energy	North Dakota	2017
Red Hills Substation Splice	Acciona Energy	Oklahoma	2017
Cedar Creek Gen Swap	BP Wind Energy	Colorado	2017
Keenan II Anchor Bolt Testing	CPV Renewables - Boston	Oklahoma	2017
Keenan MPT Bushings	CPV Renewables - Boston	Oklahoma	2017
Keenan II ION Meter Installation	CPV Renewables - Boston	Oklahoma	2017
Keenan II MPT Maint	CPV Renewables - Boston	Oklahoma	2017
Ledyard PTC	Duke Energy	Texas	2017
Salt Fork Civil	EDF Renewable Services	Kansas	2017
GSPWR Climb Assist	EthosEnergy Group	Texas	2017
Flatwater Pburg IR Scan	Gestamp Wind North America	Nebraska	2017
McAdoo Substation	Invenergy	Texas	2017
Spearville Oil Change	KCP&L Spearville	Kansas	2017
Wilton GB Exchange Crane	NextEra Energy Resources, LLC	North Dakota	2017
Ashtabula Crane Service	NextEra Energy Resources, LLC	North Dakota	2017
Baldwin Generator	NextEra Energy Resources, LLC	North Dakota	2017
Edgley Blade Exchange	NextEra Energy Resources, LLC	North Dakota	2017
Langdon Gearbox Exchange	NextEra Energy Resources, LLC	North Dakota	2017
Ashtabula Main Shaft	NextEra Energy Resources, LLC	North Dakota	2017
Highmore Generator	NextEra Energy Resources, LLC	South Dakota	2017
Ashtabula Generator	NextEra Energy Resources, LLC	North Dakota	2017
Oliver GBX Crane	NextEra Energy Resources, LLC	North Dakota	2017
Edgeley Blade Crane	NextEra Energy Resources, LLC	North Dakota	2017
Day County GB&MB	NextEra Energy Resources, LLC	North Dakota	2017
Langdon Crane Work	NextEra - Hancock County Wind	North Dakota	2017
Ashtabula GBX T144	Ottertail Power Company	North Dakota	2017
GE1.5 IMS Crane Service	Otter Tail Power Company	North Dakota	2017
Ashtabula Crane Service	Otter Tail Power Company	North Dakota	2017
Hackberry Anchor Bolt Tensioning	RES Americas	Texas	2017
Wilderado Snagg List	Siemens Wind Power, Inc	Texas	2017
Spinning Spur GBX	Siemens Wind Power, Inc	Texas	2017
Los Vientos MB	Siemens Wind Power, Inc	Texas	2017



Hidalgo Blade Crane	Vestas-American Wind Technology, Inc.	Texas	2017
Odell Crane Service	Vestas-American Wind Technology, Inc.	Minnesota	2017
Border Winds Crane Service	Vestas-American Wind Technology, Inc.	North Dakota	2017
Horse Creek Seal Leak	Winergy Drive System Corporation	Texas	2017
Red Hills Collection Relocation	Acciona Energy	Oklahoma	2016
Farmer City WTG Demolition	Avangrid Renewables - Radnor	Missouri	2016
Avangrid Site Rep	Avangrid Renewables - Radnor	Missouri	2016
Cedar Creek2 N48 Replacement	BP Wind Energy	Colorado	2016
Cedar Creek Generator	BP Wind Energy	Colorado	2016
Cedar Creek Blade Demo	BP Wind Energy	Colorado	2016
Keenen Fiber Repair	CPV Renewables - Boston	Oklahoma	2016
Kit Carson Joslyn VBM	Duke Energy	Colorado	2016
LV3 Blade Exchange	Duke Energy	Texas	2016
Stephens Ranch Electrical	EDF Renewable Services	Texas	2016
PMT Sampling Points	Gestamp Wind North America	Kansas	2016
Flatwater Splice & Fuse	Gestamp Wind North America	Kansas	2016
GS Tower Tensioning	Golden Spread Electric Cooperative	New Mexico	2016
Belfield Tank	LPS Logistics Planning Service	North Dakota	2016
Texas & Oklahoma Road Maintenance	NextEra Energy Resources, LLC	Texas	2016
Langdon Crane Service	NextEra Energy Resources, LLC	North Dakota	2016
Nextera Crane Package	NextEra Energy Resources, LLC	North Dakota	2016
Beebe Blade Exchange	Nordex Acciona Windpower	Michigan	2016
Laredo Ridge Road Maintenance	NRG Renew LLC	Nebraska	2016
Langdon Crane Service IMS	Otter Tail Power Company	North Dakota	2016
Sand Bluff Turbine Rebuild	Siemens Gamesa Renewable Energy	Texas	2016
Farmers City Turbine Rebuild	Siemens Gamesa Renewable Energy	Missouri	2016
Pocahontas Low Water Crossing	Siemens Gamesa Renewable Energy	Iowa	2016
Post Oak Blade Bearing Replacement	Siemens Gamesa Renewable Energy	Texas	2016
G114 Removal	Siemens Gamesa Renewable Energy	Texas	2016
Los Vientos 5 Blade Exchange	Vestas-American Wind Technology, Inc.	Texas	2016
Gulf Wind Blade Cranes	Diamond WTG Engineering & Services, Inc.	Texas	2015
LV T55 Crane Service	Diamond WTG Engineering & Services, Inc.	Texas	2015
LVIII Crane Service	Duke Energy	Texas	2015
LV3 Burned Turbine	Duke Energy	Texas	2015
Meyerland PTC Qual	Duke Energy	North Dakota	2015
Ocotillo Nacelle Removal	Duke Energy Renewable Service	Texas	2015
Bobcat Padmount Install	EDF Renewable Services	Texas	2015



Bison Civil Repair	Minnesota Power	North Dakota	2015
Wilton Gearbox Exchange	NextEra Energy Resources, LLC	North Dakota	2015
Langdon Mainshaft	NextEra Energy Resources, LLC	North Dakota	2015
Wilton Gearbox Exchange	NextEra Energy Resources, LLC	North Dakota	2015
Highland GBX Oil Change	Nordex Acciona Windpower	Pennsylvania	2015
Ty4 Turbine Maintenance	Nordex Acciona Windpower	Pennsylvania	2015
NRG Laredo Ridge Gearbox	NRG Renew LLC	Nebraska	2015
Cedro Hill 600T	Renew Energy Maintenance	Texas	2015
SANY Gearbox Replacememt	SANY Group	Colorado	2015
Baffin Bay Main Shaft	Siemens Gamesa Renewable Energy	Texas	2015
Bison Main Bearing Exchange	Siemens Wind Power, Inc	North Dakota	2015
S111 Intsallation	Suzlon Wind Energy Corporation	Texas	2015
Adams Main Bearing Exchange	Vestas-American Wind Technology, Inc.	Minnesota	2015
Pembina Wind	Colstrip Electric	North Dakota	2014
Belle Fourche PTC Qual	PNE Wind USA, Inc.	South Dakota	2014
G47 Retrofit	Siemens Gamesa Renewable Energy	Montana	2014



Wanzek Construction, Inc. Completed Wind Projects

Project name	Client	Project MW	#WTGs	Turbine Type	Location	Year Built
Sterling	Akuo Energy	29.9	13	GE 2.3	NM	2017
Frontier	Duke Energy	200	61	Vestas 3.3	TX	2016
Courtenay Wind Farm	Xcel Energy	200	100	Vestas 2.0	ND	2016
Tyler Bluff	EDF Renewable Energy	123.1	52	Siemens 2.415	TX	2016
Desert Wind	Avangrid Renewables	208	104	Gamesa 2.0	NC	2016
Odell Wind Farm	Algonquin	200	100	Vestas 2.0	MN	2016
Los Vientos IV	Duke Energy	200	100	Vestas 2.0	TX	2016
Prairie Breeze III	Invenergy	35.8	20	GE 1.79	NE	2015
Briscoe Wind Farm	Capital Dynamics	149.9	81	GE 1.85	TX	2015
Thunder Spirit	ACE	107.5	43	Nordex 2.5	ND	2015
Prairie Breeze II Wind Farm	Invenergy	73.4	41	GE 1.79	NE	2015
Los Vientos V	Duke Energy	110	55	Vestas 2.0	TX	2015
Los Vientos III	Duke Energy	200	100	Vestas 2.0	TX	2015
Stephens Ranch II	Starwood Energy	164.7	92	GE 1.79	TX	2015
Spring Canyon III	Invenergy	28.6	16	GE 1.79	CO	2014
Bison 4	Minnesota Power	204.8	64	Siemens 3.2	ND	2014
Stephens Ranch	Starwood Energy	211.2	118	GE 1.79	TX	2014
Spring Canyon II	Invenergy	34	19	GE 1.79	CO	2014
Lundgren	MidAmerican Energy	246.1	107	Siemens 2.3	IA	2014
Los Vientos 1A	Duke Energy	200.1	87	Siemens 2.3	TX	2013
Los Vientos 1B	Duke Energy	201.6	84	MHI 2.4	TX	2013
Vienna II	MidAmerican Energy	43.7	19	Siemens 2.3	IA	2013
Lakeswind	Rockland Capital	51.2	32	GE 1.6	MN	2013
Huerfano River	Sany	8	4	Sany 2.0	CO	2013
Busch Ranch	Black Hills Corporation	28	16	Vestas 1.8	CO	2012
Cimarron Wind I	CPV Renewables	165	72	Siemens 2.3	KS	2012
Cimarron Wind II	Duke Energy	131	57	Siemens 2.3	KS	2012
Ironwood Wind	Duke Energy	168	73	Siemens 2.3	KS	2012
Broken Bow I	Edison Mission Energy	80	50	GE 1.6	NE	2012
Crofton Bluffs Wind	Edison Mission Energy	42	22	Vestas 1.8	NE	2012
Spinning Spur Wind Ranch	enXco / Cielo Wind Services	161	70	Siemens 2.3	TX	2012
Pillar Mountain	Kodiak Electric Assoc.	4.5	3	GE 1.5	AK	2012
Morninglight Wind	MidAmerican Energy	101.2	44	Siemens 2.3	IA	2012
Eclipse Wind	MidAmerican Energy	200.1	87	Siemens 2.3	IA	2012
Santa Isabel	Pattern Energy	101.2	44	Siemens 2.3	PR	2012
Meadow Creek Wind	Ridgeline Energy	119.7	57	Suzlon 2.1	ID	2012
Crow Lake Wind Farm	Basin Electric Power Coop	162	108	GE 1.5	SD	2011
Taloga Wind	Edison Mission Energy	129.6	54	MHI 2.4	OK	2011



Project name	Client	Project MW	#WTGs	Turbine Type	Location	Year Built
Panhandle Wind Ranch	Golden Spread Electric Coop	78.2	34	Siemens 2.3	TX	2011
New Harvest Wind	Iberdrola Renewables	100	50	Gamesa 2.0	IA	2011
Rockland Wind	Ridgeline Energy	79.2	44	Vestas 1.8	ID	2011
Kit Carson Windfarm	Duke Energy	51	34	GE 1.5	CO	2010
Top of the World (a)	Duke Energy	101.2	44	Siemens 2.3	WY	2010
Top of the World (b)	Duke Energy	99	66	GE 1.5	WY	2010
Cedro Hill Wind	Edison Mission Energy	150	100	GE 1.5	TX	2010
Laredo Ridge	Edison Mission Energy	81	54	GE 1.5	NE	2010
Buffalo Ridge Wind II	Iberdrola Renewables	210	105	Gamesa 2.0	SD	2010
Spearville II	KCP&L	48	32	GE 1.5	KS	2010
Cedar Hills/Diamond Willow	MDU Resources	30	20	GE 1.5	MT/ND	2010
Red Mesa Wind Farm	NextEra Energy Resources	102.4	64	GE 1.6	NM	2010
Notrees 1b	Duke Energy	60	40	GE 1.5	TX	2009
Silver Sage Windfarm	Duke Energy	42	20	Suzlon 2.1	WY	2009
Three Buttes/Campbell Hill	Duke Energy	100.5	67	GE 1.5	WY	2009
Rugby Windfarm	Iberdrola Renewables	149.1	71	Suzlon 2.1	ND	2009
ILEC Wind	Iowa Lakes Electric Coop	21	14	GE 1.5	IA	2009
Wilton II	NextEra Energy Resources	49.5	33	GE 1.5	ND	2009
Endeavor I	Clipper Windpower	100	40	Clipper 2.5	IA	2008
Happy Jack Windfarm	Duke Energy	29.4	14	Suzlon 2.1	WY	2008
Notrees 1a	Duke Energy	90.7	55	Vestas 1.65	TX	2008
Goat Mountain Phase II	Edison Mission Energy	69.6	29	MHI 2.4	TX	2008
Barton Wind	Iberdrola Renewables	160	80	Gamesa 2.0	IA	2008
Buffalo Ridge Wind	Iberdrola Renewables	50.4	24	Suzlon 2.1	SD	2008
Winnebago	Iberdrola Renewables	20	10	Gamesa 2.0	IA	2008
Baker Windfarm	MDU Resources	19.5	13	GE 1.5	MT	2008
Adair Windfarm	MidAmerican Energy	174.8	76	Siemens 2.3	IA	2008
Charles City	MidAmerican Energy	75	50	GE 1.5	IA	2008
Endeavor II	NextEra Energy Resources	50	20	Clipper 2.5	IA	2008
Langdon II	NextEra Energy Resources	40.5	27	GE 1.5	ND	2008
Wessington Springs Wind	Pattern Energy	51	34	GE 1.5	SD	2008
Marengo II	RES	77.4	43	Vestas 1.8	WA	2008
Jeffers Windfarm	Clipper Windpower	50	20	Clipper 2.5	MN	2007
Goat Mountain Phase I	Edison Mission Energy	80	80	MHI 1.0	TX	2007
Top of Iowa II	Iberdrola Renewables	80	40	Gamesa 2.0	IA	2007
Top of Iowa III	Madison Gas & Electric	29.7	18	Vestas 1.65	IA	2007
Century III	MidAmerican Energy	15	10	GE 1.5	IA	2007
Oliver County II	NextEra Energy Resources	48	32	GE 1.5	ND	2007
Marengo I	RES	140.4	78	Vestas 1.8	WA	2007



Mower County	NextEra Energy Resources	99	43	Siemens 2.3	MN	2006
Oliver County I	NextEra Energy Resources	50.6	22	Siemens 2.3	ND	2006
Velva Windfarm	EHN/Acciona	12	18	Vestas 660	ND	2005
Wilton I	NextEra Energy Resources	49.5	33	GE 1.5	ND	2005
Edgeley/Kulm	NextEra Energy Resources	61.5	41	GE 1.5	ND	2003
2001-2004 Projects	Multiple	85	89	0.9 / 1.65	MN/ND	2001-03
TOTALS		8,156.2	4,187			

