APPENDIX U – DECOMMISSIONING PLAN: NORDEX

1898 & CO.
PART OF BURNS McDONNELL

PANTHER GROVE 2 WIND DEVELOPMENT DECOMMISSIONING PLAN

PANTHER GROVE 2 LLC

DECOMMISSIONING PLAN
172872

REVISION 2
September 12, 2024

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LIST OF ABBREVIATIONS

Abbreviation	Term/Phrase/Name
1898 & Co.	1898 & Co., a part of Burns & McDonnell Engineering Company, Inc.
AIMA	Agricultural Impact Mitigation Agreement
BMPs	Best management practices
kV	kilovolts
MW	Megawatts
O&M	Operation and Maintenance
Ordinance	Livingston County Ordinance Sec. 56-624
Project	Livingston County portion of the Panther Grove 2 Wind Development
Project Site	Livingston County, Illinois
Study	Decommissioning Cost Evaluation

1.0 Executive Summary

1.1 Introduction

1898 & Co., a part of Burns & McDonnell Engineering Company, Inc. (hereinafter called "1898 & Co."), was retained by Panther Grove 2 LLC to conduct a decommissioning cost evaluation ("Study") for the Livingston County portion of the Panther Grove 2 Wind Development ("Project"). The objective of the Study was to review the Project and to make a recommendation regarding the decommissioning plan for retiring the facility at the end of its useful life.

1.2 Project Overview

The proposed Project will be located in Livingston County Illinois, approximately 22 miles northeast of Bloomington, Illinois (the "Project Site"). The proposed Project will have a total nameplate capacity of approximately 468 megawatts ("MW") and will include 83 wind turbine locations once constructed. A final wind turbine model had not been selected by Panther Grove 2 LLC at the time of this Study. For purposes of this Study, the following assumptions were made:

Table 1-1: Wind Turbine Details

Model	Quantity	Hub Height	Rotor Diameter
Nordex N163-5.7 MW	83	108	163

The overall Project configuration that was used as the basis for this Study is shown in Appendix B.

1.3 Results

The total cost to decommission the Project at the end of its useful life, based on the assumptions noted herein, is presented in the table below. It is expressly noted that while costs are presented both in total and per turbine, a change in the quantity of turbines may not cause the total decommissioning cost to increase or decrease linearly by the per turbine cost due to non-scalable differences in balance-of-plant costs and other similar factors.

Table 1-2: Decommissioning Cost Summary (2024$)

Turbine Layout	Gross Cost	Scrap Cost	Net Cost	Net Cost per Turbine
83 x N163-5.7 MW	$14,668,750	$(12,650,000)	$2,018,750	$ 24,300

2.0 Project Overview

2.1 Project Summary

1898 & Co. was retained by Panther Grove 2 LLC to conduct a decommissioning cost evaluation for the Panther Grove 2 Wind Development. The objective of the Study was to review the Project and to make a recommendation regarding the decommissioning cost and plan for retiring the facility at the end of its useful life.

The Project will be located in Livingston County, Illinois, approximately 13.5 miles southwest of the city of Pontiac, Illinois. At the time of the Study, Project designs had not been finalized. For purposes of the Study, 1898 & Co. has evaluated a layout including 83 Nordex N163-5.7 MW wind turbine generators with a total nominal capacity of approximately 468 MW.

2.2 Applicable Regulations

Decommissioning obligations are currently regulated in state and local law. Livingston County Ordinance Section 56-624 ("Ordinance") requires "a decommissioning plan to ensure that the commercial wind energy facility project is properly decommissioned." Additionally, the Agricultural Impact Mitigation Agreement ("AIMA") with the Illinois Department of Agriculture, requires that all underground facilities for the Project be decommissioned to a depth of five (5) feet below grade. As such, this report assumes that (i) all above-grade structures associated with the Project will be removed and (ii) all Project equipment, structures, and supporting facilities five (5) feet below grade will be removed in accordance with the Ordinance and AIMA.

2.3 Methodology

When it is determined that the Project should be retired, the above-grade steel structures and turbine nacelles are assumed to have significant scrap value to a salvage contractor, offsetting a portion of the cost to remove these items. The Project will also incur costs for removal and disposal of the blades, foundations, and other Project facilities as well as for the restoration of the site following the removal of salvageable equipment.

The decommissioning cost estimates provided herein include the costs to return the site to a condition compatible with the surrounding land, similar to the conditions that existed before development of the Project. Included are the costs to retire the power generating equipment that is part of the Project as well as the costs to retire the Project's balance-of-plant facilities. All equipment, structures, and supporting facilities are assumed to be removed to a depth of 5 feet below grade in accordance with the Ordinance and AIMA.

2.4 Site Visit

1898 & Co did not visit the Project Site as part of this Study. At the time of the Study the Project had not yet been constructed. The contents of this evaluation are based exclusively upon desktop analysis by 1898 & Co.

3.0 Project Description

The following sections provide an overview of the Project facilities.

3.1 Wind Turbines

The proposed Project will consist of 83 Nordex N163-5.7MW wind turbines resulting in a total nominal capacity of approximately 468 MW. Each Nordex N163-5.7NW wind turbine includes a conical tubular steel tower which supports the turbine nacelle mounted on top. The nacelle of each turbine includes three blades mounted to the nacelle rotor with a total rotor diameter of approximately 163 meters.

3.2 Wind Turbine Foundations

Each wind turbine tower is supported by a concrete foundation. The preliminary foundation design drawings provided by Panther Grove 2 LLC included the foundation bottom diameter, foundation depth, and total concrete volume. The circular concrete pedestal is 18 feet in diameter with a depth below grade of 6 feet. The pedestal is supported by a cylindrical base which has a lower diameter of 80 feet.

All underground facilities for the Project are to be removed to a depth of at least 5 feet below grade in accordance with the Ordinance and AIMA. Thus, the concrete pedestal is to be removed to a depth of 5 feet below-grade in accordance with the Ordinance and AIMA. The area will then be backfilled as part of the decommissioning, and the remaining foundation will be abandoned in place.

3.3 Access Roads

Each wind turbine has an access road to support construction and allow for vehicle access to facilitate inspections and maintenance of the turbines and associated equipment during operation. Access roads are assumed to be surfaced with approximately 6 inches of crushed rock with a final width of approximately 15 feet. According to access road layouts provided by Panther Grove 2 LLC, approximately 22 miles of access roads were assumed to be removed, decompacted, and seeded as part of this Study.

All crushed rock surfacing will be removed from the Project's access roads and beauty rings. The removed crushed rock will be loaded into dump trucks and hauled offsite. Crushed rock can be recycled and reused and typically has a salvage value as a commodity equal to or greater than the cost to haul to an end user. However, for the purpose of this Study, the cost to remove the crushed rock, load it into dump trucks, and haul it offsite was assumed to be at the expense of the Project.

Areas where crushed rock surfacing has been removed will be fine graded to provide suitable drainage. In right-of-way and non-agricultural areas, the ground will be seeded to prevent erosion.

3.4 Collection System

Each wind turbine generates three-phase electrical power that is transformed to 34.5 kilovolts ("kV") via a pad-mounted transformer located at the base of each wind turbine. Power from each transformer is delivered through one of the Project's underground power collection circuits to the on-site collector substation.

All cables were assumed to be buried at a minimum depth of 5 feet below grade. At this depth, all cables (including both power and communication cabling) are assumed to remain in place after the Project is decommissioned as they exceed the depth requirement of the Ordinance and AIMA. As such, the only costs incurred in the Study from the collection system will be the removal and disposal of the above-grade

junction boxes and pad-mounted transformers. However, if the demolition contractor deems the salvageable value of the collector system cabling to be greater than the cost for removal, the contractor may elect to remove the cabling at its own cost.

3.5 Project Substation

Power from each wind turbine is delivered via underground power collection circuits to an on-site collector substation where it is transformed to 345 kV. The transformers at the collector substation are protected on the line side by a 345-kV breaker; no Project-side breaker was installed, as is typical of most utility-scale wind farms. The substation also consists of other typical equipment, including disconnect switches, lightning masts, control building, and other ancillary equipment.

All above-grade equipment within the perimeter fence of the substation will be removed as part of decommissioning, including transformers, breakers, buildings, crushed rock surfacing, and fencing. All salvageable materials will be loaded onto trucks and hauled to a scrap yard for recycling. All other materials will be loaded onto trucks and hauled to a local landfill for disposal.

All below-grade equipment and foundations associated with the substation will be removed to a depth of 5 feet below grade in accordance with the Ordinance and AIMA. Voids left from the removal of the below-grade foundations will be backfilled with surrounding soils and fine graded to provide suitable drainage.

3.6 Transmission Line

The on-site collector substation is interconnected to the local utility substation. The Study assumes removal of approximately 2.5 miles of the overhead transmission line located in Livingston County as well as the associated steel transmission towers.

All above-grade equipment associated with the transmission line located in Livingston County will be removed as part of decommissioning, including structures, conductors, and cabling. All salvageable materials will be loaded onto trucks and hauled to a scrap yard for recycling. All other materials will be loaded onto trucks and hauled to a local landfill for disposal.

All below-grade equipment and foundations associated with the transmission line will be removed to a depth of 5 feet below grade in accordance with the Ordinance and AIMA. Voids left from the removal of the below-grade foundations / structures will be backfilled with surrounding soils and fine graded to provide suitable drainage.

3.7 Maintenance/Warehouse Facility

The operations and maintenance facility will consist of a pre-engineered metal building with a concrete slab foundation, adjacent parking, and a fence surrounding the area. The building is assumed to have a footprint of approximately 6,000 square feet. The fenced area is assumed to be approximately 200 feet by 330 feet.

All above-grade equipment within the perimeter fence of the building will be removed as part of decommissioning, including the building, crushed rock surfacing, and fencing. All salvageable materials will be loaded onto trucks and hauled to a scrap yard for recycling. All other materials will be loaded onto trucks and hauled to a local landfill for disposal.

All below-grade equipment and foundations associated with the building will be removed to a depth of 5 feet below grade in accordance with the Ordinance and AIMA. Voids left from the removal of the below-grade.

3.8 Meteorological Equipment

Wind data is measured on-site using four meteorological towers. Each tower was assumed to be a permanent, free-standing, 400-foot-tall lattice-type tower on a concrete foundation.

All above-grade equipment within the perimeter fence of each tower will be removed as part of decommissioning, including the tower structure, crushed rock surfacing, and fencing. All salvageable materials will be loaded onto trucks and hauled to a scrap yard for recycling. All other materials will be loaded onto trucks and hauled to a local landfill for disposal.

All below-grade equipment and foundations associated with the towers will be removed to a depth of 5 feet below grade in accordance with the Ordinance and AIMA. Voids left from the removal of the below-grade foundations will be backfilled with surrounding soils and fine graded to provide suitable drainage.

4.0 Decommissioning

4.1 Decommissioning Plan

When it is determined that the Project should be retired, the Project equipment will be removed as noted herein. It is assumed that the Project will incur costs for removal and disposal of the wind turbines, wind turbine foundations, and other Project facilities, as well as for the restoration of the site following the removal of equipment. However, the above-grade steel, aluminum, and copper equipment is expected to have significant scrap value to a salvage contractor that will offset some decommissioning costs. All recyclable materials will be recycled to the extent possible, while all other non-recyclable waste materials will be disposed of in accordance with state and federal law.

The wind turbine blades will be removed from the nacelle using a crane, cut into manageably-sized sections, loaded onto a trailer, and hauled offsite for recycling or disposal. For purposes of the Study, the composite material that the wind turbine blades are constructed from is assumed to have no salvage value at the time of decommissioning. The turbine nacelles will be removed from the towers with a crane and loaded onto a trailer. The towers will be disassembled and loaded onto a trailer as well. The nacelle and towers typically will then be hauled off to a scrap yard for recycling. The cost estimate presented in this report that includes scrap includes the cost to haul the turbines and nacelles to the scrap yard.

All concrete wind turbine foundations will be removed to a depth of 5 feet below grade in accordance with the Ordinance and AIMA; the portions of the foundation that are greater than 5 feet below grade will be abandoned in place. The recovered concrete will be demolished, loaded into a dump truck, and hauled to a local landfill for disposal. Voids left from the removal of the concrete footings will be backfilled with surrounding subsoil and topsoil and fine graded to provide suitable drainage.

The Project substation will be removed from the site, including all above-grade equipment (e.g., transformers, breakers, busbars), buildings, crushed rock surfacing, and fencing. The cost estimate presented in this report that includes scrap includes the cost to haul the salvageable equipment to the scrap yard, whereas the cost estimate that excludes scrap assumes all salvageable equipment will be hauled to a landfill for disposal. All below-grade equipment (e.g., foundations) will be removed to a depth of 5 feet below grade in accordance with the Ordinance and AIMA.

All crushed rock surfacing will be removed from the Project's access roads. Areas where crushed rock surfacing has been removed will be fine graded to provide suitable drainage. In right-of-way and non-agricultural areas, the ground will be seeded to prevent erosion. The removed crushed rock will be loaded into dump trucks and hauled offsite. Crushed rock can be recycled and reused and typically has a salvage value as a commodity equal to or greater than the cost to haul to an end user. However, for the purpose of this Study, the cost to remove the crushed rock, load it into dump trucks, and haul it offsite will be at the expense of the Project.

Prior to commencing activities associated with foundation removal, crushed rock surfacing removal, or any other earthwork, an approved erosion control plan will need to be developed by the demolition contractor. Best management practices ("BMPs") applicable at the time that decommissioning activities occur will need to be implemented by the contractor for control of storm water runoff. Since decommissioning activities are not anticipated to occur for 20 years or more, BMPs may differ from current standards. However, if decommissioning takes place in the near future, 1898 & Co. would anticipate BMPs such as silt fencing and

proper compaction, seeding, and mulching practices to be implemented. BMPs will need to be reviewed by the contractor prior to commencing decommissioning activities to determine appropriate BMPs at that time. To the extent necessary, permits relating to decommissioning activities will need to be obtained. The costs included in this Study are expected to be sufficient for a demolition contractor to develop suitable plans for the control of surface water drainage and water accumulation and, where appropriate, for backfilling, soil stabilization, compacting, and grading prior to commencing demolition activities.

All disturbed areas at the site will be returned to as close to predevelopment conditions as possible. This will allow all land disturbed by the construction of the Project to be returned to its predevelopment use at the end of the useful life of the Project. The cost estimates provided in the following section include activities and costs to return the land to a condition consistent with pre-development conditions subsequent to decommissioning of the Project.

The activities associated with the decommissioning plan described above are anticipated to be completed within a 6-month timeframe, according to the following estimated schedule:

- Decommissioning Planning & Permitting: 2 months
- Demolition: 3 months
- Site Restoration: 1 month

Additional time may be required for post-decommissioning activities, including monitoring of new vegetation. However, this timetable and the cost estimates below should provide sufficient time and budget to comply with any applicable health and safety regulations.

4.2 Decommissioning Assumptions

In addition to other assumptions noted herein, the following general assumptions were utilized for the study's decommissioning cost estimates.

1. All costs are presented in current (2024) dollars using the site cost index of 94% for Bloomington, Illinois.
2. The decommissioning estimate is based on details and equipment defined through conversations with and documentation provided by Panther Grove 2 LLC.
3. An approved disposal facility will be used for the disposal of debris from decommissioning activities. For purposes of this Study disposal costs are based on the Waste Management Prairie View Landfill being used for disposal of demolition waste. The hauling distance to this landfill is approximately 62.5 miles from the Project site, and the cost for disposal of debris and concrete is $68.50 per ton.
4. Where applicable, scrap values are based upon an average of monthly American Metal Market prices for July 2023 through June 2024 (i.e., one calendar year). These values include the cost to haul the scrap via truck and/or rail to the major market which provides the best price. Based on hauling and rail prices, the best market at the time of this Study is Cleveland, Ohio. Prices used include the following:
    a. Steel scrap value: $267.49 per net ton.
    b. Copper scrap value: $3.02 per pound.
    c. Aluminum scrap value: $0.39 per pound.

5. Fluids located within the turbine nacelle, including oils, fuels, solvents and process chemicals, were assumed to be drained and disposed of offsite as part of the decommissioning.
6. It was assumed that all containers and chemical storage tanks owned by the Project will be drained and the material disposed of prior to demolition; these costs are excluded from the estimate.
7. All underground equipment will be removed to a depth of 5 feet below grade in accordance with the Ordinance and AIMA. All non-hazardous structures or foundations greater than 5 feet below grade will remain and are excluded from the decommissioning estimate.
8. Access roads, parking areas, storage yards, crane pads, and all other areas constructed from asphalt, concrete, gravel, or compactable fill will be removed, recycled, and reclaimed.
9. Crushed rock from roads, balance-of-plant areas, and turbine foundation areas was assumed to have value as a commodity for reuse. The cost to remove the crushed rock, load it into dump trucks, and haul it offsite is assumed to be at the expense of the Project.
10. It was assumed that all disturbed areas will be restored to original grade, reclaimed with native soils, seeded, and replanted with native vegetation consistent with the surrounding land use.
11. Transformers will be removed and processed on-site. The cost to drain and dispose of transformer oil off-site is included in the decommissioning cost estimate.
12. The Project laydown yard to be utilized during construction of the Project was assumed to be reclaimed and restored prior to the time of decommissioning; no further grading, seeding, or other restoration of the laydown yard is included in this estimate.
13. Cost estimates include 5 percent indirects and 20 percent contingency.
14. Market conditions may result in cost variations at the time of contract execution.

5.0 Results

The total cost to decommission the Project at the end of its useful life, based on the assumptions noted herein, is presented below; a detailed breakdown of these costs is included in Appendix A. It is expressly noted that while costs are presented both in total and per turbine, a change in the quantity of turbines may not cause the total decommissioning cost to increase or decrease linearly by the per turbine cost, due to non-scalable differences in balance-of-plant costs and other similar factors.

Table 5-1: Decommissioning Cost Summary (2024$)

Turbine Layout	Gross Cost	Scrap Cost	Net Cost	Net Cost per Turbine
83 x N163-5.7 MW	$14,668,750	$(12,650,000)	$2,018,750	$ 24,300

APPENDIX A - COST ESTIMATE SUMMARY

Table A-1: Estimated Cost for Wind Turbine Decommissioning (2024$)

Panther Grove Wind 2 Wind Project
Layout 83 N163-5.7 MW
Decommissioning Cost Evaluation

Wind Turbine Removal Cost		
Removal	$	5,901,000
Hauling & Disposal	$	1,706,000
Total	**$**	**7,607,000**
Scrap Value	**$**	**(12,237,000)**
Wind Turbine Foundation Removal Cost		
Removal	$	608,000
Hauling & Disposal	$	885,000
Total	**$**	**1,493,000**
Substation Removal Cost		
Removal	$	318,000
Hauling & Disposal	$	44,000
Total	**$**	**362,000**
Scrap Value	**$**	**(311,000)**
Transmission Line Removal Cost		
Equipment Removal	$	202,000
Hauling & Disposal	$	24,000
Total	**$**	**226,000**
Scrap Value	**$**	**(73,000)**
Civil Works Removal Cost		
Removal	$	457,000
Hauling & Disposal	$	1,161,000
Grading & Seeding Costs	$	198,000
Total	**$**	**1,816,000**
O&M Facility Removal		
Removal	$	73,000
Hauling & Disposal	$	28,000
Total	**$**	**101,000**
Scrap Value	**$**	**(25,000)**
Met Tower Removal		
Removal	$	50,000
Hauling & Disposal	$	1,000
Total	**$**	**51,000**
Scrap Value	**$**	**(4,000)**
Other Costs		
Oils & Chemicals Removal & Disposal	$	79,000
Total	**$**	**79,000**

Total Estimated Cost	**$**	**11,735,000**
Owner Indirects (5%)	**$**	**586,750**
Contingency (20%)	**$**	**2,347,000**
Total Gross Cost	**$**	**14,668,750**
Total Scrap Value	**$**	**(12,650,000)**
Total Net Cost	**$**	**2,018,750**

APPENDIX B - SITE AERIAL

Wind turbine

Access Road

O&M Facility

Substation

Laydown Yard

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Panther Grove 2 Wind Development- N163 Layout
Livingston County, Illinois
Panther Grove 2 LLC

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APPENDIX U – DECOMMISSIONING PLAN: VESTAS

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PANTHER GROVE 2 WIND DEVELOPMENT DECOMMISSIONING PLAN

PANTHER GROVE 2 LLC

DECOMMISSIONING PLAN
172872

REVISION 2
September 12, 2024

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MW	Megawatts
O&M	Operation and Maintenance
Ordinance	Livingston County Ordinance Sec. 56-624
Project	Livingston County portion of the Panther Grove 2 Wind Development
Project Site	Livingston County, Illinois
Study	Decommissioning Cost Evaluation

1.0 Executive Summary

1.1 Introduction

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1.2 Project Overview

The proposed Project will be located in Livingston County, Illinois, approximately 22 miles northeast of Bloomington, Illinois (the "Project Site"). The proposed Project will have a total nameplate capacity of approximately 468 megawatts ("MW") and will include 104 wind turbine locations once constructed. A final wind turbine model had not been selected by Panther Grove 2 LLC at the time of this Study. For purposes of this Study, the following assumptions were made:

Table 1-1: Wind Turbine Details

Model	Quantity	Hub Height	Rotor Diameter
Vestas V163-4.5 MW	104	113	163

The overall Project configuration that was used as the basis for this Study is shown in Appendix B.

1.3 Results

The total cost to decommission the Project at the end of its useful life, based on the assumptions noted herein, is presented in the table below. It is expressly noted that while costs are presented both in total and per turbine, a change in the quantity of turbines may not cause the total decommissioning cost to increase or decrease linearly by the per turbine cost due to non-scalable differences in balance-of-plant costs and other similar factors.

Table 1-2: Decommissioning Cost Summary (2024$)

Turbine Layout	Gross Cost	Scrap Cost	Net Cost	Net Cost per Turbine
104 x V163-4.5 MW	$17,367,500	$(15,258,000)	$2,109,500	$ 20,300

2.0 Project Overview

2.1 Project Summary

1898 & Co. was retained by Panther Grove 2 LLC to conduct a decommissioning cost evaluation for the Panther Grove 2 Wind Development. The objective of the Study was to review the Project and to make a recommendation regarding the decommissioning cost and plan for retiring the facility at the end of its useful life.

The Project will be located in Livingston County, Illinois approximately 13.5 miles southwest of the city of Pontiac, Illinois. At the time of the Study, Project designs had not been finalized. For purposes of the Study, 1898 & Co. has evaluated a layout including 104 Vestas V163-4.5 MW wind turbine generators with a total nominal capacity of approximately 468 MW.

2.2 Applicable Regulations

Decommissioning obligations are currently regulated in state and local law. Livingston County Ordinance Section 56-624 ("Ordinance") requires "a decommissioning plan to ensure that the commercial wind energy facility project is properly decommissioned." Additionally, the Agricultural Impact Mitigation Agreement ("AIMA") with the Illinois Department of Agriculture, requires that all underground facilities for the Project be decommissioned to a depth of five (5) feet below grade. As such, this report assumes that (i) all above-grade structures associated with the Project will be removed and (ii) all Project equipment, structures, and supporting facilities five (5) feet below grade will be removed in accordance with the Ordinance and AIMA.

2.3 Methodology

When it is determined that the Project should be retired, the above-grade steel structures and turbine nacelles are assumed to have significant scrap value to a salvage contractor, offsetting a portion of the cost to remove these items. The Project will also incur costs for removal and disposal of the blades, foundations, and other Project facilities as well as for the restoration of the site following the removal of salvageable equipment.

The decommissioning cost estimates provided herein include the costs to return the site to a condition compatible with the surrounding land, similar to the conditions that existed before development of the Project. Included are the costs to retire the power generating equipment that is part of the Project as well as the costs to retire the Project's balance-of-plant facilities. All equipment, structures, and supporting facilities are assumed to be removed to a depth of 5 feet below grade in accordance with the Ordinance and AIMA.

2.4 Site Visit

1898 & Co did not visit the Project Site as part of this Study. At the time of the Study the Project had not yet been constructed. The contents of this evaluation are based exclusively upon desktop analysis by 1898 & Co.

3.0 Project Description

The following sections provide an overview of the Project facilities.

3.1 Wind Turbines

The proposed Project will consist of 104 Vestas V163-4.5MW wind turbines resulting in a total nominal capacity of approximately 468 MW. Each Vestas V163-4.5MW wind turbine includes a conical tubular steel tower which supports the turbine nacelle mounted on top. The nacelle of each turbine includes three blades mounted to the nacelle rotor with a total rotor diameter of approximately 163 meters.

3.2 Wind Turbine Foundations

Each wind turbine tower is supported by a concrete foundation. The preliminary foundation design drawings provided by Panther Grove 2 LLC included the foundation bottom diameter, foundation depth, and total concrete volume. The circular concrete pedestal is 18 feet in diameter with a depth below grade of 6 feet. The pedestal is supported by a cylindrical base which has a lower diameter of 80 feet.

All underground facilities for the Project are to be removed to a depth of at least 5 feet below grade in accordance with the Ordinance and AIMA. Thus, the concrete pedestal is to be removed to a depth of 5 feet below-grade in accordance with the Ordinance and AIMA. The area will then be backfilled as part of the decommissioning, and the remaining foundation will be abandoned in place.

3.3 Access Roads

Each wind turbine has an access road to support construction and allow for vehicle access to facilitate inspections and maintenance of the turbines and associated equipment during operation. Access roads are assumed to be surfaced with approximately 6 inches of crushed rock with a final width of approximately 15 feet. According to access road layouts provided by Panther Grove 2 LLC, approximately 27 miles of access roads were assumed to be removed, decompacted, and seeded as part of this Study.

All crushed rock surfacing will be removed from the Project's access roads and beauty rings. The removed crushed rock will be loaded into dump trucks and hauled offsite. Crushed rock can be recycled and reused and typically has a salvage value as a commodity equal to or greater than the cost to haul to an end user. However, for the purpose of this Study, the cost to remove the crushed rock, load it into dump trucks, and haul it offsite was assumed to be at the expense of the Project.

Areas where crushed rock surfacing has been removed will be fine graded to provide suitable drainage. In right-of-way and non-agricultural areas, the ground will be seeded to prevent erosion.

3.4 Collection System

Each wind turbine generates three-phase electrical power that is transformed to 34.5 kilovolts ("kV") via a pad-mounted transformer located at the base of each wind turbine. Power from each transformer is delivered through one of the Project's underground power collection circuits to the on-site collector substation.

All cables were assumed to be buried at a minimum depth of 5 feet below grade. At this depth, all cables (including both power and communication cabling) are assumed to remain in place after the Project is decommissioned as they exceed the depth requirement of the Ordinance and AIMA. As such, the only costs incurred in the Study from the collection system will be the removal and disposal of the above-grade junction boxes and pad-mounted transformers. However, if the demolition contractor deems the salvageable

value of the collector system cabling to be greater than the cost for removal, the contractor may elect to remove the cabling at its own cost.

3.5 Project Substation

Power from each wind turbine is delivered via underground power collection circuits to an on-site collector substation where it is transformed to 345 kV. The transformers at the collector substation are protected on the line side by a 345-kV breaker; no Project-side breaker was installed, as is typical of most utility-scale wind farms. The substation also consists of other typical equipment, including disconnect switches, lightning masts, control building, and other ancillary equipment.

All above-grade equipment within the perimeter fence of the substation will be removed as part of decommissioning, including transformers, breakers, buildings, crushed rock surfacing, and fencing. All salvageable materials will be loaded onto trucks and hauled to a scrap yard for recycling. All other materials will be loaded onto trucks and hauled to a local landfill for disposal.

All below-grade equipment and foundations associated with the substation will be removed to a depth of 5 feet below grade in accordance with the Ordinance and AIMA. Voids left from the removal of the below-grade foundations will be backfilled with surrounding soils and fine graded to provide suitable drainage.

3.6 Transmission Line

The on-site collector substation is interconnected to the local utility substation. The Study assumes removal of approximately 2.5 miles of the overhead transmission line located in Livingston County as well as the associated steel transmission towers.

All above-grade equipment associated with the transmission line located in Livingston County will be removed as part of decommissioning, including structures, conductors, and cabling. All salvageable materials will be loaded onto trucks and hauled to a scrap yard for recycling. All other materials will be loaded onto trucks and hauled to a local landfill for disposal.

All below-grade equipment and foundations associated with the transmission line will be removed to a depth of 5 feet below grade in accordance with the Ordinance and AIMA. Voids left from the removal of the below-grade foundations / structures will be backfilled with surrounding soils and fine graded to provide suitable drainage.

3.7 Maintenance/Warehouse Facility

The operations and maintenance facility will consist of a pre-engineered metal building with a concrete slab foundation, adjacent parking, and a fence surrounding the area. The building is assumed to have a footprint of approximately 6,000 square feet. The fenced area is assumed to be approximately 200 feet by 330 feet.

All above-grade equipment within the perimeter fence of the building will be removed as part of decommissioning, including the building, crushed rock surfacing, and fencing. All salvageable materials will be loaded onto trucks and hauled to a scrap yard for recycling. All other materials will be loaded onto trucks and hauled to a local landfill for disposal.

All below-grade equipment and foundations associated with the building will be removed to a depth of 5 feet below grade in accordance with the Ordinance and AIMA. Voids left from the removal of the below-grade.

3.8 Meteorological Equipment

Wind data is measured on-site using four meteorological towers. Each tower was assumed to be a permanent, free-standing, 400-foot-tall lattice-type tower on a concrete foundation.

All above-grade equipment within the perimeter fence of each tower will be removed as part of decommissioning, including the tower structure, crushed rock surfacing, and fencing. All salvageable materials will be loaded onto trucks and hauled to a scrap yard for recycling. All other materials will be loaded onto trucks and hauled to a local landfill for disposal.

All below-grade equipment and foundations associated with the towers will be removed to a depth of 5 feet below grade in accordance with the Ordinance and AIMA. Voids left from the removal of the below-grade foundations will be backfilled with surrounding soils and fine graded to provide suitable drainage.

4.0 Decommissioning

4.1 Decommissioning Plan

When it is determined that the Project should be retired, the Project equipment will be removed as noted herein. It is assumed that the Project will incur costs for removal and disposal of the wind turbines, wind turbine foundations, and other Project facilities, as well as for the restoration of the site following the removal of equipment. However, the above-grade steel, aluminum, and copper equipment is expected to have significant scrap value to a salvage contractor that will offset some decommissioning costs. All recyclable materials will be recycled to the extent possible, while all other non-recyclable waste materials will be disposed of in accordance with state and federal law.

The wind turbine blades will be removed from the nacelle using a crane, cut into manageably-sized sections, loaded onto a trailer, and hauled offsite for recycling or disposal. For purposes of the Study, the composite material that the wind turbine blades are constructed from is assumed to have no salvage value at the time of decommissioning. The turbine nacelles will be removed from the towers with a crane and loaded onto a trailer. The towers will be disassembled and loaded onto a trailer as well. The nacelle and towers typically will then be hauled off to a scrap yard for recycling. The cost estimate presented in this report that includes scrap includes the cost to haul the turbines and nacelles to the scrap yard.

All concrete wind turbine foundations will be removed to a depth of 5 feet below grade in accordance with the Ordinance and AIMA; the portions of the foundation that are greater than 5 feet below grade will be abandoned in place. The recovered concrete will be demolished, loaded into a dump truck, and hauled to a local landfill for disposal. Voids left from the removal of the concrete footings will be backfilled with surrounding subsoil and topsoil and fine graded to provide suitable drainage.

The Project substation will be removed from the site, including all above-grade equipment (e.g., transformers, breakers, busbars), buildings, crushed rock surfacing, and fencing. The cost estimate presented in this report that includes scrap includes the cost to haul the salvageable equipment to the scrap yard, whereas the cost estimate that excludes scrap assumes all salvageable equipment will be hauled to a landfill for disposal. All below-grade equipment (e.g., foundations) will be removed to a depth of 5 feet below grade in accordance with the Ordinance and AIMA.

All crushed rock surfacing will be removed from the Project's access roads. Areas where crushed rock surfacing has been removed will be fine graded to provide suitable drainage. In right-of-way and non-agricultural areas, the ground will be seeded to prevent erosion. The removed crushed rock will be loaded into dump trucks and hauled offsite. Crushed rock can be recycled and reused and typically has a salvage value as a commodity equal to or greater than the cost to haul to an end user. However, for the purpose of this Study, the cost to remove the crushed rock, load it into dump trucks, and haul it offsite will be at the expense of the Project.

Prior to commencing activities associated with foundation removal, crushed rock surfacing removal, or any other earthwork, an approved erosion control plan will need to be developed by the demolition contractor. Best management practices ("BMPs") applicable at the time that decommissioning activities occur will need to be implemented by the contractor for control of storm water runoff. Since decommissioning activities are not anticipated to occur for 20 years or more, BMPs may differ from current standards. However, if decommissioning takes place in the near future, 1898 & Co. would anticipate BMPs such as silt fencing and

proper compaction, seeding, and mulching practices to be implemented. BMPs will need to be reviewed by the contractor prior to commencing decommissioning activities to determine appropriate BMPs at that time. To the extent necessary, permits relating to decommissioning activities will need to be obtained. The costs included in this Study are expected to be sufficient for a demolition contractor to develop suitable plans for the control of surface water drainage and water accumulation and, where appropriate, for backfilling, soil stabilization, compacting, and grading prior to commencing demolition activities.

All disturbed areas at the site will be returned to as close to predevelopment conditions as possible. This will allow all land disturbed by the construction of the Project to be returned to its predevelopment use at the end of the useful life of the Project. The cost estimates provided in the following section include activities and costs to return the land to a condition consistent with pre-development conditions subsequent to decommissioning of the Project.

The activities associated with the decommissioning plan described above are anticipated to be completed within a 6-month timeframe, according to the following estimated schedule:

- Decommissioning Planning & Permitting: 2 months
- Demolition: 3 months
- Site Restoration: 1 month

Additional time may be required for post-decommissioning activities, including monitoring of new vegetation. However, this timetable and the cost estimates below should provide sufficient time and budget to comply with any applicable health and safety regulations.

4.2 Decommissioning Assumptions

In addition to other assumptions noted herein, the following general assumptions were utilized for the study's decommissioning cost estimates.

1. All costs are presented in current (2024) dollars using the site cost index of 94% for Bloomington, Illinois.
2. The decommissioning estimate is based on details and equipment defined through conversations with and documentation provided by Panther Grove 2 LLC.
3. An approved disposal facility will be used for the disposal of debris from decommissioning activities. For purposes of this Study disposal costs are based on the Waste Management Prairie View Landfill being used for disposal of demolition waste. The hauling distance to this landfill is approximately 62.5 miles from the Project site, and the cost for disposal of debris and concrete is $68.50 per ton.
4. Where applicable, scrap values are based upon an average of monthly American Metal Market prices for July 2023 through June 2024 (i.e., one calendar year). These values include the cost to haul the scrap via truck and/or rail to the major market which provides the best price. Based on hauling and rail prices, the best market at the time of this Study is Cleveland, Ohio. Prices used include the following:
    a. Steel scrap value: $267.49 per net ton.
    b. Copper scrap value: $3.02 per pound.
    c. Aluminum scrap value: $0.39 per pound.

5. Fluids located within the turbine nacelle, including oils, fuels, solvents and process chemicals, were assumed to be drained and disposed of offsite as part of the decommissioning.
6. It was assumed that all containers and chemical storage tanks owned by the Project will be drained and the material disposed of prior to demolition; these costs are excluded from the estimate.
7. All underground equipment will be removed to a depth of 5 feet below grade in accordance with the Ordinance and AIMA. All non-hazardous structures or foundations greater than 5 feet below grade will remain and are excluded from the decommissioning estimate.
8. Access roads, parking areas, storage yards, crane pads, and all other areas constructed from asphalt, concrete, gravel, or compactable fill will be removed, recycled, and reclaimed.
9. Crushed rock from roads, balance-of-plant areas, and turbine foundation areas was assumed to have value as a commodity for reuse. The cost to remove the crushed rock, load it into dump trucks, and haul it offsite is assumed to be at the expense of the Project.
10. It was assumed that all disturbed areas will be restored to original grade, reclaimed with native soils, seeded, and replanted with native vegetation consistent with the surrounding land use.
11. Transformers will be removed and processed on-site. The cost to drain and dispose of transformer oil off-site is included in the decommissioning cost estimate.
12. The Project laydown yard to be utilized during construction of the Project was assumed to be reclaimed and restored prior to the time of decommissioning; no further grading, seeding, or other restoration of the laydown yard is included in this estimate.
13. Cost estimates include 5 percent indirects and 20 percent contingency.
14. Market conditions may result in cost variations at the time of contract execution.

5.0 Results

The total cost to decommission the Project at the end of its useful life, based on the assumptions noted herein, is presented below; a detailed breakdown of these costs is included in Appendix A. It is expressly noted that while costs are presented both in total and per turbine, a change in the quantity of turbines may not cause the total decommissioning cost to increase or decrease linearly by the per turbine cost, due to non-scalable differences in balance-of-plant costs and other similar factors.

Table 5-1: Decommissioning Cost Summary (2024$)

Turbine Layout	Gross Cost	Scrap Cost	Net Cost	Net Cost per Turbine
104 x V163-4.5 MW	$17,367,500	$(15,258,000)	$2,109,500	$ 20,300

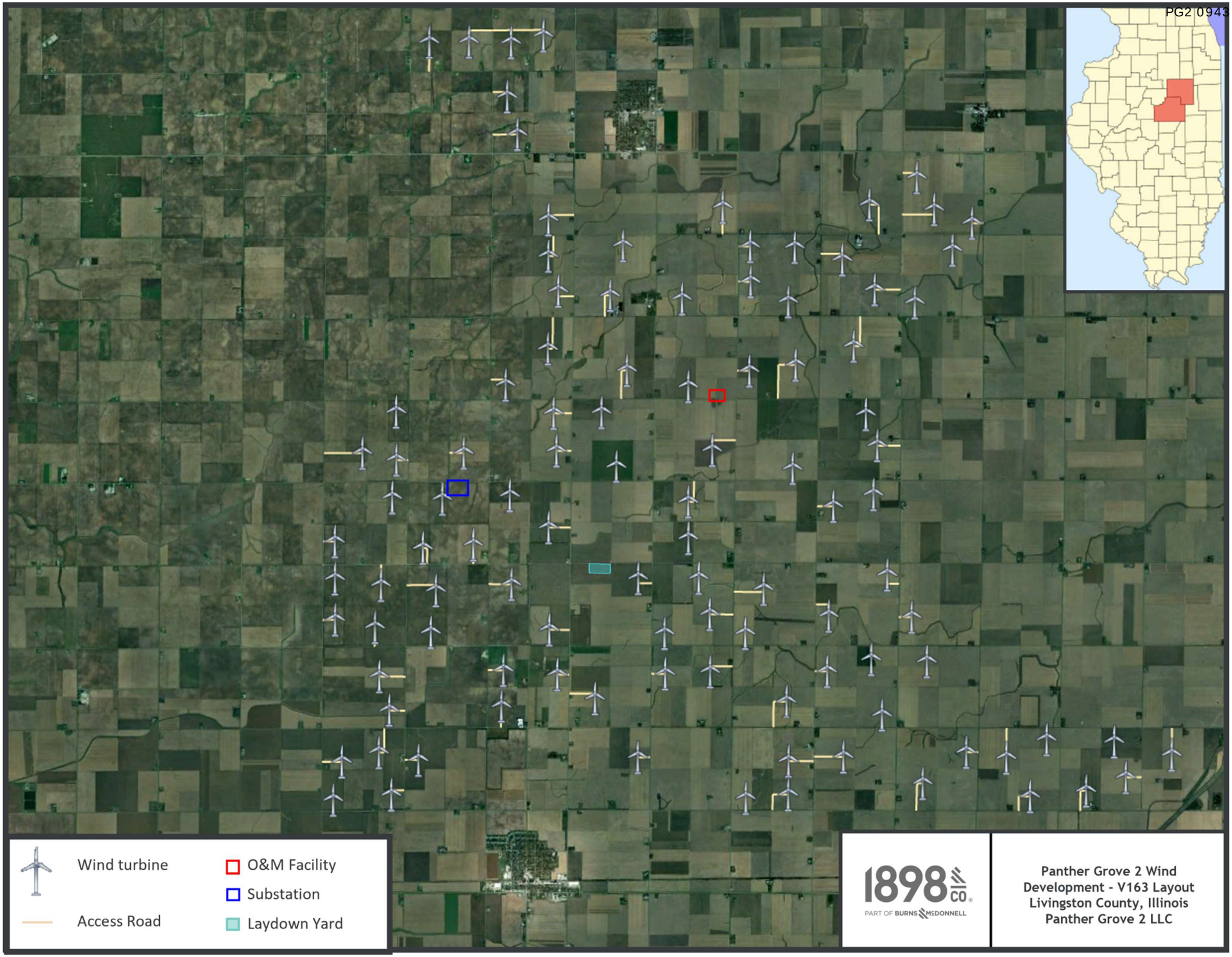
APPENDIX A – COST ESTIMATE SUMMARY

Table A-1: Estimated Cost for Wind Turbine Decommissioning (2024$)

Panther Grove Wind 2 Wind Project
Layout 104 V163-4.5 MW
Decommissioning Cost Evaluation

Wind Turbine Removal Cost		
Removal	$	7,287,000
Hauling & Disposal	$	1,771,000
Total	**$**	**9,058,000**
Scrap Value	**$**	**(14,845,000)**
Wind Turbine Foundation Removal Cost		
Removal	$	762,000
Hauling & Disposal	$	1,109,000
Total	**$**	**1,871,000**
Substation Removal Cost		
Removal	$	318,000
Hauling & Disposal	$	44,000
Total	**$**	**362,000**
Scrap Value	**$**	**(311,000)**
Transmission Line Removal Cost		
Equipment Removal	$	202,000
Hauling & Disposal	$	24,000
Total	**$**	**226,000**
Scrap Value	**$**	**(73,000)**
Civil Works Removal Cost		
Removal	$	538,000
Hauling & Disposal	$	1,364,000
Grading & Seeding Costs	$	240,000
Total	**$**	**2,142,000**
O&M Facility Removal		
Removal	$	73,000
Hauling & Disposal	$	28,000
Total	**$**	**101,000**
Scrap Value	**$**	**(25,000)**
Met Tower Removal		
Removal	$	50,000
Hauling & Disposal	$	1,000
Total	**$**	**51,000**
Scrap Value	**$**	**(4,000)**
Other Costs		
Oils & Chemicals Removal & Disposal	$	83,000
Total	**$**	**83,000**
Total Estimated Cost	**$**	**13,894,000**
Owner Indirects (5%)	**$**	**694,700**
Contingency (20%)	**$**	**2,778,800**
Total Gross Cost	**$**	**17,367,500**
Total Scrap Value	**$**	**(15,258,000)**
Total Net Cost	**$**	**2,109,500**

APPENDIX B - SITE AERIAL


Wind turbine
Access Road
O&M Facility
Substation
Laydown Yard
1898 & CO.
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Panther Grove 2 Wind Development - V163 Layout
Livingston County, Illinois
Panther Grove 2 LLC

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