# **DECOMMISSIONING PLAN**

For Southern Hills Wind Project in Union County, Iowa April \_\_\_\_\_\_\_, 2020

Submitted by:

MidAmerican Energy Company

#### 1. DEFINITIONS

**Commercial Operation Date** shall mean the first day of the Project Term.

County shall mean Union County, Iowa.

**Decommissioning Plan** shall mean the plan to decommission the WECS as set out in this document as such plan may be revised from time to time as provided herein.

**Discontinued Use** shall mean with respect to an individual WECS that the use of such WECS has been discontinued for a period of 180 consecutive days, unless a plan is developed and submitted to the Union County Engineer or their designee outlining the steps and schedule for returning the WECS to service as outlined in such plan.

**Easement Agreement** shall mean an agreement between a Participating Landowner and the Facility Owner granting the Facility Owner an easement or other real estate rights for the right to use the Participating Landowner's property to construct, maintain, operate, repair, repower, and remove the WECS.

**Facility Owner** (or **Owner**) shall mean the entity or entities having controlling or majority equity interest in the Wind Energy Conversion System, including their respective successors and assigns. As of the date of this Decommissioning Plan, the Owner is MidAmerican Energy Company.

**Project** shall mean the Southern Hills Wind Farm as located in Union County, Iowa.

**Participating Landowner** shall mean any landowner under easement, lease or other agreement with the Facility Owner pertaining to the WECS.

**Project Term** shall mean the period commencing on the date Owner notifies Union County in writing that the entire Project has commenced commercial operation and expiring on the date 40 years after the date specified in such notice, unless sooner terminated or extended as provided herein.

**Property** shall mean the real property for which real property rights have been provided to Owner by a Participating Landowner under an Easement Agreement.

Wind Energy Conversion System (WECS) shall mean an electrical generating facility comprised of one or more wind turbines (made up of a foundation, tower, nacelle and rotor) and accessory facilities, including but not limited to: power lines, access roads, communication lines, transformers, substations, and meteorological towers that operate by converting the kinetic energy of wind into electrical energy. The energy may be used on-site or distributed into the electrical grid.

WECS Ordinance shall mean the Union County, Iowa Wind Energy Conversion Systems (WECS) Ordinance adopted April 29, 2019.

Wind Turbines shall have the meaning in Section 4.

#### 2. PURPOSE

The purpose of this Decommissioning Plan is to set out Owner's written agreement (as required in the WECS Ordinance) to dismantle and remove the Wind Turbine within 180 days after cessation of use, as further provided herein.

This Decommissioning Plan (a) outlines the anticipated means and cost of decommissioning the WECS upon a WECS becoming a Discontinued Use and (b) identifies the financial resources that will be available to pay for decommissioning and removal of the WECS and other accessory structures.

# 3. PROJECT DESCRIPTION

Owner is planning to construct a 250 MW wind Project which is partially located in Union County, Iowa. The Project involves constructing wind turbines, associated access roads, underground electrical collection system, underground communication system and other facilities.

# 4. PROJECT LIFE

Owner intends to install 9 Vestas V110-2.0/2.2MW, and 25 Vestas V136-4.2/4.3MW wind turbine generators ("Wind Turbines") for the Project which such Wind Turbines are expected to have a useful life of at least forty (40) years. The term of the operating period as provided in the Easement Agreements is forty (40) years. Beyond the end of its useful life, or at any other time, if a Wind Turbine needed to be replaced for any reason, a new Wind Turbine could potentially be installed as a part of the Project. It is expected that during the life of the Project that parts and components of the WECS will be repaired and/or replaced from time to time in order to continue to operate the WECS.

#### 5. DECOMMISSIONING

In the event the use of any Wind Turbine has been discontinued for a period of 180 consecutive days, it shall be deemed to be abandoned (except as otherwise provided herein). Determination of the date of abandonment shall be made by the Union County Engineer or their designee and the County will notify Owner of such determination and the date of such abandonment. Upon such notice of abandonment, the Owner shall have an additional 180 days within which to reactivate the use of the Wind Turbine or dismantle and remove the Wind Turbine. As an alternative, the Owner may prepare and submit a plan for the "banking" of the Wind Turbine for future reactivation and use. Said plan must be submitted to the Union County Engineer or their designee within 180 days of the discontinuation of use of the Wind Turbine, and shall be updated and submitted every 180 days thereafter for a maximum of two years, at which time the wind turbine must be reactivated or dismantled.

Decommissioning is a procedural process which involves the removal of the WECS and associated facilities and infrastructure as further described herein. The process of

decommissioning a WECS will involve evaluating and categorizing all components and materials based on their anticipated post-Project use. The categories will include recondition and reuse, salvage, recycle, and disposal. In order to reduce impacts from the transport of components to and from the county, materials will likely be stored onsite at one or more locations until the bulk of similar components or materials are ready for transport. The components and material will be transported to the appropriate facilities for reconditioning and reuse, salvage, recycling, or disposal.

This Decommissioning Plan requires that each wind turbine be removed to a depth of forty-eight (48) inches below ground level; however Owner has entered into Easement Agreements with the Participating Landowners and will remove such WECS in accordance with such applicable the Easement Agreement if the requirements are more stringent than the requirements in this Decommissioning Plan.

The following is a general description of the anticipated decommissioning process (and the decommissioning is also generally described in Appendix A1):

# 5.1 WIND TURBINES

Wind Turbines are generally comprised of the tower, nacelle and rotor with blades which are modular items that can be disassembled. With some exceptions, Wind Turbine components are dismantled in the reverse order of their assembly using large crawler cranes. These turbine components are typically stored in temporary laydown areas before being hauled off-site to be resold or taken to a scrap metal facility or offsite disposal facility. It is common for blades to be cut-up into smaller pieces at the location of such Wind Turbine and then transported to an offsite disposal facility.

# 5.2 UNDERGROUND COLLECTION LINES

Underground electrical and communication collection lines are typically installed at least 48 inches below grade. As a result, the collection lines are typically rendered inert and left in the ground after decommissioning; however, at Owner's option, these lines may be removed and hauled off-site for scrap value.

#### 5.3 FOUNDATIONS

Turbine foundations and gravel rings will be excavated around the concrete pedestal to a depth of forty eight (48) inches below grade. Turbine footings and foundations below forty eight (48) inches of the ground level will remain after decommissioning.

# 5.4 ACCESS ROADS

Once all of the Project components have been removed from the site, not including those parts of the WECS located more than forty eight (48) inches below grade, the access roads will be removed, unless requested otherwise by the Participating Landowner and agreed to by Owner. The road material will be removed, soil will be ripped and topsoil will be used to fill these areas.

#### 5.5 SITE RESTORATION

Upon completion of the dismantling and removal of all WECS (not including that part of a WECS that is more than forty eight (48) inches below ground level) the land will be returned to a condition reasonably comparable to the immediate surrounding property. Restoration of the land includes backfilling all excavated areas with clean sub-grade material and topsoil, both as to quality and depth, as the immediate surrounding area.

# 5.6 WASTE DISPOSAL

Solid and hazardous wastes, including but not limited to crates, packing materials, decommissioned WECS, as well as used oils and lubricants shall be removed from the site promptly and disposed of in accordance with all applicable local, state and federal regulations.

#### 5.7 ROAD AND DRAINAGE SYSTEM

Prior to any decommissioning work involving a substantial portion of the whole WECS Project, Owner intends to enter into a Road Use Agreement in a form similar to that Road Use Agreement that is attached to the WECS Ordinance.

#### 5.8 COMPLIANCE WITH LAWS

Solid waste and hazardous material will be disposed of offsite in accordance with applicable state and federal laws and regulations. Decommissioned gearboxes, transformers, and hydraulic systems will be drained of fluids, put into appropriate containers before dismantling, and then transported and disposed of off-site in accordance with state and federal laws and regulations.

#### 5.9 FORCE MAJEURE

Notwithstanding any other provision in this Decommissioning Plan to the contrary, if performance of any act required to be performed by Owner under this Decommissioning Plan is in whole or in part prevented or delayed by reason of any fire, earthquake, flood, tornado, act of God or natural disaster, strike, lock-out, labor disputes or trouble, war, civil strife or other violence, inability to secure materials, any law, order, proclamation, regulation, ordinance, action, demand or requirement of any government agency, or any other cause, event or circumstance not the fault of Owner, including without limitation the invocation of a force majeure provision by any third party to excuse such third party's performance of any obligations related to the decommissioning of the WECS, then Owner, upon giving notice to County, shall be excused from such performance to the extent of and for the duration of such prevention, restriction or delay.

# 6. SUMMARY OF DECOMMISSIONING COST ESTIMATE

The estimated cost to decommission and remove the Project, including the estimated Project salvage value, is attached hereto as Appendix A1. The estimated cost is based on 2020 dollars.

This Decommissioning Plan and all appendices will be reviewed and updated by the Owner every five (5) years from the Commercial Operation Date upon written request of the County in the manner provided in Section 8. If there are items upon which the Owner and County disagree with respect to assumed decommissioning costs, Owner and County shall meet to attempt to reach agreement on all such items. If agreement cannot be reached within a reasonable time, Owner shall engage and pay for an independent engineer acceptable to County to review the items and this Decommissioning Plan and determine whether the items in dispute should be re-evaluated. The determination of the independent engineer shall be final until the next time the Decommissioning Plan and appendices are updated as provided herein.

Based on Appendix A1, the following costs were estimated:

	Project	Per Wind Turbine	
<b>Decommissioning Cost Estimate (costs less</b>	\$1,289,000.00	\$35,800.00	
salvage/scrap values)	\$1,289,000.00	\$33,800.00	

# 7. FINANCIAL RESOURCES TO PAY FOR DECOMMISSIONING AND REMOVAL OF WECS

The Owner will be responsible for all costs to decommission the WECS in accordance with this Decommissioning Plan and the Easement Agreements. The decommissioning activities will be funded by the proceeds from one or more of the following:

- i. Proceeds from the salvage and scrap value of certain components and raw materials included as part of the WECS as further described in Appendix A1.
- ii. Other Owner funding.

The County will have the right to request that Owner provide financial assurance in the form of (a) a cash escrow or deposit, bond, or letter of credit (as selected by Owner) in the amount of the total estimated costs of decommissioning the WECS located in the County (as such amount is set out in the most recent Decommissioning Plan (including appendices) provided by Owner to County in accordance herewith) or (b) a guarantee or such other form of security that is acceptable to the County. The County may waive the financial assurance requirement if the Owner is a public utility regulated by the Iowa Utilities Board in the State of Iowa with the financial wherewithal to pay for the estimated decommissioning costs. However, in the event of a material change to the public utility status and financial status of Owner that would reasonably be expected to impair Owner's ability to fund the total estimated costs to decommissioning Plan (or any future plan provided in accordance herewith), the County will have the right to require Owner to provide financial assurance as described above.

This Decommissioning Plan may be transferred to another party subject to the approval of the Union County Board of Supervisors, which approval shall not unreasonably be withheld. The County will have the right to request financial assurance from the new Owner and the new Owner will be subject to the requirements in this Decommissioning Plan.

#### 8. NOTICES

Any notice, demand, or other communication ("Notice") given under this Decommissioning Plan shall be in writing and given personally or by registered or certified mail (return receipt requested). A courtesy copy of the Notice may be sent by facsimile or email transmission.

Notices shall be given to the Parties at their addresses set forth below.

# If to County:

Union County Engineer 1701 Commerce Road Creston, IA 50801 Phone: (641) 782-7417

E-mail: zgunsolley@unioncountyiowa.org

#### If to Owner:

MidAmerican Energy Company 4299 NW Urbandale Drive Urbandale, Iowa 50322 Attn: Vice President, Generation

Phone: (515) 281-2957

E-mail: windadministration@midamerican.com

FAX: (515) 242-3084

By Notice to the other, either Owner or the County may at any time designate a different address or person to which such Notice or communication shall be given.

In Witness Whereof, the Chair of the Union County Board of Supervisors has executed this Decommissioning Plan for Union County, Iowa as the date set out above on the cover page.

Union County, Iow

Name Printed: KICK

Title: Chair, Union County Board of Supervisors

In Witness Whereof, MidAmerican Energy Company has executed this Decommissioning Plan for MidAmerican Energy Company as the date set out above on the cover page.

MidAmerican Energy Company

Name Printed: Adam Jablonski

Title: Director, Renewable Energy

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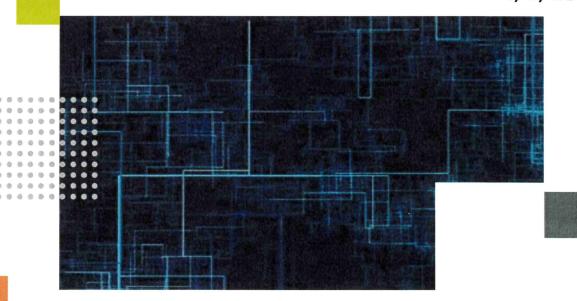
# Southern Hills Decommissioning Cost Estimate Study for Union County



MidAmerican Energy Company

Southern Hills Wind Project Project No. 122327

4/8/2020



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# LIST OF ABBREVIATIONS

<u>Abbreviation</u>	Term/Phrase/Name

BMP Best management practice

kV Kilovolt

MidAmerican Energy Company

MW Megawatt

O&M Operations and maintenance

Project Southern Hills Wind Project assets in Union County, Iowa

Project Site Location of the Project in Union County, Iowa

Study Decommissioning Plan / Decommissioning Obligation Cost Evaluation

#### 1.0 EXECUTIVE SUMMARY

#### 1.1 Introduction

1898 & Co. part of Burns & McDonnell Engineering Company, Inc. was retained by MidAmerican Energy Company to conduct a decommissioning cost evaluation for the Union County assets of the proposed Southern Hills Wind Project. The Project includes wind turbines in the Union, Adair, and Adams Counties of Iowa approximately 70 miles southwest of the city of Des Moines. This Study includes only those assets located in Union County.

The objective of the decommissioning cost evaluation 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. The overall Project configuration that was used as the basis for this Study is shown in Appendix A.

# 1.2 Methodology

The site decommissioning costs were developed using information provided by MidAmerican, manufacturer specifications, and 1898 & Co.'s experience with similar projects. 1898 & Co. estimated material quantities for equipment based on a review of engineering drawings, 1898 & Co.'s in-house database of site equipment quantities, 1898 & Co.'s experience with similar assets, and 1898 & Co.'s professional judgment. These steps resulted in an estimate of material quantities for the tasks required to be performed for each decommissioning effort. Current market pricing for labor rates, equipment, and unit pricing were then developed for each task. The unit pricing was developed for each site based on the labor rates, equipment costs, and disposal costs specific to the area in which the work is to be performed. These rates were applied to the quantities for the Projects to determine the total cost of decommissioning for each site. 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 will be removed to a depth of 4 feet below grade in accordance with Union County Decommissioning Plan.

# 1.3 Results

The total cost to decommission the Project at the end of its useful life, based on the assumptions noted herein including the original construction methods of the Project, is estimated to be approximately \$1,289,000 (\$35,800 per turbine). It is expressly noted that while costs are presented both in total and on a per turbine basis, 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.

# 2.0 PROJECT OVERVIEW

# 2.1 Project Summary

1898 & Co. was retained by MidAmerican Energy Company ("MidAmerican") to conduct a decommissioning cost evaluation ("Study") for the Union County assets of the proposed Southern Hill Wind Project ("Project"). The Project includes wind turbines in the Union, Adair, and Adams Counties of Iowa approximately 70 miles southwest of the city of Des Moines. This Study includes only those assets located in Union County ("Project Site"). The Project includes 9 Vestas V110-2.0/2.2MW, and 27 Vestas V136-4.2/4.3MW wind turbine generators located in Union County, which total a rating of approximately 135.9 MW.

The objective of the Study was to review the Project and provide a recommendation regarding the decommissioning cost and plan for retiring the facility at the end of its useful life.

#### 2.2 Site Visit

1898 & Co. did not visit the Project Site as part of this Study. The contents of this evaluation, including conclusions provided herein, are based exclusively upon desktop analysis and it is assumed that all conditions reflected in the drawings provided by MidAmerican are a complete representation of conditions at the Project site.

# 2.3 Project Facilities

The following sections provide an overview of the Project facilities.

# 2.3.1 Wind Turbines

The Project includes 9 Vestas V110-2.0/2.2MW, and 27 Vestas V136-4.2/4.3MW wind turbine generators located in Union County, which total a rating of approximately 135.9 MW.

Each wind turbine consists of 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. The Vestas V110-2.0/2.2MW model was assumed to have a hub height of 95 meters and a total rotor diameter of 110 meters. The Vestas V136-4.2/4.3MW was assumed to have a hub height of 105 meters and have total rotor diameters of 136 meters.

#### 2.3.2 Wind Turbine Foundations

Each wind turbine tower is supported by a concrete foundation. Foundation design drawings were not provided for review. As such, foundation removal costs were assumed based on 1898

& Co.'s experience with similar projects. For each turbine type, 1898 & Co. assumed the foundation consisted of a circular concrete pedestal supported by a cylindrical base.

All underground facilities for the Project are to be removed to a depth of at least 4 feet below grade in accordance with the Union County Decommissioning Plan. Thus, the concrete pedestal and base are to be removed down to 4 feet below-grade and backfilled as part of the decommissioning, and the remaining foundation will be abandoned in place.

#### 2.3.3 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. It was assumed that each turbine has a quarter-mile of access road which are assumed to be surfaced with approximately 8 inches of crushed rock with a final width of approximately 16 feet. Approximately 45,000 miles of access roads are assumed to be removed, de-compacted, and seeded as part of this Study.

# 2.3.4 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. It is assumed that all cables will be buried at a minimum depth of 4 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 set forth in the Union County Decommissioning Plan. However, if the contractor deems the salvageable value of the collector system to be greater than the cost for removal, the contractor shall remove the collector system at its own cost. The only cost incurred from the collection system will be the above-grade junction boxes.

#### 2.3.5 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 via one main power transformer. Generic substation drawings were provided for review, as such the substation removal costs were assumed based on 1898 & Co.'s prior experience. The substation is assumed to consist of multiple disconnect switches, lightning masts, control building (including firewall), and other ancillary equipment. All above-grade equipment within the perimeter fence of the substation is assumed to be removed, and all below-grade equipment to a depth of 4 feet (per the Union County Decommissioning Plan) is assumed to be removed. Costs for removal of the Project substation are not included in this Study as the substation is located in Adair County.

# 2.3.6 Transmission Line

The Project output is transformed to 345 kV at the on-site collector substation. The Project is interconnected to the local utility via jumper cables, which transfers power over the Project substation fence to the adjacent utility substation; no other transmission lines are included for removal in the Study.

# 2.3.7 Maintenance/Warehouse Facility

The Project includes an operation and maintenance ("O&M") facility on the Project site but decommissioning costs were not included in the Study.

# 2.3.8 Meteorological Equipment

No meteorological towers are present on site.

# 3.0 DECOMMISSIONING COSTS

# 3.1 Decommissioning Overview

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 to a local landfill for disposal. The wind turbine blades are constructed from a composite material that 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 will then be hauled off to a scrap yard for recycling. The cost estimate presented in this report 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 4 feet below grade in accordance with the Union County Decommissioning Plan; the portions of the foundation that are greater than 4 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. All below-grade equipment (e.g., foundations) will be removed to a depth of 4 feet below grade in accordance with the Union County Decommissioning Plan. The Project substation is located in Adair County so the costs for removal are not included in this Study.

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.

Best management practices ("BMP") 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, including permits from the Environmental Protection Agency. 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 suitable for agricultural use 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 monthsDemolition: 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.

# 3.2 Decommissioning Cost

The total cost to decommission the Project at the end of its useful life, based on the assumptions noted herein including the original construction methods of the Project, is estimated to be approximately \$1,289,000 (\$35,800 per turbine); a detailed breakdown of these costs is included in Appendix B. It is expressly noted that while costs are presented both in total and on a per turbine basis, 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.

# 3.3 Decommissioning Assumptions

In addition to other assumptions noted herein, the following key assumptions are utilized for the decommissioning cost estimates presented herein:

- 1. All costs are presented in current (2020) dollars using the site cost index of 94 percent for Union County, Iowa.
- The decommissioning estimate is based on details and equipment defined through conversations with and documentation provided by MidAmerican. Where project details were not available, 1898 & Co. based removal costs on prior experience with similar projects.
- 3. The Southern Hills Wind Project includes turbines in three counties; however, only the turbines located in Union County, lowa are included for removal as part of this Study. As such, a portion of the decommission costs for the common facilities is included to account for the associated turbines located in Union County.
- 4. The substation costs are not considered in this Study as the substation is not located in Union County.
- 5. An offsite landfill Union County Landfill is used for disposal of demolition waste. The hauling distance to this landfill is approximately 10 miles from the Project site, and the cost for disposal of debris and concrete is \$65.00 per ton.
- 6. Where applicable, scrap values are based upon an average of monthly American Metal Market prices for February 2019 through January 2020 (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 Chicago, Illinois. Market prices used include the following:
  - a. Steel scrap value is \$243.24 per net ton.
  - b. Copper scrap value is \$1.95 per pound.
  - c. Aluminum scrap value is \$0.27 per pound.

- 7. Fluids located within the turbine nacelle, including oils, fuels, solvents and process chemicals, are assumed to be drained and disposed of offsite as part of the decommissioning.
- 8. It is 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.
- 9. All underground equipment will be removed to a depth of 4 feet below grade in accordance with the Union County Decommissioning Plan. All non-hazardous structures or foundations greater than 4 feet below grade will remain and are excluded from the decommissioning estimate.
- 10. 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.
- 11. Crushed rock from roads, balance-of-plant areas, and turbine foundation areas is 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.
- 12. It is 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.
- 13. 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.
- 14. The Project laydown yard utilized during construction of the Project is assumed to have been previously reclaimed and restored; no further grading, seeding, or other restoration of the laydown yard is included in this estimate.
- 15. Cost estimates include 5 percent indirects and 10 percent contingency.
- 16. Market conditions may result in cost variations at the time of contract execution.

#### 4.0 STATEMENT OF LIMITATIONS

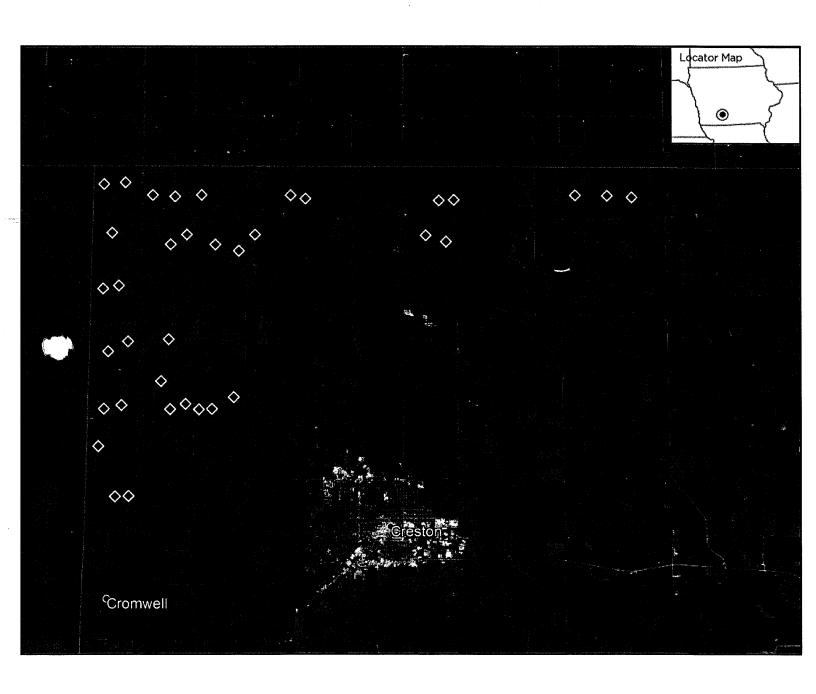
In preparation of this report, 1898 & Co. has relied upon information provided by MidAmerican. While 1898 & Co. has no reason to believe that the information provided to 1898 & Co., and upon which 1898 & Co. has relied, is inaccurate or incomplete in any material respect, 1898 & Co. has not independently verified such information and cannot guarantee or warranty its accuracy or completeness.

1898 & Co.'s estimates, analyses, and recommendations contained in this report are based on professional experience, qualifications, and judgment. 1898 & Co. has no control over weather; cost and availability of labor, material, and equipment; labor productivity; energy or commodity pricing; demand or usage; population demographics; market conditions; changes in technology; and other economic or political factors affecting such estimates, analyses, and recommendations. Therefore, 1898 & Co. makes no guarantee or warranty (actual, expressed, or implied) that actual results will not vary from the estimates, analyses, and recommendations contained herein.

Estimates provided herein were prepared based on current knowledge of site conditions, current regulations, and current material classifications. 1898 & Co. has no evidence or reason to believe that the cost estimate will be inaccurate at the end of the Project's useful life; however, 1898 & Co.'s estimates do not include allowances for unforeseen environmental liabilities associated with unexpected events not considered part of normal operations. Estimates also do not include allowances for environmental remediation associated with changes in classification of materials.

This report is for the sole use, possession, and benefit of MidAmerican. Any use or reliance on the contents, information, conclusions, or opinions expressed herein by any other party or for any other use is strictly prohibited and is at that party's sole risk. 1898 & Co. assumes no responsibility or liability for any unauthorized use.

**APPENDIX A - SITE LAYOUT AND CONFIGURATION** 



**APPENDIX B - DECOMMISSIONING COST BREAKDOWN** 

Table B-1: Estimated Cost for Wind Turbine Decommissioning (2020\$)

Southern Hills 1 Wind Project

Decommissioning Cost Evaluation

Wind Turbine Removal Cost		
Removal	\$	2,430,000
Hauling & Disposal	\$ \$ <b>\$</b>	349,000
Total	\$	2,779,000
Scrap Value	\$	(3,195,000)
Wind Turbine Foundation Removal Cost		
Removal	\$ .	190,000
Hauling & Disposal	\$ \$	288,000
Total	\$	478,000
Scrap Value	\$	-
Collection System Removal Cost		
Removal	\$	17,000
Hauling & Disposal	\$ _\$	1,000
Total	\$	18,000
Scrap Value	\$	-
Substation Removal Cost		
Removal	\$ \$	_
Hauling & Disposal	\$	-
Total	\$	-
Scrap Value	\$	-
Transmission Line Removal Cost		
Equipment Removal	\$	4,000
Hauling & Disposal	\$	1,000
Total	\$	5,000
Scrap Value	\$	(1,000)
Civil Works Removal Cost		
Removal	\$	208,000
Hauling & Disposal	\$ \$ <b>\$</b>	325,000
Grading & Seeding Costs	\$	71,000
Total	\$	604,000
Scrap Value	\$	-
O&M Facility Removal		
Removal	\$ \$	-
Hauling & Disposal	\$	-
Total	\$	-
Scrap Value	\$	-
Met Tower Removal		
Removal	\$ \$	-
Hauling & Disposal <b>Tota</b> l	\$ e	
Scrap Value	\$ \$	-
Other Costs		
Oils & Chemicals Removal & Disposal	\$	16,000
Total	Ś	16,000
	<b>.</b>	10,000
Total Estimated Cost	: \$	3,900,000
Owner Indirects (5%)		195,000
Contingency (10%)		390,000
Total Gross Cost		4,485,000
Total Scrap Value		(3,196,000)
Total Net Cost		1,289,000
. Otal Net Cost	- <del>-</del>	2,203,000





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