BOSWELL WIND, LLC

May 25, 2018

Kimber Wichmann
Chief Economist
Wyoming Department of Environmental Quality
Industrial Siting Division
200 West 17th Street
Cheyenne, WY 82002

RE: Reclamation Bonding Requirement for the Boswell Springs Project under Docket No. DEQ/ISC 15-05

Dear Ms. Wichmann,

On January 13th, 2018, Boswell Wind, LLC (Boswell) was granted an Industrial Siting Permit by the Wyoming Industrial Siting Council (ISC) for the Boswell Springs Wind Project (the Project). Condition #15 of the Permit obligates Boswell to provide an updated Decommissioning Plan and to post a $34.5million surety bond prior to commencement of construction.

Boswell provided an updated Decommissioning Plan to the Industrial Siting Division (ISD) on April 13th, 2018. The updated plan considers a refined Project design and layout, which includes a reduction in number of turbines from 170 to 80, road length from 45.5 to 35 miles, and substations from 4 to 1. Because of the smaller Project footprint, the decommissioning cost estimate has been reduced to $9.2mm.

Wyoming Statute 35-12-106(c) provides that the ISC "may allow the amendment of a permit… for good cause if the holder demonstrates to the Council at its next meeting that the requested change is in compliance with local ordinances and applicable land use plans and will not significantly add to adverse environmental, social and economic impact in the impacted area."
Through this letter, Boswell hereby requests that the ISC amend Permit Condition #15 to reduce the Project bonding value to align with the updated decommissioning cost estimate Boswell believes good cause has been shown for the requested Permit amendment. The requested change is in compliance with local ordinances and applicable land use plans and will not significantly add to adverse environmental, social and economic impacts to the impacted area. The Boswell Project will commence construction in June 2018 and will initially post the full bond of $34.5 million, as currently required by the Permit, however, Boswell respectfully requests that the ISC reduce the value of the bonding requirement as soon as administratively appropriate.

Sincerely,

Mac Lowry
Senior Development Manager
Innergex Renewable Energy Inc.

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Westwood

DECOMMISSIOING PLAN

Boswell Springs Wind Power

Albany County, Wyoming

April 2, 2018

Prepared For:

INNERGEX

888 Dunsmuir Street, Suite 1100

Vancouver, BC V6C 3K4

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1.0 INTRODUCTION / PURPOSE

The Boswell Springs Wind Project (the "Facility") is a wind power generation project proposed by Alterra Power Corp, a subsidiary of Innergex Renewable Energy Inc. (the "Permittee"[1]) in Albany County, Wyoming. The Facility has been optimized from the initial application to include the construction of permanent facilities of up to 80 Vestas V136-4.0 MW – 136 meter rotor turbines with a 82 meter hub height, totaling up to 320 MWs, access roads, three met towers, a substation, underground collection lines, and an operation and maintenance (O&M) facility. The purpose of this "Decommissioning Plan" (and its succeeding and revised Decommissioning Plans, (the "Plans") is to describe the means and methods that can be used to remove project facilities, and reclaim, restore, and return the land altered during the construction and operation of the wind project to its predevelopment condition. to the extent feasible. The Plans identify components which may be removed, and the areas that may be restored once the Facility has not operated for twelve consecutive months, or when the Facility has surpassed the useful lifespan of the turbines and facilities. The useful life of commercial size turbines is generally considered to be 30 years. Permittee acknowledges that decommissioning is accomplished at the Permittee's expense.

This revised plan is intended to meet the requirements of Condition #15 of the Permittee's Industrial Siting Permit (Docket No. DEQ/ISC 15-05) and reflects changes in the turbine technology since the initial Decommissioning Plan was submitted. The Decommissioning Plan will be updated and re-filed with the Wyoming Industrial Siting Division (ISD) every five years from the date on which construction commenced. The revised plans will reflect advancements in construction techniques, reclamation equipment, and standards. The decommissioning cost estimate will also be revised every five years to reflect the changes in the Plans.

2.0 PROPOSED FUTURE LAND USE

Prior to the development of the Facility, the land use in the areas affected by development was primarily undeveloped and range land. After affected areas are decommissioned, these areas will be returned to their predevelopment condition.

3.0 ENGINEERING TECHNIQUES

Decommissioning includes several phases and activities such as:

- Preparation of crane paths to accommodate movement of large industrial cranes to and from each turbine location;
- Preparation of crane pads for removal of turbine components;
- Removal of above ground components (turbines, transformers, met tower, substation, and possibly the operation and maintenance facility);
- Removal of turbine, transformer, met tower substation, and O&M building foundations to a depth of four feet;
- Removal of underground collection system and fiber optic cables to a depth of four feet;
- Removal of access roads (unless the landowners request the roads to remain) and crane paths;
- Restoration of crane paths, including decompaction;
- Reclamation, re-grading, and restoration of disturbed areas including top soil reapplication and decompaction of soils;

[1] "Permittee" refers to any operator, subsequent owner, or transferee of the Facility.

- Application of necessary sediment and erosion controls during and following decommissioning; and
- Repair of public roads and culverts to pre-decommissioning condition

During decommissioning, participating landowners will be consulted to determine the scope and extent of reclamation work to be completed. Some Facility infrastructure such as the access roads may be left in place at the land owner's requests. Underground utility lines deeper than four feet below ground may be left in place to minimize land disturbance and associated impacts to future agricultural land use.

Decommissioning will include the removal and transportation of all turbine components from the Facility site. Decommissioning will also include the removal of cabling, electrical components, access roads, and any other associated facilities in the manner described in the Plan, unless otherwise agreed upon by Permittee and the applicable landowner. All dismantling, removal, recycling, and disposal of materials generated during decommissioning will comply with rules, regulations, and prevailing laws at the time decommissioning is initiated, and will use approved local or regional disposal or recycling sites as available. Recyclable materials will be recycled to the furthest extent practicable. Non-recyclable materials will be disposed of in accordance with state and federal law.

3.1 DECOMMISSIONING

Public Road Modifications and Removal

Temporary turning radius modifications are not expected be needed for decommissioning as turbines that have reached the end of useful life have scrap value, but little resale value. Transportation of the turbine components off-site will be accomplished using conventional over the road trucks. Further, private access roads will be temporarily widened from their operational width of 16 feet to approximately 36 feet wide, by compacting in place soils to create crane shoulders on roads that were configured to accommodate crane travel during the construction of the Facility. Following removal of the decommissioned turbine components, any turning radius modifications required for decommissioning will be removed and any disturbed areas will be restored to preconstruction condition using thorough decompaction techniques and reapplication of topsoil.

Crane Path Preparation and Removal

To facilitate the movement of the large industrial cranes used to disassemble the turbines, crane paths will be required between the turbine sites. A crane path network was designed for the construction of the wind project. The same corridors are likely to be used for decommissioning. Preparations include compaction of the native soils, construction of temporary road crossings, and construction of crane mat crossings, low water crossings, and/or temporary culverts to cross streams. Following disassembly of the wind turbines, the temporary crossings will be removed and the crossing areas will be restored to pre-decommissioning conditions. The soil on the crane paths will be decompacted and revegetated to the pre-construction condition.

Crane Pad Preparation, Removal, and Restoration

A 40 foot by 80 foot crane pad will prepared at each turbine location to be used during dismantling of the turbines. Temporary alteration of turbine pads may be necessary to facilitate crane movements during decommissioning of above-ground turbine components. If such alteration is necessary, topsoil from the additional disturbed areas will be stripped and isolated, for reapplication after turbines have been dismantled and crane pads removed. After removal of all

turbine components, the crane pad area will be removed by excavating any granular materials placed during the initial construction of the crane pad. Disturbed areas will be restored to pre-construction condition by re-grading the area, reapplying topsoil, and decompacting the subsoil and topsoil. See section 3.2 for additional information on reclamation and restoration.

Wind Turbine Removal

Each turbine consists of three (3) steel tower segments, nacelle, rotor and hub assembly, and three blades. The turbine disassembly will be accomplished using large industrial cranes. If it is not cost effective to resell the turbines, the components will be processed on site into sizes which conform to scrap metal recycling requirements. The materials can then be sold for scrap material value and recycled. The tower sections, in particular, represent a substantial amount of high quality steel materials. The processed scrap materials will be loaded on tractor-trailers and removed from the site to a prearranged receiving location, or directly to a recycling or disposal facility. If the components are resold, the individual components will be loaded onto turbine transport vehicles similar to the vehicles originally used to deliver the turbine parts.

Turbine Foundation Removal and Restoration

Turbine foundations are fabricated of concrete and rebar. Topsoil and aggregate from the area surrounding the foundations will be stripped, segregated, and stockpiled near the work site prior to reapplication during restoration. The turbine foundation will be exposed using backhoes, bulldozers, or other earth moving equipment. The pedestal (upper part of the turbine foundation) will be removed to a depth of four feet below the final ground surface. Demolition of mass concrete is generally accomplished using hydraulic hammers mounted on a backhoe or similar equipment (hoe ram), or by the use of expansive chemicals placed in holes drilled in the concrete. Concrete and rebar will be broken into manageable-sized pieces and loaded into dump trucks to be hauled off site for recycling or disposal.

Following the removal of turbines and foundation pedestals, the resulting voids will be backfilled with native subsoils and compacted to at least 90% of the fill material's standard Proctor density. Topsoil will then be reapplied to the site and graded to blend with the surrounding grade and preserve pre-existing drainage patterns. The soil and topsoil will be decompacted to a minimum depth of 18 inches and revegetated to the pre-construction condition. If necessary, the site will be temporarily or permanently re-vegetated, depending upon location, time of year, and anticipated post-decommissioning land use. Any drain tile lines damaged during removal and restoration of turbine foundation areas will be repaired to ensure drainage is maintained.

Access Road/Met Tower Road Removal and Restoration

Access roads will be removed or left in place based on the individual landowner's request. Removal of access roads will entail removal of the road base aggregate and any other materials used for constructing the roads. During removal, the topsoil adjacent to both sides of the roads will be stripped and stockpiled in a windrow paralleling the road. The road base materials will then be removed by bulldozers and wheeled loaders, or backhoes, and hauled off site in dump trucks to be recycled or disposed at an off-site facility. On site processing may allow much of the aggregate to be used to improve public roads. The decommissioning contractor will also likely seek disposal opportunities for clean fill from nearby landowners to reduce hauling and disposal costs. If geotextile fabric was utilized under the aggregate base, it will be removed and disposed of in a landfill off-site. The access road removal will proceed from the turbine area to the public roads to limit tracking and provide a stable access during removal. Following removal, topsoil will be reapplied and graded to blend with surrounding contours to promote pre-construction

drainage patterns. Topsoil to cover the access roads, turbine rings, and met tower rings will be acquired from the areas where it was stockpiled (or wasted) during the original construction. Since topsoil stayed with each landowner in the construction of the wind farm there will be adequate topsoil to restore each area to its pre-construction condition. The soil and topsoil will then be decompacted to a minimum depth of 18 inches and re-vegetated to pre-construction condition.

Underground Electrical Collection Lines

The electrical cables and fiber optic conduits are installed at a depth of a minimum of 48 inches (by plan), and contain no material known to be harmful to the environment. The only exception is cables entering ground mounted transformers and junction boxes. Accordingly the majority of underground cables will be left in place, non-functional. Any cable at a depth of less than four feet will be removed. Following cable, junction box, and route marker removals, disturbed areas will be restored by the restoration methods described above for access roads, including the re-application of topsoil to match the surrounding grade and preserve or promote pre-existing drainage patterns. Soil and topsoil will be decompacted to a minimum depth of 18 inches and re-vegetated.

Overhead Electrical Collection Lines

The only anticipated overhead electrical lines associated with the Facility are a short link connecting the voltage step-up substation to the immediately adjacent transmission line. All poles, conductors, switches and lines associated with this interconnection link will be removed and hauled off site to a recycling facility or disposal site. Pole foundation holes will be filled with a suitable clean compactable material. Topsoil will be applied and the areas and re-vegetated to a pre-construction condition.

Substation

All steel framing, conductors, switch gear, transformers, and other components of the step-up facility will be disassembled and recycled or reused off-site. The interconnection facility will be owned by the power transmission line owner and is not included in the Facility Decommissioning. Foundations and underground components will be removed to a depth of four feet. The rock base will be removed using bulldozers and wheeled loaders or backhoes. The material will be hauled from the site using dump trucks to be recycled or disposed at an off-site facility. Permanent storm water treatment facilities, such as retention basins, will be removed. Topsoil will be reapplied to blend with the surrounding grade to promote pre-construction drainage patterns. Soil and topsoil will be decompacted to a minimum depth of 18 inches and the site will be re-vegetated to a pre-construction condition.

Operations and Maintenance Facility

The O&M facility is a sturdy, general purpose, steel building. Buildings have a longer useful life than wind turbines so the building will not likely be at the end of its useful life when the Facility is decommissioned. Decommissioning will consist either of the sale of the building, the donation of the facility, or the demolition and removal of the structure, foundation, and rock base parking lot and associated storm water treatment facilities. If demolition is undertaken, all associated materials, concrete and rock will be removed from site using backhoes and bulldozers, and hauled off site in dump trucks. All materials which are able to be recycled will be brought to an approved facility. The remaining materials will be disposed of at an approved landfill. Topsoil will be reapplied to the site and graded to blend with the surrounding grade to promote existing

drainage patterns. The topsoil will be decompacted to a minimum depth of 18 inches and re-vegetated to a pre-construction condition.

3.2 RECLAMATION

In addition to the reclamation activities described above for each decommissioning activity, all unexcavated areas compacted by equipment and activity during the decommissioning will be decompacted to a depth of 18 inches or to a depth as needed to ensure proper density of topsoil consistent and compatible with the surrounding area and associated land use. All materials and debris associated with the Facility decommissioning will be removed and properly recycled or disposed of at off-site facilities.

As necessary, the topsoil will be stripped and isolated prior to removal of structures and facilities for reapplication to promote future land use activities. The topsoil will be reapplied following backfill, as necessary, and graded to blend with adjacent contours to maintain pre-construction drainage patterns. The topsoil reapplied will be free from rocks larger than four inches and will not contain debris from decommissioning. Decompaction of the soil and topsoil will be done to a minimum depth of 18 inches. The topsoil will then be re-vegetated using seed mixes approved by the local Farm Service Agency, Soil and Water Conservation District, or Natural Resource Conservation Service. Temporary erosion protection such as mulch, hydromulch or erosion control blanket will be applied blanket will be applied in accordance with the requirements of the project Storm Water Pollution Prevention Plan (SWPPP).

4.0 BEST MANAGEMENT PRACTICES (BMPs)

During decommissioning, erosion and sediment control BMPs will be implemented to minimize potential for sedimentation of surface waters and waters of the state. Because decommissioning will entail disturbance to more than one acre of soil, Permittee will prepare a Storm Water Pollution Prevention Plan (SWPPP) and process a National Pollutant Discharge Elimination System (NPDES) permit prior to initiating soil disturbing activities. Potential BMPs are described below are examples which will be subject to refinement in the SWPPP. The decommissioning team will review the permitting requirements at the time of decommissioning, and obtain any other necessary permits, which may include a U.S. Army Corps of Engineers Section 404 Permit to Discharge Dredged or Fill Material.

4.1 EROSION CONTROL

Erosion control measures are described generally here, but will be refined based on the standard of practice current at the time the SWPPP is developed for decommissioning. All disturbed areas without permanent impermeable or gravel surfaces will be vegetated for final stabilization. All slopes steeper than 4:1 should be protected with erosion control blankets. Restoration should include seed application prior to application of the blanket. All slopes 4:1 or flatter should be restored with seed and mulch, which will be disc anchored.

Project Phasing/Design BMP: Time periods during which disturbed soils are exposed should be minimized the degree possible. Stabilization of soils will generally be accomplished immediately following decommissioning of the access roads, turbine sites, electrical and fiber optic cables, step-up substation, and O&M facilities. Where this is not possible, temporarily exposed soils will be temporarily stabilized with vegetation in accordance with the SWPPP for decommissioning.

Erosion Control Blankets and Seed BMP: Erosion control blanket (double sided netting with wood fiber or weed-free straw fiber blanket) will be used as temporary stabilization for areas of slopes steeper than 4:1 and for areas of concentrated flow, such as ditches, swales, and similar

areas around culverts. Seed will be applied in these areas with the blanket for temporary and/or permanent vegetative growth as necessary. The SWPPP developed for decommissioning will provide detailed specifications for erosion control blankets to be used under various slope and drainage conditions.

Ditch/Channel Protection: Where new channels are formed, as in the case of culverts removed from access roads and the removal of low water crossings, the resulting channel will be protected with erosion control blankets as described in the section above.

Surface Roughening: Surface roughening or slope tracking is the act of running a dozer or other heavy tracked equipment perpendicular to the grade of disturbed slopes with a grade of 3H:1V and steeper with a continuous length of 75 feet or greater. The tracks will provide a rough surface to decrease erosion potential during an interim period until a smooth grade, seed and erosion control blanket can be applied.

Temporary Mulch Cover and Seed BMP: Temporary mulch cover (wood fiber to resist loss from grazing by wildlife or domestic animals) will be applied at a rate of two tons per acre (and/or tackifier should be applied at the manufacturers' recommended rate) to provide temporary erosion protection of exposed soils areas with slopes flatter than or equal to 3:1. Seed will be applied with the mulch for temporary and/or permanent vegetative growth as called for in the SWPPP. Mulch will be used for all soil types where slopes are flatter than 3:1 and no significant concentrated flows are present. The mulch will be disc-anchored to the soil to keep it from blowing away. The mulch prohibits the impact of the rain drop from dislodging soil and subsequently carrying the soil away during sheet drainage. In sandy soils tackifier may be used to assist the disc anchoring if the mulch cannot be secured to the sandy soils.

Soil Stockpiles: Topsoil that is stripped from the construction site and base materials will be stockpiled on site. Stockpile areas will be located in areas that will not interfere with the decommissioning activities, and be located away from pavement, site drainage routes, or other areas of concentrated flow. Stockpiles should also be located away from wetlands and surface waters. Perimeter controls, such as silt fence, will be installed around all stockpiles if stockpiles are not placed within existing silt fences or other sediment control, where the potential exists for material to be eroded and transported to sensitive nature resources. Soils that are stockpiled for longer durations will be temporarily seeded and mulched, or stabilized with a bonded fiber polymer emulsion.

Permanent seed and temporary mulch and/or erosion control blanket BMP: In areas at final grade that will not be used for agriculture, permanent seed will be applied to promote vegetative cover for permanent erosion control. Temporary mulch and/or erosion control blanket will be applied as appropriate in areas to provide temporary erosion protection until the permanent seed is established.

4.2 SEDIMENT CONTROL

Removal of Ditch Crossing BMP: Temporary ditch crossings may be needed to accommodate the movements of cranes or other heavy equipment. Perimeter controls such as silt fence will be used at crossing locations to minimize runoff from exposed soils. Crossings will be done during dry conditions, if possible. If a stream is wet at the time of the crossing, alternative BMPs will be applied. These could include a temporary dam and bypass pump to install the crossing in dry conditions. Timber construction mats will be used as needed to prevent compaction and rutting at crossing locations. All temporary fills and construction mats will be removed immediately af-

ter the crossing is successfully completed and the temporarily disturbed area restored using the appropriate BMPs as described above.

Dewatering: A temporary sump and rock base will be used if a temporary pump is used to dewater an area of accumulated water. If a rock base cannot be used, the pump intake will be elevated to draw water from the top of the water column to avoid the intake and discharge of turbid water. Energy dissipation riprap will be applied to the discharge area of the pump hose. The water will be discharged to a large flat vegetated area for filtration/infiltration prior to draining into receiving waters of conveyances/ditches. If discharge water is unavoidably turbid, dewatering bags, temporary traps, rock weepers, or other adequate BMP will be used to control sediment discharge.

Silt Fence BMP or Fiber Logs: Silt fences or fiber logs will be used as perimeter controls downgradient of exposed soils during construction to capture suspended sediment particles on site, to extent possible. The standard silt fence or fiber logs will also be used in smaller watershed areas where the contributing areas are typically less than 1/4 acre of drainage per 100 feet of standard silt fence or the fiber logs. Standard silt fence or fiber logs will also be used for stockpiles 8 feet high or higher which have slopes of 3:1 or steeper. Standard silt fence or fiber logs should not be used in areas of highly erodible soils which are found within streams, slopes, or banks of creeks and streams within the Facility's site.

Rock Entrance/Exit Tracking Control BMP: Rock construction entrances will be installed where access to a construction area is needed from adjacent paved surfaces.

Street Scraping/Sweeping BMP: Street scraping and sweeping will be used to retrieve sediment tracked or washed onto paved surfaces at the end of each working day, or as needed.

4.3 CONTROLLING STORMWATER FLOWING ONTO AND THROUGH THE PROJECT

Given the gradient of the slopes in the project area, controlling stormwater flow that enters the project area will help in reducing the potential of erosion and sedimentation during decommissioning activities. Only newly disturbed areas may require new, temporary stormwater control.

Diversion Berms/Swales/Ditches: It may be necessary to direct diverted flow toward temporary settling basins via berms, swales, or ditches. If diversion controls are deemed necessary for decommissioning activities, these must be stabilized by temporary mulch and seeding, erosion control blankets, or by installing riprap to protect the channel from erosive forces.

Rock Check Dams: It may be necessary to install temporary check dams within swales or ditches that convey storm water from areas disturbed by decommissioning activities. Rock check dams are effective for velocity control, sediment control, and to augment temporary stabilization of channels. Filter fabric can be utilized to help filter the flow, minimize the scour of the soil under the rock, and facilitate removal of the check dams once permanent stabilization is achieved. The height of check dams should be at least two feet. Spacing depends upon slope. Downgradient rock checks should have the top elevation at the same elevation as the bottom of the previous (upgradient) rock check.

Hay Bale Check Dams: Hay bale check dams may be used for velocity control within swales of the project to slow the water runoff within the drainage channels/swales. The bales should be approximately three feet in length and anchored into the soil. The midpoint elevation of the top of the bale (i.e. ponding height) must be lower than the end points of the bale where the bale meets grade, to prohibit water from flowing around the bales thus causing erosion and scour. If

the bales cannot be applied properly in the field, the use of rock checks as a replacement is recommended.

Temporary Sedimentation Basins: Sedimentation basins serve to remove sediment from runoff from disturbed areas of the site. The basins allow runoff to be detained long enough to allow the majority of the sediment to settle out prior to discharge. The location and dimensions of temporary sedimentation basins, if any are necessary, will be verified in accordance with Wyoming Department of Environmental Quality (DEQ) requirements at the time of decommissioning.

4.4 PERMITTING

All decommissioning and restoration activities will comply with federal and state permit requirements. Decommissioning activities that will disturb more than one acre of soil may trigger the NPDES Construction General permitting process and Wyoming DEQ General Permit WYG740000 Stormwater Permit. The permits, if required, will be applied for and received prior to decommissioning construction activities commencing. A Storm Water Pollution Prevention Plan will be developed prior to filing a Notice of Intent. If permanent crossings are to be removed and no discharge of dredged or fill material will take place, a Section 404 permit is not anticipated for the decommissioning of the Facility. No air permits are currently required for construction activities typical for decommissioning. Wyoming DEQ air quality rules will be reviewed at the time the work is scheduled to determine if an air quality permit will be required. Further, no operating air quality permits are needed for ongoing operation of the wind farm facility. Should decommissioning activities cause temporary or permanent impacts to wetlands, a Wyoming DEQ Wetlands Permit will be obtained prior to any activities commencing, if required. Should decommissioning activities cause temporary or permanent impacts to vernal pools, an Army Corps of Engineers General Permit for the State of Wyoming will be obtained prior to any activities commencing. Should any interim permits become needed, they will be closed out with documentation of compliance at decommissioning.

5.0 TIMELINE

Decommissioning of the wind farm will be initiated if the project has not produced electricity for a period of 12 months unless other mitigating circumstances prevail. The following sections outline a timetable for the decommissioning plan; steps towards compliance with applicable air and water quality laws and regulations; and steps for compliance with health and safety standards.

5.1 DECOMMISSIONING SCHEDULE

It is anticipated that the decommissioning activities for the project can be completed in a 24 month period. The estimated costs for decommissioning are tied to assumptions about the amount of equipment mobilized, the crew sizes, weather and climate conditions, and the productivity of the equipment and crews. No commercial sized wind farm has been decommissioned to date so there are no historical activity durations for some of the activities that can be applied directly.

5.2 WATER REGULATORY COMPLIANCE

Water Quality: NPDES permitting will include the following steps for compliance.

1. Complete a SWPPP consistent with the requirements of the Wyoming DEQ NPDES General Construction Permit applicable at the time of decommissioning.
2. Submit the NPDES Notice of Intent at least 30 days prior to starting construction activities associated with decommissioning.
3. Once notification of permit coverage is received, decommissioning will commence.
4. During decommissioning, compliance with the NPDES permit (applicable at the time of decommissioning) will be adhered to including inspections, documentation, maintenance of BMPs, record keeping, amendments to the Plans and implementation of the SWPPP.
5. Within 30 days of completing decommissioning and restoration, a Notice of Termination (NOT) will be submitted to the Wyoming DEQ to terminate coverage of the NPDES permit.

Water Quality: Section 404 Discharge of dredged and fill material will include the following steps for compliance.

1. Notification to the Corps of Engineers if needed, of expected activities such as temporary stream/water body crossings.
2. Verification of necessary permits (if any).
3. Apply for any necessary Section 404 permits prior to commencing work within waterways/ wetlands.
4. As applicable, develop Plans to comply with necessary permit regulations.
5. Once receipt of applicable permits, decommissioning work will commence adhering to rules, timelines and requirements stated in applicable permits.

5.3 HEALTH AND SAFETY STANDARDS

Work will be conducted in strict accordance with Permittee's health and safety plan. The construction contractor hired to perform the decommissioning will also be required to prepare a site-specific health and safety plan. All site workers, including subcontractors, will be required to read, understand, and abide by the Plans. A site safety office will be designated by the construction contractor to ensure compliance. This official will have stop-work authority over all activities on the site should unsafe conditions or lapses in the safety plan be observed.

6.0 DECOMMISSIONING COSTS AND FINANCIAL ASSURANCE

This cost estimate was prepared: (1) in current dollars; (2) with the salvage value of equipment or materials calculated separately; and (3) includes (i) an analysis of the physical activities necessary to implement the approved reclamation plan, with physical construction and demolition costs based on applicable Wyoming Department of transportation unit bid prices and RS Means material and labor cost indices; (ii) the number of units required to perform each of the activities; and (iii) an amount to cover contingency costs above calculated cost. The Estimate is shown on a total cost and on a per-turbine basis. The decommissioning plan and cost estimate will be revised every fifth year.

Cost and quantities shown are preliminary for the Boswell Springs Wind Project, as design is not complete at the time this estimate was prepared. Since this this estimate is intended to cover the first five years of wind farm operation it is assumed that there will be some resale value for the turbines. The estimates are based on market data at the time the estimate was made.

There is currently a thin market for used and surplus turbines so it is assumed that not all used turbines can be sold. One website selling used wind turbines is https://windturbines-marketplace.com/second-hand-wind-turbines-and-new-wind-turbines. Resale offer prices range from $3.8 million per MW to $33,067 per MW. The offer prices are quoted at the seller's location, so the buyer is responsible for transportation costs. For this estimate, we conservatively chose a weighted value based on the number of wind turbines offered at different prices. Vestas turbines have an indicated price of approximately $850,000 for a 4.0 MW turbine based on older Vestas 2.0 MW turbines offered for sale. Using this approach, the resale value of the turbines will exceed decommissioning costs including access road removal and substation removal. Based on a review of the offering data very few turbines models are offered in numbers greater than 15, so we assumed that large numbers of turbines on the market will depress the resale price. Our assumptions include that 15 of the turbines can be resold.

The turbines that are not resold will have the materials recycled as scrap. The estimate uses a current structural scrap price of $250 per ton, based on prices posted on http://www.scrapmonster.com/scrap-prices/category/Steel/300/1/1 on March 6, 2018. The posted prices are three months old. Scrap metal prices are very volatile. Current prices are approximately 50 percent of the peak prices in 2008.

Electrical transformer have significant value for aluminum used in the windings and the steel used in other parts of the transformer. Newer transformers can be resold. Older transformers are recycled as scrap. There are few companies that accept used transformers for resale or recycling so finding pricing is difficult.

The form of financial assurance is a financial instrument mutually agreed upon by Albany Board of County Commissioners and Permittee, and will be adjusted upward or downward to offset any increases or decreases in decommissioning costs and salvage values determined during five-year Plans updates. If decommissioning of the Facility or individual turbines is undertaken, Permittee will, upon satisfactory completion, provide supporting documentation to the Board of County Commissioners with a request for the release of the posted funds or financial assurance.

The total cost of the decommissioning of the Boswell Springs Wind Project is $9,326,000, or $116,575 per turbine. Including salvage costs and land sales net total costs are $4,156,000, or $51,950 per turbine.

BOSWELL SPRINGS - DECOMMISSIONING COST ESTIMATE				
	Quantity	Unit	Unit Cost	Total Cost
Number of Turbines	80			
Mobilization/Demobilization	1	Lump Sum	$500,000.00	$500,000
Permitting				
County Permits	1	Lump Sum	$2,000.00	$2,000
State Permits (SWPPP, SPCC)	1	Lump Sum	$5,000.00	$5,000
Subtotal Permits				$7,000
Disconnect Turbine Wiring	80	Each	$2,506.00	$200,480
Dismantel Turbine Tower, Hub, and Blades	80	Each	$11,702.63	$936,210
Disassemble Turbine Components	29,144	Tons	$31.00	$903,471
Loadout Turbine Components	29,144	Tons	$37.00	$1,078,337
Haul Turbine Components Offsite	29,144	Tons	$61.25	$1,785,085
Turbine Components Disposal	8,403	Tons	$30.60	$257,139
Excavate Around Turbine Foundation	80	Each	$224.00	$17,920
Remove Turbine Foundation to a Depth of 4 feet and Load	2,617	Cubic Yards	$135.00	$353,250
Backfill Excavation Area from Turbine Foundation Removal	80	Each	$153.30	$12,264
Haul Concrete (Turbine Foundation)	5,299	Tons	$12.05	$63,846
Disposal of Concrete from Turbine Foundation	2,617	Cubic Yards	$38.00	$99,433
Remove and Load Transformer	80	Each	$940.00	$75,200
Freight Transformer Offsite	80	Each	$748.72	$59,897
Transformer Disposal	80	Each	$0.00	$0
Decompact Wind Turbine Generator Site	80	Each	$98.03	$7,843
Grade Wind Turbine Generator Site	80	Each	$1,335.00	$106,800
Erosion and Sediment Control at Turbine/Transformer Site	80	Each	$276.32	$22,106
Topsoil and Turf Establishment at Turbine/Transformer Sites	14.4	Acres	$4,259.20	$61,404
Subtotal Wind Turbine Generators				$6,040,685
Met Towers (Free Standing)				3
Disconnect Tower Wiring	3	Each	$626.50	$1,880
Dismantel and Disassemble Tower	3	Each	$3,577.00	$10,731
Loadout Tower Components	12	Tons	$37.00	$446
Freight Tower Components Offsite	12	Tons	$12.05	$145
Excavate Around Tower Foundation	3	Each	$84.00	$252
Remove Tower Foundation to a depth of 4 feet and Load	2	Cubic Yards	$135.00	$328
Haul Concrete (Tower Foundation)	2	Cubic Yards	$12.05	$29
Disposal of Concrete from Met Tower	2	Cubic Yards	$38.00	$92
Remove and Load Gravel Surfacing from Met Tower Site/Road	356	Cubic Yards	$2.90	$1,031
Haul Gravel from Met Tower Site	528	Tons	$2.01	$1,060
Disposal of Gravel from Met Tower Site	528	Tons	$3.94	$2,080
Grade Met Tower Site - Includes Met Tower Road	3	Each	$1,335.00	$4,005
Erosion and Sediment Control at Tower Site	3	Each	$704.00	$2,112
Topsoil and Turf Establishment at Tower Site	0.44	Acre	$4,259.20	$1,877
Subtotal Met Towers (Free Standing)				$26,070

Electrical Collection/Transmission System				53.0
Removal of Underground Collector System Cables (34.5 kV)	80	Each	$400.00	$32,000
Removal of Overhead Transmission Line Cables (230 kV)	0	Feet	$0.00	$0
Haul Underground Collector System Cables (34.5 kV)	5.5	Tons	$61.25	$334
Disposal of Removed Cables	1.7	Tons	$0.00	$0
Topsoil and Turf Establishment at Removed Cable Locations	0	Acres	$1,600.00	$0
Removal of Junction Box	10	Each	$100.00	$1,000
Disposal of Junction Box	10	Each	$100.00	$1,000
Erosion and Sediment Control at Junction Box Location	0	Each	$100.00	$0
Topsoil and Turf Establishment at Junction Box Location	0	Each	$200.00	$0
Subtotal Electrical Collection/Transmission System				$34,334
Access Roads				188,480
Remove and Load Gravel Surfacing from Access Roads	74,461	Cubic Yards	$2.90	$215,938
Haul Gravel Removed from Access Roads	120,627	Tons	$2.01	$242,243
Disposal of Gravel Removed from Access Roads	120,627	Tons	$3.94	$475,271
Remove and Load Culvert from Beneath Access Roads	15	Each	$448.00	$6,720
Haul Culvert Removed from Access Roads	8	Tons	$30.60	$235
Disposal of Culverts	8	Tons	$10.00	$77
Remove Low Water Crossing from Access Roads	12	Each	$3,400.00	$40,800
Haul Low Water Crossing Materials Removed from Access Roads	12	Each	$0.00	$0
Disposal of Low Water Crossing Materials	12	Each	$0.00	$0
Decompact Access Road Corridor	188,480	Linear Feet	$0.25	$47,077
Grade Access Road Corridor	188,480	Linear Feet	$0.98	$184,333
Erosion and Sediment Control Along Access Roads	188,480	Linear Feet	$0.26	$49,759
Topsoil and Turf Establishment on Removed Access Road Area	104	Acres	$4,259.20	$442,300
Subtotal Access Roads				$1,704,752
Crane Paths				
Installation of Temproary Culverts	5	Each	$7,700.00	$38,500
Removal of Temproary Culverts	5	Each	$2,500.00	$12,500
Haul Culvert Removed from Crane Paths	15	Tons	$30.60	$466
Disposal of Culverts	15	Tons	$10.00	$152
Installation and Removal of Low Water Crossing	10	Each	$3,400.00	$34,000
Haul Low Water Crossing Materials Removed from Path	10	Each	$1,050.00	$10,500
Decompation of Crane Path	50,000	Linear Feet	$0.15	$7,493
Erosion and Sediment Control Along Crane Path	50,000	Linear Feet	$0.26	$13,200
Turf Establishment or Farm Field Restorationon Decompacted Crane Path	46	Acres	$4,259.20	$195,556
Subtotal Crane Paths				$312,367

Substation				
Disassembly and Removal of Main Power Transformer(s)	1	Each	$4,500.00	$4,500
Freight Transformer(s) Offsite	1	Each	$10,000.00	$10,000
Disposal of Transformer(s)	1	Each	$0.00	$0
Excavate Around Transformer Foundation(s)	1	Each	$2,000.00	$2,000
Remove Complete Transformer Foundation(s)	1	Each	$11,340.00	$11,340
Backfill Excavation Area from Transformer Foundation Removal	1	Each	$547.50	$548
Haul Concrete (Transformer, Switch Gear, etc. Foundations)	914	Tons	$12.05	$11,007
Disposal of Crushed Concrete from Transformer Foundation	914	Tons	$30.60	$27,953
Demolish Substation Site Improvements (fences, etc)	1	Lump Sum	$3,500.00	$3,500
Demolish Control Building and Foundation	0	Lump Sum	$12,000.00	$0
Remove Medium/High Voltage Equipment	1	Lump Sum	$3,500.00	$3,500
Remove Structural Steel Substation Frame	1	Lump Sum	$3,500.00	$3,500
Freight - Demolition Materials, Removed Equipment & Structural Steel Off	1	Lump Sum	$2,409.84	$2,410
Disposal of Demolition Materials, Removed Equipment and Structural Stee	1	Lump Sum	$0.00	$0
Remove and Load Gravel Surfacing from Substation Site	538	Cubic Yards	$2.90	$1,560
Haul Gravel Removed from Road	799	Tons	$2.01	$1,604
Disposal of Gravel from Substation Site	799	Tons	$3.94	$3,146
Decompact Substation Site	0.50	Acres	$544.00	$272
Grade Substation Site	1	Each	$1,255.00	$1,255
Erosion and Sediment Control at Substation Site	1	Lump Sum	$352.00	$352
Topsoil and Turf Establishment at Substation Site	0.50	Acres	$4,259.20	$2,130
Subtotal Substation				$90,576
O&M Building				Sell Building
Subtotal O&M Building				$0
Public Roads	0	Miles		$0
Public Bridges	0	Each		$0
Sub Total				$8,715,784
Contingency (7%)				$610,105
Total				$9,325,889
Cost Per Turbine				$116,574

Land Sales				
O & M Building and Substation	2.0	Acres	$1,000.00	$2,000
Subtotal Land Sales				$2,000
Salvage				
Turbine Towers (Structural Steel)	15,644	Tons	$250.00	$3,911,065
Turbine Nacelles (Structural Steel)	2,643	Tons	$250.00	$660,750
Met Towers (Structural Steel)	12	Tons	$250.00	$3,017
Substation Structural Steel)	10	Tons	$250.00	$2,500
Turbine Generators	745,200	Pounds	$0.46	$339,066
Aluminum Electrical Conductor (Supportted)	3,385	Pounds	$0.46	$1,540
Aluminum and Steel Conductor (Suspended)	0	Pounds	$0.00	$0
Transformers (aluminum windings)	550,000	Pounds	$0.46	$250,250
Transformers (oil)	47,400	Gallons	$0.00	$0
Subtotal Slavage				$5,168,188
Total Demolition Minus Salvage and Land Sales				$4,155,701
Total Demolition Minus Salvage and Land Sales per Turbine				$51,946

Kimber Wichmann <kimber.wichmann@wyo.gov>

Boswell Springs - Capital Cost Estimate

1 message

Mac Lowry <MLowry@innergex.com> Wed, Jun 6, 2018 at 10:34 AM
To: "brian.lovett@wyo.gov" <brian.lovett@wyo.gov>
Cc: Kimber Wichmann <kimber.wichmann@wyo.gov>, Oliver Robson <ORobson@innergex.com>, Michelle Closson <MClosson@innergex.com>, "JScoggin@hollandhart.com" <JScoggin@hollandhart.com>, Luke Pangman <LPangman@innergex.com>

Hi Brian,

Thanks for the call this morning. I hope it clarified the situation with respect to the Boswell Springs capital cost estimate; that there is no material change in the expected cost of the project from the value presented in the application. The reduction in number of turbines is offset by the increased cost in the higher capacity turbines.

I'm happy to organize a follow-up call with our finance team if you require a more technical explanation of the determination of our capital costs and how it is refined through the development cycle.

Sincerely,

Mac Lowry
Senior Development Manager (USA)

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