
29.0 DECOMMISSIONING

29.1 ANTICIPATED LIFE OF WIND TURBINES

The turbines for the Bingham Wind Project (project) are designed and certified by independent agencies for a minimum expected operational life of 20 years.

As the wind turbines approach the end of their expected life, it is expected that technological advances will make available more efficient and cost-effective generators that will economically drive the replacement of the existing generators.

Following the commencement of operation of the project, absent the existence of a Force Majeure event, as defined below, there will be a rebuttable presumption that the owner shall decommission the project in the event that there is an absence of electricity generated by the Project for a continuous period of twelve (12) months. In addition to the Force Majeure exception, the owner may also provide reasonable evidence that the project has not been abandoned and should not be decommissioned.

“Force Majeure” as used herein shall mean “fire, earthquake, flood, tornado or other acts of God and natural disasters; strikes or labor disputes; war, civil strife or other violence; any law, order, proclamation, regulation, ordinance, action, demand or requirement of any government agency; suspension of operations of all or a portion of the project for routine maintenance, overhaul, upgrade or reconditioning; or any other act or condition beyond the reasonable control of a party.”

29.2 ESTIMATED COST OF DECOMMISSIONING

The cost of decommissioning the project reflects the salvage value of the towers, the turbine components, and the electrical collection system and associated substation. The Operations and Maintenance building will retain independent value as a warehouse facility and thus will be sold. The proceeds from such a sale, however, have not been accounted for in the estimate of total decommissioning costs. As of the date hereof, estimated cost of decommissioning, taking into account salvage value is \$623,300 as shown in Table 29-1, and described further in Exhibit 29A. Note that as discussed in Exhibit 29A, these estimates reflect the costs associated measures to minimize or prevent adverse effect on the environment during implementation of the decommissioning plan. Also, although some of the component parts may have resale value, the salvage values are conservatively estimated based not on resale, but scrap metal values. The methodology for determining scrap values is set forth in Exhibit 29A.

SECTION 29: DECOMMISSIONING**Table 29-1. Estimated Decommissioning Costs and Salvage Values**

Category	Decommissioning Cost	Scrap Value	Net
Project Management (<i>contractor costs, equipment, etc.</i>)	\$1,707,600		\$1,707,600
Site work/Civil (<i>site reclamation</i>)	\$451,900		\$451,900
Wind Turbine Foundations	\$489,800		\$489,800
Wind Turbine Generators and MET towers (<i>towers/hub/nacelle/blades/etc.</i>)	\$2,994,700	\$5,601,300	(\$2,606,600)
Electrical Collection System	\$332,000	\$61,600	\$270,400
Electrical Substation and DRD	\$603,200	\$420,000	\$183,200
Electrical GenLead System	\$201,500	\$74,500	\$127,000
Total	\$6,780,700	\$6,157,400	\$623,300

29.3 FINANCIAL ASSURANCE AND SITE RESTORATION FUNDS

Consistent with decommissioning commitments made in other recent First Wind projects, the Applicants¹ believe that funding requirements for decommissioning should be commensurate with the risk that decommissioning will be required. The risk of decommissioning during the early years of a project is negligible. The turbines themselves have a useful life of 20 years and will be under warranty from the manufacturer for 2-5 years. As required by the lenders, the project is held in a separate operating company, so that in the event anything happened to First Wind, the lender can operate the facility. Moreover, once the project is constructed, the fuel cost is negligible, so there is substantial economic incentive to maintain operations. For these reasons there is de minimis risk that the project will require decommissioning in the early years. In response to a shift away from phased funding, the Applicants have agreed to fund the full amount of decommissioning costs, taking into account scrap values, prior to the start of construction. As set forth above, the decommissioning costs are currently estimated to be \$623,300. The Applicants will demonstrate the availability of this amount through a performance bond, surety bond, letter of credit or other acceptable form of financial assurance (the "Financial Assurance").

In order to assess whether the estimated net cost of decommissioning has changed, for example, because of changes in removal costs or salvage value, the Applicants will update both the removal costs and scrap values on or prior to the end of calendar years 5, 10, and 15 of the project's operation, and provide the updated information to the Maine Department of Environmental Protection.

¹ Blue Sky West, LLC is the wind energy project entity; Blue Sky West II, LLC is the electrical generator lead entity.

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The Financial Assurance shall be kept in place until such time as the decommissioning work has been completed, provided, however, to the extent available as liquid funds, the Financial Assurance may be used to offset the costs of the decommissioning.

29.4 DECOMMISSIONING PROCESS

The decommissioning and restoration process comprises removal of aboveground structures; removal of belowground structures to a depth of 24 inches; grading, to the extent necessary; restoration of topsoil and seeding. Roads and turbine pads will not be removed, as they can be utilized by the landowners for ongoing timber management activities. Appropriate erosion and sediment controls will be installed prior to earth disturbing activities.

The process of removing structures involves evaluating and categorizing all components and materials into categories of recondition and reuse, salvage, recycling, and disposal. In the interest of increased efficiency and minimal transportation impacts, components and material may be stored on-site in a pre-approved location 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, salvage, recycling, or disposal.

Aboveground structures include the turbines, overhead collector lines, the electrical substation, dynamic reactive device (DRD), generator lead, and meteorological towers. Belowground structures include turbine foundations, collection system conduit and cable, fiber optic facilities, and subterranean drainage structures (if any). The aboveground structures and belowground structures are collectively referred to as the "Wind Project Components."

In connection with the decommissioning and removal of the Wind Project Components and as described in Exhibit 29A, in the event that on or prior to decommissioning, the current owner provides evidence of a plan of continued beneficial use of any of the Wind Project Components, such items would be excepted from the requirements of decommissioning and the existing license would be amended to reflect such revisions.

Turbine removal. Access roads to turbines will be widened to a sufficient width to accommodate movement of appropriately sized cranes, trucks, and other machinery required for the disassembly and removal of the turbines. Control cabinets, electronic components, and internal cables will be removed. The rotor, nacelle, and tower sections will be lowered to the ground where they may be transported whole for reconditioning and reuse, or disassembled/cut into more easily transportable sections for salvageable, recyclable, or disposable components.

Turbine foundation removal. Topsoil will be removed from an area surrounding the foundation and stored for later replacement, as applicable. Turbine foundations will be excavated to a depth sufficient to remove all anchor bolts, rebar, conduits, cable, and concrete to a depth of 24 inches below grade. The remaining excavation will be filled with clean sub-grade material of quality comparable to the immediate surrounding area. The sub-grade material will be compacted to a density similar to surrounding sub-grade material. Areas compacted by equipment used in decommissioning shall be de-compacted in a manner to

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adequately restore the topsoil and sub-grade material to the proper density consistent and compatible with the surrounding area.

Access roads and construction pads. Unless requested otherwise by the underlying landowner, permanent access roads constructed to accommodate the project will remain in place.

Overhead and generator lead lines. The conductors, insulators, and other pole-top material will be removed. The supporting poles and anchors will be removed and the holes filled in with compatible sub-grade material. In areas where environmental damage from complete removal may outweigh the benefits, the poles will be sawed flush with the surrounding grade. Line components may be stored on-site during deconstruction of the line but will then be transported off-site for salvage or disposal.

Underground collection cables. The cables and conduits contain no materials known to be harmful to the environment. As part of the decommissioning, these items will be cut back to a depth greater than 24 inches. Cable and conduit buried greater than 24 inches will be left in place and abandoned, unless required for any future site development.

Substation and DRD facilities. Disassembly of the substation and DRD facilities will include only the areas owned by the Applicants. Components (including steel, conductors, switches, transformers, fencing, and control houses) will be removed from the site and reconditioned and reused, sold as scrap, recycled, or disposed of appropriately at the Applicants' sole discretion. To the extent possible to remove foundations and underground components without damaging or impacting adjacent facilities, such foundations and underground components will be removed to a depth of 24 inches, and the excavation filled, contoured, and re-seeded.

29.5 SITE RESTORATION PROCESS

Topsoil will be removed prior to removal of structures from all work areas and stockpiled, clearly designated, and separate from other excavated material. Appropriate erosion and sediment controls will be installed prior to earth disturbing activities. The topsoil will be de-compacted to match the density and consistency of the immediate surrounding area. The topsoil will be replaced to original depth, and original surface contours reestablished where possible. Any topsoil deficiency and trench settling will be mitigated with imported topsoil consistent with the quality of the affected site. The affected areas will be inspected, thoroughly cleaned, and all construction-related debris removed.

Disturbed areas will be reseeded to promote re-vegetation of the area to a condition reasonably similar to the original condition, reasonable wear and tear excepted. In all areas, restoration shall include, as reasonably required, leveling, terracing, mulching, and other necessary steps to prevent soil erosion, to ensure establishment of suitable grasses and forbs, and to control noxious weeds and pests.

Exhibit 29A: Decommissioning Budget



Chris Fullarton

First Wind Energy, LLC

via e-mail: cfullarton@firstwind.com

April 10, 2013

Subject: Blue Sky West, LLC and Blue Sky West II, LLC (Bingham Wind Project) Decommissioning Budget

Dear Chris:

Sewall was requested to develop this Decommissioning Budget for the 62 wind turbine generator (WTG) Bingham Wind Project located in the towns of Bingham, Moscow, Parkman, Abbot, Mayfield TWP, and Kingsbury PLT in Somerset and Piscataquis Counties, Maine. The budget represents an opinion of probable cost (OPC), in today's dollars, for decommissioning based on the assumption that the wind turbines, and other project components will be disassembled and disposed following completion of use. The budget is also built on the assumption that the cost of decommissioning will be fully or partially offset by the scrap value of the towers and turbine components.

Based on information provided from First Wind, we are assuming the O&M Building will be turned over to the land owner. This component has therefore not been included in the discussion or calculations herein. It is assumed that all project roads will remain.

Information Sources for this Review

This review is based on the civil and electrical site plans and quantity information provided by First Wind, discussions with contractors familiar with this type of construction and our own experience with wind projects. Wage rates used in these estimates are based on the State of Maine Department of Labor, Bureau of Labor Standards; 2013 Fair Minimum Wage Rates, Heavy and Bridge; Somerset County.

Decommissioning Scope

The decommissioning process reflected in this OPC is based on Decommissioning Plans prepared for similar wind projects.

In summary, the decommissioning and restoration process in the Plan consists of the following steps:

- Disassembly and removal of above-ground structures
- Removal of below-ground structures to a depth of 24 inches
- Re-grading and seeding

Above-ground structures include the turbines, transformers, substation, Dynamic Reactive Device, overhead collection and generator-lead lines, and meteorological towers. Below-ground structures include turbine and collection system foundations; and drainage control structures (e.g., culverts) as necessary to restore turbine sites. Following removal of all above- and below-ground structures to 24 inches below grade, the individual disturbed areas will be re-graded to be consistent with surrounding areas and reseeded to promote re-vegetation. The cost for disposal for any materials that are not scrapped is considered incidental, unless otherwise noted.



Decommissioning Budget

The decommissioning process has been divided into eight (8) general work items. Quantities and unit prices for these individual work items are presented and discussed in detail in the following paragraphs.

1. Project Management (contractor costs, equipment, etc.)
2. Site Work/Civil (site reclamation)
3. Wind Turbine Foundations
4. Wind Turbine Generators and MET Towers
5. Electrical Collection System
6. Electrical Substation
7. Electrical GenLead
8. Dynamic Reactive Device Facility

1. Project Management

1.1 Mobilization

A. Mobilization and demobilization to setup and breakdown the crane and assist crane estimated to cost a flat fee of \$95,000 per one-way trip, for a total of:	\$	190,000.00
B. In addition, it is estimated that the cranes will be re-mobilized an additional three (3) times at an estimated cost of \$60,000 per move to reach all of the turbine sites for a total of:	\$	180,000.00
C. Mobilization and demobilization of ancillary equipment (i.e. bulldozers, backhoes, etc.) is estimated to be:	\$	50,000.00
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Total estimate for mobilization is:	\$	420,000.00

1.2 Project Oversight. Oversight of the decommissioning is estimated at: \$ 403,000.00

1.3 Incidentals / Erosion and Sedimentation Control Measures. A budget of approximately 5% of the decommissioning scope is recommended for project incidentals, including erosion and sedimentation control measures: \$ 294,900.00

1.4 Contingency. A contingency of approximately 10% of the decommissioning scope is recommended to cover unknowns: \$ 589,700.00

Total opinion of probable costs for **Project Management**: \$ 1,707,600.00

2. Site Work/Civil (Site Reclamation)

2.1 Re-grading of turbine sites

A. The decommissioning plan includes restoring each of the turbine sites. We are assuming that all excavated areas will be brought up to grade and sloped to drain with suitable fill material generated from the re-grading of the turbine site or from off-site sources. The estimated cost includes additional fill, topsoil or other organic matter to support growth, seed, and mulch.

Approximate disturbed area:		12,350 SF/turbine site
Estimated cost per 1000 SF (1 MSF):	\$	330.00 /MSF
<hr/>		
Total estimated re-grading material cost for all 62 turbine sites:	\$	252,700.00

B. This re-grading and restoration work is estimated to take a dozer and operator approximately eight (8) hours to complete at each turbine site.

Labor & equipment rate:	\$	200.00 /hour
<hr/>		
Total re-grading and restoration work for all 62 turbine sites:	\$	99,200.00



Total estimate for re-grading turbine sites is: \$ 351,900.00

2.2 Road Maintenance. Dust control, road maintenance, and post construction road repairs is difficult to estimate. A budget of approximately 1% of the \$10 million estimated for road construction is recommended to address these items.

\$ 100,000.00

The total opinion of probable costs for **Site Work/Civil**: \$ **451,900.00**

3. Wind Turbine Foundations

3.1 Removal of WTG foundation to 2 FT below grade. Removal of the turbine foundations is assumed to require a hydraulic excavator equipped with hydraulic ram (hoe-ram), an additional excavator with bucket for loading, and various dozers and loaders.

Total estimated labor & equipment cost: \$ 5,500.00 /site

Total estimate for WTG foundation removal labor for all 62 turbine sites: \$ 341,000.00

3.2 Transportation of rubble and disposal. Concrete demolition rubble generated at each turbine site is estimated to be approximately 55 cubic yards (based on a removal depth of 2 feet below grade). As it is assumed the steel rebar will be separated from the concrete debris, the rubble essentially becomes an inert material. Therefore, we have assumed that the concrete rubble generated will not be transported offsite but be used onsite as fill at toes of slopes, for road base or topping material, or at other locations in need of fill as desired by the property owner. Costs to transport the foundation rubble within the project boundaries, in comparison to other decommissioning costs, are assumed to be negligible. In the unlikely event the material cannot be used on-site, the material will be transported for offsite use. Costs to transport the foundation rubble to disposal are based on an estimated requirement of six (6) dump truck trips for each turbine site and transported to a location within 2 hours (one-way) at an equipment and labor rate of \$100/hr.

Total estimated labor & equipment cost: \$ 400.00 /dump truck trip

Total estimate for WTG foundation transportation costs for all 62 turbine sites: \$ 148,800.00

The total opinion of probable costs for removal of **WTG Foundations**: \$ **489,800.00**

4. Wind Turbine Generators and MET Towers

4.1 Disassembly of turbine generators:

A. Disassembly costs for the WTGs are based on the assumption that it will take a 10-man crew 20 hours to disassemble each tower and turbine, which is roughly equivalent to the labor effort required for tower and turbine assembly.

Estimated labor rate: \$ 25.00 /man-hour

Total estimate for WTG disassembly for all 62 turbines: \$ 310,000.00

B. Based on an assumption that the two cranes (erector and assist cranes) can disassembly two (2) turbines a week, the crane rental is estimated to be 31 weeks. Two (2) weeks are added for wind day delays.

Estimated rental costs for two cranes: \$ 40,000.00 /week

Total estimate for WTG disassembly equipment for all 62 turbines: \$ 1,320,000.00

C. Additionally, once the towers and turbines are on the ground, they will need to be cut up into manageable sized pieces in preparation for transportation to scrap, recycle, or disposal facilities. We are assuming it will take a 5-man crew 20 hours to do this work per turbine.

Estimated labor rate: \$ 15.00 /man-hour



Total estimate for WTG dismantling for all 62 turbines:	\$ 93,000.00
The total estimate for WTG disassembly is:	\$ 1,723,000.00

- 4.2 Transportation of turbine components to disposal/reclamation site. Cost to transport the tower and turbine components to facilities for scrap, recycling or disposal are based on a estimated requirement of ten (10) transport vehicles per turbine site (note: transport of new turbine and tower components to a site requires 12 to 14 transport vehicles).

Total estimated labor & equipment cost:	\$ 1,400.00 /transport trip
Total estimate for turbine component transport for all 62 turbine sites:	\$ 868,000.00

- 4.3 Nacelle housing, blade, and other component disposal. Disposal of the nacelle housing, blades, and other non-scrapable components are based on an estimated 90,000 lbs/turbine. Disposal fees are generally based on weight (in tons).

Total estimated weight of blades and nacelle:	45 tons
Disposal fee (based on Bangor area landfill rates):	\$ 133.00 /ton
Total estimate for nacelle housing and blade disposal for all 62 turbine sites:	\$ 371,100.00

4.4 MET Tower disassembly/removal:

- A. Disassembly costs for the MET towers are based on the assumption that it will take a 5-man crew 16 hours to disassemble each MET tower.

Estimated labor rate:	\$ 25.00 /man-hour
Total estimate for MET disassembly labor cost for five (5) towers:	\$ 10,000.00

- B. Additionally, equipment rental is estimated at approximately 16 hours for each MET tower to assist with the disassembly, partially remove foundations, and reclaim the site.

Total estimated labor & equip. rate:	\$ 200.00 /hour
Total estimate for MET disassembly equipment cost for five (5) towers:	\$ 16,000.00

Total estimate for MET tower disassembly/removal for five (5) towers is: \$ 26,000.00

4.5 Transportation of MET tower components to disposal/reclamation site.

- A. Cost to transport the MET tower components to facilities for scrap, recycling or disposal are based on an estimated requirement of one (1) truck trip for each MET tower.

Total estimated labor & equip. cost:	\$ 920.00 /trip
Total estimate for MET component trucking cost for five (5) towers:	\$ 4,600.00

- B. We have assumed that the concrete rubble generated from the foundations (while separating rebar as necessary) will not be transported offsite but be used onsite as fill at toes of slopes, for road base or topping material, or at other locations in need of fill as desired by the property owner. In the unlikely event the material cannot be used on-site, the material will be transported for offsite use. Costs to transport the foundation rubble to disposal are based on six (6) cubic yards of rubble for an estimated one (1) dump truck trip per MET tower site and transported to a location within 2 hours (one-way) at an equipment and labor rate of \$100/hr.

Total estimated labor & equip. cost:	\$ 400.00 /dump truck trip
Total estimate for MET foundation transportation cost for five (5) towers:	\$ 2,000.00
Total estimate for MET tower disposal for five (5) towers is:	\$ 6,600.00



The total opinion of probable costs for **WTGs and MET Tower removal:** **\$ 2,994,700.00**

5. Electrical Collection System

Note that as the direct-buried underground collector is buried deeper than 2 ft, it will not be removed but be abandoned in place.

5.1 Disassembly of overhead collector lines and associated components:

- A. Disassembly and spooling costs for the overhead collector lines and associated components are based on the assumption that the labor effort required will be a 3-man crew working for four (4) hours per 1,000 feet of overhead wire.

Estimated total length of overhead lines:		93,900 feet
Estimated labor rate:	\$	35.00 /man-hour
Total estimate for overhead collector lines disassembly:	\$	39,500.00

- B. Equipment rates are estimated at the following rate for approximately 47 days.

Estimated equipment rates:	\$	1,700.00 /day
Total estimate for overhead collector disassembly equipment:	\$	79,900.00

- C. Pole removal and filling of remaining hole, based on the following approximate quantities:

Amount of poles:		246 each
Removal labor and equipment costs:	\$	160.00 /pole
Total estimate for overhead collector pole removal:	\$	39,400.00

Total for disassembly of overhead collector lines: **\$ 158,800.00**

5.2 Transportation of collector lines and associated components

- A. The cost to transport the collector line and associated components to facilities for scrap, recycling or disposal is based on the number of spools required per collector line sizes and lengths for the project, and a capacity of eight (8) spools per truck.

Estimated spools of collector line:		150 each
Estimated labor & equipment cost:	\$	1,400.00 /truck trip
Total estimate for collector lines disassembly:	\$	26,600.00

- B. Pole removal will be transported at a rate of 30 poles per logging truck. It is assumed that poles will be sold or given away.

Amount of poles:		246 each
Estimated labor & equipment costs:	\$	1,100.00 /truck trip
Total estimate for overhead collector pole removal:	\$	9,900.00

Total for transportation of collector line and associated components: **\$ 36,500.00**

- 5.3 Removal of pad-mount transformers. Removal of the pad-mount transformers is estimated to require a total labor and equipment cost of \$500 per each.

Total for removal of pad-mount transformers for all 62 turbine sites: **\$ 31,000.00**

- 5.4 Transportation of pad-mount transformers. The cost to transport the pad-mount transformers to facilities for scrap, recycling or disposal is estimated to be a location within 2 hours (one-way) at an equipment and labor rate of \$225/hr. Assuming three (3) units can fit on one truck:

Estimated transportation costs:	\$	900.00 /truck trip
Total for transportation of pad-mount transformers for all 62 turbine sites:	\$	18,900.00

- 5.5 Removal of pad-mount transformer foundations. Removal of the pad-mount transformer foundations and cutting



of cables and conduits to a depth of two feet below grade will require various types of hydraulic equipment.

Estimated labor & equipment cost:	\$	1,000.00 /site	
Total for removal of pad-mount transformer foundations for all 62 turbine sites:	\$		62,000.00

- 5.6 Transportation of pad-mount transformer foundation rubble and disposal. The rubble from the pad-mount transformer foundations is approximately ten (10) cubic yards per turbine site. As it is assumed the steel rebar will be separated from the concrete debris, the rubble essentially becomes an inert material. Therefore, we have assumed that the concrete rubble generated will not be transported offsite but be used onsite as fill at toes of slopes, for road base or topping material, or at other locations in need of fill as desired by the property owner. Costs to transport the foundation rubble within the project boundaries, in comparison to other decommissioning costs, are assumed to be negligible. In the unlikely event the material cannot be used on-site, the material will be transported for offsite use. Costs to transport the foundation rubble to disposal are based on an estimated requirement of one (1) dump truck trip for each turbine site.

Total estimated labor & equipment cost:	\$	400.00 /dump truck trip	
Total estimate for foundation transportation costs for all 62 turbine sites:	\$		24,800.00

The total opinion of probable costs for **Electrical Collection System removal:** **\$ 332,000.00**

6. Electrical Substation

The costs for removing the substation is difficult to assess. This section gives a general description of the assumptions made for the demolition costs of this item.

6.1 Disassembly of substation and associated components.

- A. Disassembly costs for the substation is based on the assumption that the labor effort required will be a 5-man crew working for approximately four (4) weeks.

Estimated labor rate:	\$	35.00 /man-hour	
Total estimate for substation disassembly:	\$		28,000.00

- B. The disassembly will require a variety of construction equipment; it is difficult to estimate specific equipment requirements. In lieu of specific equipment rates, our opinion of probable cost includes a weekly rental equipment allowance for the assumed four (4) weeks.

Estimated equipment rental rate:	\$	33,000.00 /week	
Total estimate for substation disassembly:	\$		132,000.00

Total for disassembly of substation and associated components: **\$ 160,000.00**

- 6.2 Transport substation components to disposal/reclamation site. Costs to transport the substation components to facilities for scrap, recycling or disposal are based on an estimated one (1) truck trip per day for four (4) weeks totaling 20 truck trips from the substation site.

Estimated labor & equipment costs:	\$	1,100.00 /truck trip	
Total for transport of substation components to disposal/reclamation site:	\$		22,000.00

6.3 Removal and transportation/disposal of substation foundations.

- A. Removal of the substation foundations to a depth of two (2) feet below grade will require various forms of hydraulic equipment and various dozers and loaders. Estimated foundation rubble volume is based on the foundation dimensions of these facilities.

Estimated foundation rubble volume:		255 cubic yards	
Estimated labor & equipment costs:	\$	100.00 /cubic yard	
Total estimate for substation foundation removal:	\$		25,500.00

- B. We have assumed that the concrete rubble generated from the foundations (while separating rebar as necessary)



will not be transported offsite but be used onsite as fill at toes of slopes, for road base or topping material, or at other locations in need of fill as desired by the property owner. In the unlikely event the material cannot be used on-site, the material will be transported for offsite use. Costs to transport the foundation rubble to disposal are based on 255 cubic yards of rubble, and 10 cubic yards per dump truck trip.

Estimated labor & equipment costs:	\$	400.00 /dump truck trip
<u>Total estimate for substation foundation transportation:</u>	<u>\$</u>	<u>10,400.00</u>
Total for removal and transportation/disposal of substation foundations:	\$	35,900.00

6.4 Re-grading of substation site:

- A. For the restoration of the substation site, we are assuming that all excavated areas will be brought up to grade and sloped to drain with suitable fill material generated from the re-grading of the site or from off-site sources. The estimated cost includes additional fill, topsoil or other organic matter to support growth, seed, and mulch.

Approximate disturbed area:		120,000 SF/Substation Site
Estimated cost per 1000 SF (1 MSF):	\$	330.00 /MSF
<u>Total estimated re-grading material cost for substation:</u>	<u>\$</u>	<u>39,600.00</u>

- B. This re-grading and restoration work is estimated to take a dozer and operator approximately seven (7) days to complete.

Labor & equipment rate:	\$	200.00 /hour
<u>Total re-grading and restoration work for substation:</u>	<u>\$</u>	<u>11,200.00</u>
Total estimate for re-grading substation site is:	\$	50,800.00

Total opinion of probable costs for Electrical Substation removal: \$ 268,700.00

7. Electrical GenLead System

7.1 Disassembly of overhead GenLead lines and associated components:

- A. Disassembly and spooling costs for the overhead GenLead lines and associated components are based on the assumption that the labor effort required will be a 3-man crew working for four (4) hours per 1,000 feet of overhead wire.

Estimated total length of overhead lines:		90,820 feet
Estimated labor rate:	\$	35.00 /man-hour
<u>Total estimate for overhead GenLead disassembly:</u>	<u>\$</u>	<u>38,700.00</u>

- B. Equipment rates are estimated at the following rate for approximately 46 days.

Estimated equipment rates:	\$	1,700.00 /day
<u>Total estimate for overhead GenLead disassembly equipment:</u>	<u>\$</u>	<u>78,200.00</u>

- C. Pole removal and filling of remaining hole, based on the following approximate quantities:

Amount of poles:		285 each
Removal labor and equipment costs:	\$	160.00 /pole
<u>Total estimate for overhead GenLead pole removal:</u>	<u>\$</u>	<u>45,600.00</u>

Total for disassembly of overhead GenLead lines: \$ 162,500.00

7.2 Transportation of GenLead lines and associated components

- A. The cost to transport the GenLead lines and associated components to facilities for scrap, recycling or disposal is based on the number of spools required per GenLead line sizes and lengths for the project, and a capacity of eight (8) spools per truck.

Estimated spools of GenLead line: 153 each



Estimated labor & equipment cost:	\$	1,400.00 /truck trip
Total estimate for GenLead lines disassembly:	\$	28,000.00

- B. Pole removal will be transported at a rate of 30 poles per logging truck. It is assumed that poles will be sold or given away.

Amount of poles:		285 each
Estimated labor & equipment costs:	\$	1,100.00 /truck trip
Total estimate for overhead GenLead pole removal:	\$	11,000.00

Total for transportation of GenLead line and associated components: \$ 39,000.00

Total opinion of probable costs for **Electrical GenLead System removal:** \$ 201,500.00

8. Dynamic Reactive Device Facility

8.1 Building removal

Demolition of the 12,000 square foot building, including labor, equipment, and transportation to facilities for scrap, recycling, or disposal is based on a removal rate of 20,100 cubic feet per day over 18 days at a daily cost of \$7,600:

\$136,800.00

8.2 Disassembly of exterior associated components.

- A. Disassembly costs for the exterior associated components is based on the assumption that the labor effort required will be a 5-man crew working for seven (7) days.

Estimated labor rate:	\$	35.00 /man-hour
Total estimate for exterior component disassembly:	\$	9,800.00

- B. The disassembly will require a variety of construction equipment; it is difficult to estimate specific equipment requirements. In lieu of specific equipment rates, our opinion of probable cost includes a weekly rental equipment allowance for the assumed seven (7) days.

Estimated equipment rental rate:	\$	33,000.00 /week
Total estimate for equipment rental:	\$	46,200.00

Total for disassembly of exterior associated components: \$ 56,000.00

8.3 Removal and transportation/disposal of Facility foundations.

- A. Removal of the Facility building and associated components foundations to a depth of two (2) feet below grade will require various forms of hydraulic equipment and various dozers and loaders. Estimated foundation rubble volume is based on the approximated foundation dimensions of these facilities.

Estimated foundation rubble volume:		860 cubic yards
Estimated labor & equipment costs:	\$	100.00 /cubic yard
Total estimate for Facility foundation removal:	\$	86,000.00

- B. We have assumed that the concrete rubble generated from the foundations (while separating rebar as necessary) will not be transported offsite but be used onsite as fill at toes of slopes, for road base or topping material, or at other locations in need of fill as desired by the property owner. In the unlikely event the material cannot be used on-site, the material will be transported for offsite use. Costs to transport the foundation rubble to disposal are based on 10 cubic yards per dump truck trip.

Estimated foundation rubble volume:		860 cubic yards
Estimated labor & equipment costs:	\$	400.00 /dump truck trip
Total estimate for Facility foundation transportation:	\$	34,400.00

Total for removal and transportation/disposal of Facility foundation: \$ 120,400.00



8.4 Re-grading of Facility site:

A. For the restoration of the Facility site, we are assuming that all excavated areas will be brought up to grade and sloped to drain with suitable fill material. The estimated cost includes additional fill, topsoil or other organic matter to support growth, seed, and mulch.

Approximate disturbed area:		50,000 SF	
Estimated cost per 1000 SF (1 MSF):	\$	330.00 /MSF	
Total estimated re-grading cost for Facility Building:		\$	16,500.00

B. This re-grading and restoration work is estimated to take a dozer and operator approximately three (3) days to complete.

Labor & equipment rate:	\$	200.00 /hour	
Total re-grading and restoration work for Facility building:		\$	4,800.00

Total estimate for re-grading Facility site is: \$ 21,300.00

Total opinion of probable costs for Dynamic Reactive Device Facility removal: \$334,500.00

Disassembly & Removal Summary

The total opinion of probable disassembly and removal costs from summing the items above: **\$ 6,780,700.00**

Scrap Value

For the purposes of this decommissioning plan we assumed that all metal materials to be decommissioned would be sold as scrap to a recycling yard in the Bangor, Maine area. The presumed scrap value is based on the following conservative estimates:

1. **Presumed scrap value of WTGs.** In estimating the scrap value of the WTGs, the following component weight estimates were used (all weights are in pounds). No scrap value was assumed for the blades or nacelle shell.

Base:	179,980	Nacelle	144,900
Mid:	179,330	Rotor	73,500
Top:	146,513		

Total estimated weight for each WTG: 724,223 lbs

Current prices for #1 steel scrap at a Bangor, Maine area metal recycling center: #1 steel \$ 230.00 /ton

Total opinion of **presumed scrap value for all 62 WTGs:** **\$ 5,163,800.00**

2. **Presumed scrap value of the external transformers.** Scrap value of the external transformer is estimated at 10% of the original transformer cost.

Estimated original cost for external transformers: \$ 70,000.00 each

Estimated scrap value (10%): \$ 7,000.00 each

Total opinion of **presumed scrap value for all 62 external transformers:** **\$ 434,000.00**



3. **Presumed scrap value of the MET towers.** In estimating the scrap value of the MET towers, the following component weight and steel scrap values were used:

MET tower component weight:		6,000 lbs
Average steel scrap value:	\$	230.00 /ton

Total opinion of **presumed scrap value of all five (5) MET towers:** \$ **3,500.00**

4. **Overhead Collector wiring scrap value.** Quantities of overhead wire and wire sizes and lengths are based on electrical drawings prepared by SGC and used as a basis for estimated scrappable metal amounts. Overhead wiring consists of aluminum (steel reinforced) conductors.

Estimated linear feet of wiring:	281,685 ft
Estimated weight of scrappable aluminum:	246,155 lbs

Current price for aluminum scrap at a Bangor area metal recycling center: \$ 500.00 /ton

Total opinion of **presumed scrap value of the overhead collector wiring:** \$ **61,600.00**

5. **Presumed scrap value of Substation.** Based on our research, typical substation components have a life expectancy of 50 years. Therefore, at 20 years the substation could have a value of approximately 50% of its original cost. However, to be very conservative, we have estimated the substation scrap value at 2% of the total original cost:

Original substation construction estimate, less the transformer:	\$	8,500,000.00
Estimated substation scrap value (2%):	\$	170,000.00

Total opinion of **presumed scrap value of the substation:** \$ **170,000.00**

6. **Presumed scrap value of Substation Transformer(s).** The cost of the substation transformer(s) is estimated to be approximately \$2,500,000. Scrap value is estimated at 10% of the original transformer cost.

Original substation transformer construction cost:	\$	2,500,000.00
Estimated scrap value (10%):	\$	250,000.00

Total opinion of **presumed scrap value of the substation transformer(s):** \$ **250,000.00**

7. **Overhead GenLead wiring scrap value.** Quantities of overhead wire and wire sizes and lengths are based on electrical drawings prepared by SGC and used as a basis for estimated scrappable metal amounts. Overhead wiring consists of aluminum (steel reinforced) conductors.

Estimated linear feet of wiring:	272,460 ft
Estimated weight of scrappable aluminum:	297,799 lbs

Current price for aluminum scrap at a Bangor area metal recycling center: \$ 500.00 /ton

Total opinion of **presumed scrap value of the overhead GenLead wiring:** \$ **74,500.00**



Scrap Value Summary

The total opinion of probable scrap value from summing the items above: \$ 6,157,400.00

Decommissioning Summary

The total opinion of probable disassembly and removal costs is: \$ 6,780,700.00

The total opinion of probable scrap value for the project is: \$ 6,157,400.00

The net estimated opinion of probable <u>cost</u> for decommissioning is:	\$ 623,300.00
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Please do not hesitate to contact us with any questions regarding the information contained in this review. We appreciate the opportunity to work with you on this project.

Sincerely,

James W. Sewall Company

Janine S. Murchison, PE
 Project Manager
jmurchison@jws.com
 phone: (207)492-1014

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Chris Fullarton
 First Wind Energy, LLC
 via e-mail: cfullarton@firstwind.com

August 20, 2013

Subject: Blue Sky West, LLC and Blue Sky West II, LLC (Bingham Wind Project) Decommissioning Budget

Dear Chris:

Sewall was requested to develop this Decommissioning Budget for the 62 Vestas wind turbine generator (WTG) Bingham Wind Project located in the towns of Bingham, Moscow, Parkman, Abbot, Mayfield TWP, and Kingsbury PLT in Somerset and Piscataquis Counties, Maine. The budget represents an opinion of probable cost (OPC), in today's dollars, for decommissioning based on the assumption that the wind turbines, and other project components will be disassembled and disposed following completion of use. The budget is also built on the assumption that the cost of decommissioning will be fully or partially offset by the scrap / salvage value of the towers and turbine components.

Based on information provided from First Wind, it is assumed that all new project roads will remain.

Information Sources for this Review

This review is based on the civil and electrical site plans and quantity information provided by First Wind, discussions with contractors familiar with this type of construction and our own experience with wind projects. Wage rates used in these estimates are based on the State of Maine Department of Labor, Bureau of Labor Standards; 2013 Fair Minimum Wage Rates, Heavy and Bridge; Somerset County.

Decommissioning Scope

The decommissioning process reflected in this OPC is based on Decommissioning Plans prepared for similar wind projects.

In summary, the decommissioning and restoration process in the Plan consists of the following steps:

- Disassembly and removal of above-ground structures
- Removal of below-ground structures to a depth of 24 inches
- Re-grading and seeding

Above-ground structures include the turbines, transformers, substation, Dynamic Reactive Device, overhead collection and generator-lead lines, and meteorological towers. Below-ground structures include turbine and collection system foundations, and drainage control structures (e.g., culverts) as necessary to restore turbine sites. Following removal of all above- and below-ground structures to 24 inches below grade, the individual disturbed areas will be re-graded to be consistent with surrounding areas and reseeded to promote re-vegetation. The cost for disposal for any materials that are not scrapped is considered incidental, unless otherwise noted.



Decommissioning Budget

The decommissioning process has been divided into nine (9) general work items. Quantities and unit prices for these individual work items are presented and discussed in detail in the following paragraphs.

1. Project Management (contractor costs, equipment, etc.)
2. Site Work/Civil (site reclamation)
3. Wind Turbine Foundations
4. Wind Turbine Generators and MET Towers
5. Electrical Collection System
6. Electrical Substation
7. Electrical GenLead
8. Dynamic Reactive Device Facility
9. Operation & Maintenance Building

1. Project Management

1.1 Mobilization

A. Mobilization and demobilization to setup and breakdown the crane and assist crane estimated to cost a flat fee of \$95,000 per one-way trip, for a total of:	\$	190,000.00	
B. In addition, it is estimated that the cranes will be re-mobilized an additional three (3) times at an estimated cost of \$60,000 per move to reach all of the turbine sites for a total of:	\$	180,000.00	
C. Mobilization and demobilization of ancillary equipment (i.e. bull dozers, backhoes, etc.) is estimated to be:	\$	50,000.00	
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Total estimate for mobilization is:	\$		420,000.00

1.2 **Project Oversight.** Oversight of the decommissioning is estimated at: \$ 403,000.00

1.3 **Incidentals / Erosion and Sedimentation Control Measures.** A budget of approximately 5% of the decommissioning scope is recommended for project incidentals, including erosion and sedimentation control measures: \$ 331,500.00

1.4 **Contingency.** A contingency of approximately 10% of the decommissioning scope is recommended to cover unknowns: \$ 663,000.00

Total opinion of probable costs for **Project Management:** \$ 1,817,500.00

2. Site Work/Civil (Site Reclamation)

2.1 Re-grading of turbine sites.

A. The decommissioning plan includes restoring each of the turbine sites. We are assuming that all excavated areas will be brought up to grade and sloped to drain with suitable fill material generated from the re-grading of the turbine site or from off-site sources. The estimated cost includes additional fill, topsoil or other organic matter to support growth, seed, and mulch.

Approximate disturbed area:		12,350 SF/turbine site
Estimated cost per 1000 SF (1 MSF):	\$	330.00 /MSF
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Total estimated re-grading material cost for all 62 turbine sites:	\$	252,700.00

B. This re-grading and restoration work is estimated to take a dozer and operator approximately eight (8) hours to complete at each turbine site.

Labor & equipment rate:	\$	200.00 /hour
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Total re-grading and restoration work for all 62 turbine sites:	\$	99,200.00

Total estimate for re-grading turbine sites is: \$ 351,900.00



2.2 **Road Maintenance.** Dust control, road maintenance, and post construction road repairs is difficult to estimate. A budget of approximately 1% of the \$10 million estimated for road construction is recommended to address these items.

\$ 100,000.00

2.3 **Road Widening for Crane Access.** All crane paths narrowed at the end of construction will need to be re-widened for decommissioning access. This work is anticipated to include windrowing the vegetation off the former crane roadbed and regrading the current roadbed with grader/roller to smooth out the full width of the crane road. Upon completion of decommissioning, the windrowed vegetation will be regraded to re-narrow the crane roads and reseeded.

A. Approximate windrowed area:		1,277 MSF	
Estimated labor & equipment rate per MSF:	\$	117.00	
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Total estimated cost to windrow the material:		\$	149,409.00
B. Approximate re-graded area (at 38ft wide):		3,146 MSF	
Estimated labor & equipment rate per MSF:	\$	117.00	
<hr/>			
Total estimated cost to regrade the road:		\$	368,082.00
C. Approximate re-narrowed area:		1,277 MSF	
Estimated labor & equipment rate per MSF:	\$	147.00	
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Total estimated cost to re-narrow the road:		\$	187,719.00

Total estimate for re-widening the crane roads is: \$ 705,210.00

The total opinion of probable costs for Site Work/Civil: \$ 1,157,110.00

3. **Wind Turbine Foundations**

3.1 **Removal of WTG foundation to 2 FT below grade.** Removal of the turbine foundations is assumed to require a hydraulic excavator equipped with hydraulic ram (hoe-ram), an additional excavator with bucket for loading, and various dozers and loaders.

Total estimated labor & equipment cost:	\$	5,500.00 /site	
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Total estimate for WTG foundation removal labor for all 62 turbine sites:		\$	341,000.00

3.2 **Transportation of rubble and disposal.** Concrete demolition rubble generated at each turbine site is estimated to be approximately 55 cubic yards (based on a removal depth of 2 feet below grade). As it is assumed the steel rebar will be separated from the concrete debris, the rubble essentially becomes an inert material. Therefore, we have assumed that the concrete rubble generated will not be transported offsite but be used onsite as fill at toes of slopes, for road base or topping material, or at other locations in need of fill as desired by the property owner. Costs to transport the foundation rubble within the project boundaries, in comparison to other decommissioning costs, are assumed to be negligible. In the unlikely event the material cannot be used on-site, the material will be transported for offsite use. Costs to transport the foundation rubble to disposal are based on an estimated requirement of six (6) dump truck trips for each turbine site and transported to a location within 2 hours (one-way) at an equipment and labor rate of \$100/hr.

Total estimated labor & equipment cost:	\$	400.00 /dump truck trip	
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Total estimate for WTG foundation transportation costs for all 62 turbine sites:		\$	148,800.00

The total opinion of probable costs for removal of WTG Foundations: \$ 489,800.00

4. **Wind Turbine Generators and MET Towers**

4.1 **Disassembly of turbine generators:**

A. Disassembly costs for the WTGs are based on the assumption that it will take a 10-man crew 20 hours to disassemble each tower and turbine, which is roughly equivalent to the labor effort required for tower and turbine assembly.



Estimated labor rate:	\$	25.00 /man-hour
Total estimate for WTG disassembly for all 62 turbines:	\$	310,000.00

- B. Based on an assumption that the two cranes (erector and assist cranes) can disassembly two (2) turbines a week, the crane rental is estimated to be 31 weeks. Two (2) weeks are added for wind day delays.

Estimated rental costs for two cranes:	\$	40,000.00 /week
Total estimate for WTG disassembly equipment for all 62 turbines:	\$	1,320,000.00

- C. Additionally, once the towers and turbines are on the ground, they will need to be cut up into manageable sized pieces in preparation for transportation to scrap, recycle, or disposal facilities. We are assuming it will take a 5-man crew 20 hours to do this work per turbine.

Estimated labor rate:	\$	15.00 /man-hour
Total estimate for WTG dismantling for all 62 turbines:	\$	93,000.00

The total estimate for WTG disassembly is: \$ 1,723,000.00

- 4.2 Transportation of turbine components to disposal/reclamation site. Cost to transport the tower and turbine components to facilities for scrap, recycling or disposal are based on an estimated requirement of ten (10) transport vehicles per turbine site (note: transport of new turbine and tower components to a site requires 12 to 14 transport vehicles).

Total estimated labor & equipment cost:	\$	1,400.00 /transport trip
Total estimate for turbine component transport for all 62 turbine sites:	\$	868,000.00

- 4.3 Nacelle housing, blade, and other component disposal. Disposal of the nacelle housing, blades, and other non-scrapable components are based on an estimated 90,000 lbs/turbine. Disposal fees are generally based on weight (in tons).

Total estimated weight of blades and nacelle:	56 tons
Disposal fee (based on Bangor area landfill rates):	\$ 133.00 /ton
Total estimate for nacelle housing and blade disposal for all 62 turbine sites:	\$ 461,800.00

4.4 MET Tower disassembly/removal:

- A. Disassembly costs for the MET towers are based on the assumption that it will take a 5-man crew 16 hours to disassemble each MET tower.

Estimated labor rate:	\$	25.00 /man-hour
Total estimate for MET disassembly labor cost for five (5) towers:	\$	10,000.00

- B. Additionally, equipment rental is estimated at approximately 16 hours for each MET tower to assist with the disassembly, partially remove foundations, and reclaim the site.

Total estimated labor & equip. rate:	\$	200.00 /hour
Total estimate for MET disassembly equipment cost for five (5) towers:	\$	16,000.00

Total estimate for MET tower disassembly/removal for five (5) towers is: \$ 26,000.00

4.5 Transportation of MET tower components to disposal/reclamation site.

- A. Cost to transport the MET tower components to facilities for scrap, recycling or disposal are based on an estimated requirement of one (1) truck trip for each MET tower.

Total estimated labor & equip. cost:	\$	920.00 /trip
Total estimate for MET component trucking cost for five (5) towers:	\$	4,600.00

- B. We have assumed that the concrete rubble generated from the foundations (while separating rebar as necessary) will not be transported offsite but be used onsite as fill at toes of slopes, for road base or topping material, or at other locations in need of fill as desired by the property owner. In the unlikely event the material cannot be used



on-site, the material will be transported for offsite use. Costs to transport the foundation rubble to disposal are based on six (6) cubic yards of rubble for an estimated one (1) dump truck trip per MET tower site and transported to a location within 2 hours (one-way) at an equipment and labor rate of \$100/hr.

Total estimated labor & equip. cost:	\$	400.00 /dump truck trip	
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Total estimate for MET foundation transportation cost for five (5) towers:	\$	2,000.00	
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Total estimate for MET tower disposal for five (5) towers is:	\$		6,600.00

The total opinion of probable costs for WTGs and MET Tower removal: \$ 3,085,400.00

5. Electrical Collection System

Note that as the direct-buried underground collector is buried deeper than 2 ft, it will not be removed but be abandoned in place. Also note that transformers are internal to each WTG and their removal cost is included in the disassembly costs above.

5.1 Disassembly of overhead collector lines and associated components:

- A. Disassembly and spooling costs for the overhead collector lines and associated components are based on the assumption that the labor effort required will be a 3-man crew working for four (4) hours per 1,000 feet of overhead wire.

Estimated total length of overhead lines:		93,900 feet	
Estimated labor rate:	\$	35.00 /man-hour	
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Total estimate for overhead collector lines disassembly:	\$		39,500.00

- B. Equipment rates are estimated at the following rate for approximately 47 days.

Estimated equipment rates:	\$	1,700.00 /day	
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Total estimate for overhead collector disassembly equipment:	\$		79,900.00

- C. Pole removal and filling of remaining hole, based on the following approximate quantities:

Amount of poles:		246 each	
Removal labor and equipment costs:	\$	160.00 /pole	
<hr/>			
Total estimate for overhead collector pole removal:	\$		39,400.00

Total for disassembly of overhead collector lines: \$ 158,800.00

5.2 Transportation of collector lines and associated components

- A. The cost to transport the collector line and associated components to facilities for scrap, recycling or disposal is based on the number of spools required per collector line sizes and lengths for the project, and a capacity of eight (8) spools per truck.

Estimated spools of collector line:		150 each	
Estimated labor & equipment cost:	\$	1,400.00 /truck trip	
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Total estimate for collector lines disassembly:	\$		26,600.00

- B. Pole removal will be transported at a rate of 30 poles per logging truck. It is assumed that poles will be sold or given away.

Amount of poles:		246 each	
Estimated labor & equipment costs:	\$	1,100.00 /truck trip	
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Total estimate for overhead collector pole removal:	\$		9,900.00

Total for transportation of collector line and associated components: \$ 36,500.00

The total opinion of probable costs for Electrical Collection System removal: \$ 195,300.00

6. Electrical Substation

The costs for removing the substation is difficult to assess. This section gives a general description of the assumptions made for the demolition costs of this item.



6.1 Disassembly of substation and associated components.

A. Disassembly costs for the substation is based on the assumption that the labor effort required will be a 5-man crew working for approximately four (4) weeks.

Estimated labor rate:	\$	35.00 /man-hour	
Total estimate for substation disassembly:		\$	28,000.00

B. The disassembly will require a variety of construction equipment; it is difficult to estimate specific equipment requirements. In lieu of specific equipment rates, our opinion of probable cost includes a weekly rental equipment allowance for the assumed four (4) weeks.

Estimated equipment rental rate:	\$	33,000.00 /week	
Total estimate for substation disassembly:		\$	132,000.00

Total for disassembly of substation and associated components: \$ 160,000.00

6.2 Transport substation components to disposal/reclamation site. Costs to transport the substation components to facilities for scrap, recycling or disposal are based on an estimated one (1) truck trip per day for four (4) weeks totaling 20 truck trips from the substation site.

Estimated labor & equipment costs:	\$	1,100.00 /truck trip	
Total for transport of substation components to disposal/reclamation site:		\$	22,000.00

6.3 Removal and transportation/disposal of substation foundations.

A. Removal of the substation foundations to a depth of two (2) feet below grade will require various forms of hydraulic equipment and various dozers and loaders. Estimated foundation rubble volume is based on the foundation dimensions of these facilities.

Estimated foundation rubble volume:		255 cubic yards	
Estimated labor & equipment costs:	\$	100.00 /cubic yard	
Total estimate for substation foundation removal:		\$	25,500.00

B. We have assumed that the concrete rubble generated from the foundations (while separating rebar as necessary) will not be transported offsite but be used onsite as fill at toes of slopes, for road base or topping material, or at other locations in need of fill as desired by the property owner. In the unlikely event the material cannot be used on-site, the material will be transported for offsite use. Costs to transport the foundation rubble to disposal are based on 255 cubic yards of rubble, and 10 cubic yards per dump truck trip.

Estimated labor & equipment costs:	\$	400.00 /dump truck trip	
Total estimate for substation foundation transportation:		\$	10,400.00

Total for removal and transportation/disposal of substation foundations: \$ 35,900.00

6.4 Re-grading of substation site:

A. For the restoration of the substation site, we are assuming that all excavated areas will be brought up to grade and sloped to drain with suitable fill material generated from the re-grading of the site or from off-site sources. The estimated cost includes additional fill, topsoil or other organic matter to support growth, seed, and mulch.

Approximate disturbed area:		120,000 SF/Substation Site	
Estimated cost per 1000 SF (1 MSF):	\$	330.00 /MSF	
Total estimated re-grading material cost for substation:		\$	39,600.00

B. This re-grading and restoration work is estimated to take a dozer and operator approximately seven (7) days to



complete.

Labor & equipment rate:	\$	200.00 /hour	
Total re-grading and restoration work for substation:	\$	11,200.00	
Total estimate for re-grading substation site is:	\$		50,800.00

Total opinion of probable costs for **Electrical Substation removal:** \$ **268,700.00**

7. Electrical GenLead System

7.1 Disassembly of overhead GenLead lines and associated components:

- A. Disassembly and spooling costs for the overhead GenLead lines and associated components are based on the assumption that the labor effort required will be a 3-man crew working for four (4) hours per 1,000 feet of overhead wire.

Estimated total length of overhead lines:		90,820 feet	
Estimated labor rate:	\$	35.00 /man-hour	
Total estimate for overhead GenLead disassembly:	\$		38,700.00

- B. Equipment rates are estimated at the following rate for approximately 46 days.

Estimated equipment rates:	\$	1,700.00 /day	
Total estimate for overhead GenLead disassembly equipment:	\$		78,200.00

- C. Pole removal and filling of remaining hole, based on the following approximate quantities:

Amount of poles:		285 each	
Removal labor and equipment costs:	\$	160.00 /pole	
Total estimate for overhead GenLead pole removal:	\$		45,600.00

Total for disassembly of overhead GenLead lines: \$ 162,500.00

7.2 Transportation of GenLead lines and associated components

- A. The cost to transport the GenLead lines and associated components to facilities for scrap, recycling or disposal is based on the number of spools required per GenLead line sizes and lengths for the project, and a capacity of eight (8) spools per truck.

Estimated spools of GenLead line:		153 each	
Estimated labor & equipment cost:	\$	1,400.00 /truck trip	
Total estimate for GenLead lines disassembly:	\$		28,000.00

- B. Pole removal will be transported at a rate of 30 poles per logging truck. It is assumed that poles will be sold or given away.

Amount of poles:		285 each	
Estimated labor & equipment costs:	\$	1,100.00 /truck trip	
Total estimate for overhead GenLead pole removal:	\$		11,000.00

Total for transportation of GenLead line and associated components: \$ 39,000.00

Total opinion of probable costs for **Electrical GenLead System removal:** \$ **201,500.00**

8. Dynamic Reactive Device Facility

8.1 Building removal

Demolition of the 12,000 square foot building, including labor, equipment, and transportation to facilities for scrap, recycling, or disposal is based on a removal rate of 20,100 cubic feet per day over 18 days at a daily cost of \$7,600:

\$136,800.00

8.2 Disassembly of exterior associated components.

- A. Disassembly costs for the exterior associated components is based on the assumption that the labor effort



required will be a 5-man crew working for seven (7) days.

Estimated labor rate:	\$	35.00 /man-hour
Total estimate for exterior component disassembly:	\$	9,800.00

B. The disassembly will require a variety of construction equipment; it is difficult to estimate specific equipment requirements. In lieu of specific equipment rates, our opinion of probable cost includes a weekly rental equipment allowance for the assumed seven (7) days.

Estimated equipment rental rate:	\$	33,000.00 /week
Total estimate for equipment rental:	\$	46,200.00

Total for disassembly of exterior associated components: \$ 56,000.00

8.3 Removal and transportation/disposal of Facility foundations

A. Removal of the Facility building and associated components foundations to a depth of two (2) feet below grade will require various forms of hydraulic equipment and various dozers and loaders. Estimated foundation rubble volume is based on the approximated foundation dimensions of these facilities.

Estimated foundation rubble volume:		860 cubic yards
Estimated labor & equipment costs:	\$	100.00 /cubic yard
Total estimate for Facility foundation removal:	\$	86,000.00

B. We have assumed that the concrete rubble generated from the foundations (while separating rebar as necessary) will not be transported offsite but be used onsite as fill at toes of slopes, for road base or topping material, or at other locations in need of fill as desired by the property owner. In the unlikely event the material cannot be used on-site, the material will be transported for offsite use. Costs to transport the foundation rubble to disposal are based on 10 cubic yards per dump truck trip.

Estimated foundation rubble volume:		860 cubic yards
Estimated labor & equipment costs:	\$	400.00 /dump truck trip
Total estimate for Facility foundation transportation:	\$	34,400.00

Total for removal and transportation/disposal of Facility foundation: \$ 120,400.00

8.4 Re-grading of Facility site:

A. For the restoration of the Facility site, we are assuming that all excavated areas will be brought up to grade and sloped to drain with suitable fill material. The estimated cost includes additional fill, topsoil or other organic matter to support growth, seed, and mulch.

Approximate disturbed area:		50,000 SF
Estimated cost per 1000 SF (1 MSF):	\$	330.00 /MSF
Total estimated re-grading cost for Facility Building:	\$	16,500.00

B. This re-grading and restoration work is estimated to take a dozer and operator approximately three (3) days to complete.

Labor & equipment rate:	\$	200.00 /hour
Total re-grading and restoration work for Facility building:	\$	4,800.00

Total estimate for re-grading Facility site is: \$ 21,300.00

Total opinion of probable costs for Dynamic Reactive Device Facility removal: \$334,500.00

9. Operation & Maintenance Building

9.1 Building removal

Demolition of an approx. 5,916 square foot building, including labor, equipment, and transportation to facilities for scrap, recycling, or disposal is based on a removal rate of 20,100 cubic feet per day over 6 days at a daily cost of \$7,600:

\$45,600.00



9.2 Removal and transportation/disposal of building foundations

A. Removal of the O&M building and associated components foundations to a depth of two (2) feet below grade will require various forms of hydraulic equipment and various dozers and loaders. Estimated foundation rubble volume is based on the approximated foundation dimensions of this facility.

Estimated foundation rubble volume:		150 cubic yards
Estimated labor & equipment costs:	\$	100.00 /cubic yard
Total estimate for Facility foundation removal:		\$ 15,000.00

B. We have assumed that the concrete rubble generated from the foundations (while separating rebar as necessary) will not be transported offsite but be used onsite as fill at toes of slopes, for road base or topping material, or at other locations in need of fill as desired by the property owner. In the unlikely event the material cannot be used on-site, the material will be transported for offsite use. Costs to transport the foundation rubble to disposal are based on 10 cubic yards per dump truck trip.

Estimated foundation rubble volume:		150 cubic yards
Estimated labor & equipment costs:	\$	400.00 /dump truck trip
Total estimate for Facility foundation transportation:		\$ 6,000.00

Total for removal and transportation/disposal of Facility foundation: \$ 21,000.00

9.3 Re-grading of Facility site:

A. For the restoration of the Facility site, we are assuming that all excavated areas will be brought up to grade and sloped to drain with suitable fill material. The estimated cost includes additional fill, topsoil or other organic matter to support growth, seed, and mulch.

Approximate disturbed area:		18,000 SF
Estimated cost per 1000 SF (1 MSF):	\$	330.00 /MSF
Total estimated re-grading cost for Facility Building:		\$ 6,000.00

B. This re-grading and restoration work is estimated to take a dozer and operator approximately one (1) day to complete.

Labor & equipment rate:	\$	200.00 /hour
Total re-grading and restoration work for Facility building:		\$ 1,600.00

Total estimate for re-grading Facility site is: \$ 7,600.00

Total opinion of probable costs for Operation & Maintenance Building removal: \$ 74,200.00

Disassembly & Removal Summary

The total opinion of probable disassembly and removal costs from summing the items above: **\$ 7,624,010.00**

Scrap / Salvage Value

For the purposes of this decommissioning plan, we have assumed that transformers would be sold for reuse and all other scrapable metal materials from the project decommissioning would be sold as scrap to a recycling yard in the Bangor, Maine area. The presumed scrap / salvage values are based on the following conservative estimates:

1. Presumed scrap value of WTGs. In estimating the scrap value of the WTGs, the following component weight estimates were used (all weights are in pounds). No scrap value was assumed for the blades or nacelle shell.

Base:	138,000	Nacelle	142,630
Lower Mid:	112,400	Rotor	76,060
Upper Mid:	122,400		
Top:	122,400		

Total estimated weight for each WTG: 713,890 lbs



Price for #1 steel scrap at a Bangor, Maine area metal recycling center: #1 steel \$ 230.00 /ton
 [(713,890 lbs / 2,000 lbs per ton) x \$230 per ton x 62 turbines = approx. \$5,090,100]

Total opinion of **presumed scrap value for all 62 WTGs:** \$ 5,090,100.00

2. **Presumed value of the internal transformers.** The cost of an internal transformer is assumed to be 85% of the cost of an equivalent external pad mounted transformer. Based on an estimated cost of \$70,000 for external transformers, this equates to about \$59,500. Based on our research, typical transformers have a life expectancy of 50 years. Therefore, at 20 years a transformer could have a value of approximately 50% of its original cost. However, to be conservative, we have estimated the value of the internal transformers at 10% of the original transformer cost.:

Estimated original cost for internal transformers: \$ 59,500.00 each
 Estimated value (10%): \$ 5,950.00 each

Total opinion of **presumed value for all 62 internal transformers:** \$ 368,900.00

3. **Presumed scrap value of the MET towers.** In estimating the scrap value of the MET towers, the following component weight and steel scrap values were used:

MET tower component weight: 6,000 lbs
 Average steel scrap value: \$ 230.00 /ton

Total opinion of **presumed scrap value of all five (5) MET towers:** \$ 3,500.00

4. **Overhead Collector wiring scrap value.** Quantities of overhead wire and wire sizes and lengths are based on electrical drawings prepared by SGC and used as a basis for estimated scrappable metal amounts. Overhead wiring consists of aluminum (steel reinforced) conductors.

Estimated linear feet of wiring: 281,685 ft
 Estimated weight of scrappable aluminum: 246,155 lbs

Price for aluminum scrap at a Bangor area metal recycling center: \$ 500.00 /ton

Total opinion of **presumed scrap value of the overhead collector wiring:** \$ 61,600.00

5. **Presumed scrap value of Substation.** Based on our research, typical substation components have a life expectancy of 50 years. Therefore, at 20 years the substation could have a value of approximately 50% of its original cost. However, to be very conservative, we have estimated the substation scrap value at 2% of the total original cost:

Original substation construction estimate, less the transformer: \$ 8,500,000.00
 Estimated substation scrap value (2%): \$ 170,000.00

Total opinion of **presumed scrap value of the substation:** \$ 170,000.00

6. **Presumed value of Substation Transformer(s).** Based on our research, typical transformers have a life expectancy of 50 years. Therefore, at 20 years a transformer could have a value of approximately 50% of its original cost. However, to be conservative, we have estimated the value of the substation transformer(s) at 10% of the original transformer cost:

Original substation transformer construction cost: \$ 2,500,000.00
 Estimated value (10%): \$ 250,000.00

Total opinion of **presumed value of the substation transformer(s):** \$ 250,000.00



7. **Overhead GenLead wiring scrap value.** Quantities of overhead wire and wire sizes and lengths are based on electrical drawings prepared by SGC and used as a basis for estimated scrappable metal amounts. Overhead wiring consists of aluminum (steel reinforced) conductors.

Estimated linear feet of wiring:	272,460 ft
Estimated weight of scrappable aluminum:	297,799 lbs

Price for aluminum scrap at a Bangor area metal recycling center:	\$	500.00 /ton
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Total opinion of presumed scrap value of the overhead GenLead wiring:	\$	74,500.00
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Scrap / Salvage Value Summary

The total opinion of probable scrap / salvage value from summing the items above:	\$	6,018,600.00
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Decommissioning Summary

The total opinion of probable disassembly and removal costs is:	\$	7,624,010.00
The total opinion of probable scrap / salvage value for the project is:	\$	6,018,600.00

The net estimated opinion of probable cost for decommissioning is:	\$	1,605,410.00
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Please do not hesitate to contact us with any questions regarding the information contained in this report. We appreciate the opportunity to work with you on this project.

Sincerely,

James W. Sewall Company

Janine S. Murchison, PE
 Project Manager
jmurchison@jws.com
 phone: (207)492-1014

83411E



Chris Fullarton

First Wind Energy, LLC

via e-mail: cfullarton@firstwind.com

August 20, 2013

Subject: Blue Sky West, LLC and Blue Sky West II, LLC (Bingham Wind Project) Decommissioning Budget

Dear Chris:

Sewall was requested to develop this Decommissioning Budget for the 62 Siemens wind turbine generator (WTG) Bingham Wind Project located in the towns of Bingham, Moscow, Parkman, Abbot, Mayfield TWP, and Kingsbury PLT in Somerset and Piscataquis Counties, Maine. The budget represents an opinion of probable cost (OPC), in today's dollars, for decommissioning based on the assumption that the wind turbines, and other project components will be disassembled and disposed following completion of use. The budget is also built on the assumption that the cost of decommissioning will be fully or partially offset by the scrap / salvage value of the towers and turbine components.

Based on information provided from First Wind, it is assumed that all new project roads will remain.

Information Sources for this Review

This review is based on the civil and electrical site plans and quantity information provided by First Wind, discussions with contractors familiar with this type of construction and our own experience with wind projects. Wage rates used in these estimates are based on the State of Maine Department of Labor, Bureau of Labor Standards; 2013 Fair Minimum Wage Rates, Heavy and Bridge; Somerset County.

Decommissioning Scope

The decommissioning process reflected in this OPC is based on Decommissioning Plans prepared for similar wind projects.

In summary, the decommissioning and restoration process in the Plan consists of the following steps:

- Disassembly and removal of above-ground structures
- Removal of below-ground structures to a depth of 24 inches
- Re-grading and seeding

Above-ground structures include the turbines, transformers, substation, Dynamic Reactive Device, overhead collection and generator-lead lines, and meteorological towers. Below-ground structures include turbine and collection system foundations; and drainage control structures (e.g., culverts) as necessary to restore turbine sites. Following removal of all above- and below-ground structures to 24 inches below grade, the individual disturbed areas will be re-graded to be consistent with surrounding areas and reseeded to promote re-vegetation. The cost for disposal for any materials that are not scrapped is considered incidental, unless otherwise noted.



Decommissioning Budget

The decommissioning process has been divided into nine (9) general work items. Quantities and unit prices for these individual work items are presented and discussed in detail in the following paragraphs.

1. Project Management (contractor costs, equipment, etc.)
2. Site Work/Civil (site reclamation)
3. Wind Turbine Foundations
4. Wind Turbine Generators and MET Towers
5. Electrical Collection System
6. Electrical Substation
7. Electrical GenLead
8. Dynamic Reactive Device Facility
9. Operation & Maintenance Building

1. Project Management

1.1 Mobilization

A. Mobilization and demobilization to setup and breakdown the crane and assist crane estimated to cost a flat fee of \$95,000 per one-way trip, for a total of:	\$	190,000.00
B. In addition, it is estimated that the cranes will be re-mobilized an additional three (3) times at an estimated cost of \$60,000 per move to reach all of the turbine sites for a total of:	\$	180,000.00
C. Mobilization and demobilization of ancillary equipment (i.e. bulldozers, backhoes, etc.) is estimated to be:	\$	50,000.00
Total estimate for mobilization is:	\$	420,000.00

1.2 Project Oversight. Oversight of the decommissioning is estimated at: \$ 403,000.00

1.3 Incidentals / Erosion and Sedimentation Control Measures. A budget of approximately 5% of the decommissioning scope is recommended for project incidentals, including erosion and sedimentation control measures: \$ 334,200.00

1.4 Contingency. A contingency of approximately 10% of the decommissioning scope is recommended to cover unknowns: \$ 668,400.00

Total opinion of probable costs for Project Management: \$ 1,825,600.00

2. Site Work/Civil (Site Reclamation)

2.1 Re-grading of turbine sites

- A. The decommissioning plan includes restoring each of the turbine sites. We are assuming that all excavated areas will be brought up to grade and sloped to drain with suitable fill material generated from the re-grading of the turbine site or from off-site sources. The estimated cost includes additional fill, topsoil or other organic matter to support growth, seed, and mulch.

Approximate disturbed area:		12,350 SF/turbine site
Estimated cost per 1000 SF (1 MSF):	\$	330.00 /MSF
Total estimated re-grading material cost for all 62 turbine sites:	\$	252,700.00

- B. This re-grading and restoration work is estimated to take a dozer and operator approximately eight (8) hours to complete at each turbine site.

Labor & equipment rate:	\$	200.00 /hour
Total re-grading and restoration work for all 62 turbine sites:	\$	99,200.00

Total estimate for re-grading turbine sites is: \$ 351,900.00



2.2 Road Maintenance. Dust control, road maintenance, and post construction road repairs is difficult to estimate. A budget of approximately 1% of the \$10 million estimated for road construction is recommended to address these items.

\$ 100,000.00

2.3 Road Widening for Crane Access. All crane paths narrowed at the end of construction will need to be re-widened for decommissioning access. This work is anticipated to include windrowing the vegetation off the former crane roadbed and regrading the current roadbed with grader/roller to smooth out the full width of the crane road. Upon completion of decommissioning, the windrowed vegetation will be regraded to re-narrow the crane roads and reseeded.

A. Approximate windrowed area:	1,277 MSF	
Estimated labor & equipment rate per MSF:	\$ 117.00	
<u>Total estimated cost to windrow the material:</u>	<u>\$ 149,409.00</u>	
B Approximate re-graded area (at 38ft wide):	3,146 MSF	
Estimated labor & equipment rate per MSF:	\$ 117.00	
<u>Total estimated cost to regrade the road:</u>	<u>\$ 368,082.00</u>	
C Approximate re-narrowed area:	1,277 MSF	
Estimated labor & equipment rate per MSF:	\$ 147.00	
<u>Total estimated cost to re-narrow the road:</u>	<u>\$ 187,719.00</u>	

Total estimate for re-widening the crane roads is: \$ 705,210.00

The total opinion of probable costs for **Site Work/Civil**: **\$ 1,157,110.00**

3. Wind Turbine Foundations

3.1 Removal of WTG foundation to 2 FT below grade. Removal of the turbine foundations is assumed to require a hydraulic excavator equipped with hydraulic ram (hoe-ram), an additional excavator with bucket for loading, and various dozers and loaders.

Total estimated labor & equipment cost:	\$ 5,500.00 /site	
<u>Total estimate for WTG foundation removal labor for all 62 turbine sites:</u>	<u>\$ 341,000.00</u>	

3.2 Transportation of rubble and disposal. Concrete demolition rubble generated at each turbine site is estimated to be approximately 55 cubic yards (based on a removal depth of 2 feet below grade). As it is assumed the steel rebar will be separated from the concrete debris, the rubble essentially becomes an inert material. Therefore, we have assumed that the concrete rubble generated will not be transported offsite but be used onsite as fill at toes of slopes, for road base or topping material, or at other locations in need of fill as desired by the property owner. Costs to transport the foundation rubble within the project boundaries, in comparison to other decommissioning costs, are assumed to be negligible. In the unlikely event the material cannot be used on-site, the material will be transported for offsite use. Costs to transport the foundation rubble to disposal are based on an estimated requirement of six (6) dump truck trips for each turbine site and transported to a location within 2 hours (one-way) at an equipment and labor rate of \$100/hr.

Total estimated labor & equipment cost:	\$ 400.00 /dump truck trip	
<u>Total estimate for WTG foundation transportation costs for all 62 turbine sites:</u>	<u>\$ 148,800.00</u>	

The total opinion of probable costs for removal of **WTG Foundations**: **\$ 489,800.00**

4. Wind Turbine Generators and MET Towers

4.1 Disassembly of turbine generators:

A. Disassembly costs for the WTGs are based on the assumption that it will take a 10-man crew 20 hours to



disassemble each tower and turbine, which is roughly equivalent to the labor effort required for tower and turbine assembly.

Estimated labor rate:	\$	25.00 /man-hour
Total estimate for WTG disassembly for all 62 turbines:		\$ 310,000.00

B. Based on an assumption that the two cranes (erector and assist cranes) can disassembly two (2) turbines a week, the crane rental is estimated to be 31 weeks. Two (2) weeks are added for wind day delays.

Estimated rental costs for two cranes:	\$	40,000.00 /week
Total estimate for WTG disassembly equipment for all 62 turbines:		\$ 1,320,000.00

C. Additionally, once the towers and turbines are on the ground, they will need to be cut up into manageable sized pieces in preparation for transportation to scrap, recycle, or disposal facilities. We are assuming it will take a 5-man crew 20 hours to do this work per turbine.

Estimated labor rate:	\$	15.00 /man-hour
Total estimate for WTG dismantling for all 62 turbines:		\$ 93,000.00

The total estimate for WTG disassembly is: \$ 1,723,000.00

4.2 Transportation of turbine components to disposal/reclamation site. Cost to transport the tower and turbine components to facilities for scrap, recycling or disposal are based on a estimated requirement of ten (10) transport vehicles per turbine site (note: transport of new turbine and tower components to a site requires 12 to 14 transport vehicles).

Total estimated labor & equipment cost:	\$	1,400.00 /transport trip
Total estimate for turbine component transport for all 62 turbine sites:		\$ 868,000.00

4.3 Nacelle housing, blade, and other component disposal. Disposal of the nacelle housing, blades, and other non-scrappable components are based on an estimated 90,000 lbs/turbine. Disposal fees are generally based on weight (in tons).

Total estimated weight of blades and nacelle:	46 tons	
Disposal fee (based on Bangor area landfill rates):	\$ 133.00 /ton	
Total estimate for nacelle housing and blade disposal for all 62 turbine sites:		\$ 379,400.00

4.4 MET Tower disassembly/removal:

A. Disassembly costs for the MET towers are based on the assumption that it will take a 5-man crew 16 hours to disassemble each MET tower.

Estimated labor rate:	\$	25.00 /man-hour
Total estimate for MET disassembly labor cost for five (5) towers:		\$ 10,000.00

B. Additionally, equipment rental is estimated at approximately 16 hours for each MET tower to assist with the disassembly, partially remove foundations, and reclaim the site.

Total estimated labor & equip. rate:	\$	200.00 /hour
Total estimate for MET disassembly equipment cost for five (5) towers:		\$ 16,000.00

Total estimate for MET tower disassembly/removal for five (5) towers is: \$ 26,000.00

4.5 Transportation of MET tower components to disposal/reclamation site.

A. Cost to transport the MET tower components to facilities for scrap, recycling or disposal are based on an estimated requirement of one (1) truck trip for each MET tower.

Total estimated labor & equip. cost:	\$	920.00 /trip
Total estimate for MET component trucking cost for five (5) towers:		\$ 4,600.00



- B. We have assumed that the concrete rubble generated from the foundations (while separating rebar as necessary) will not be transported offsite but be used onsite as fill at toes of slopes, for road base or topping material, or at other locations in need of fill as desired by the property owner. In the unlikely event the material cannot be used on-site, the material will be transported for offsite use. Costs to transport the foundation rubble to disposal are based on six (6) cubic yards of rubble for an estimated one (1) dump truck trip per MET tower site and transported to a location within 2 hours (one-way) at an equipment and labor rate of \$100/hr.

Total estimated labor & equip. cost:	\$	400.00 /dump truck trip	
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Total estimate for MET foundation transportation cost for five (5) towers:	\$	2,000.00	
<hr/>			
Total estimate for MET tower disposal for five (5) towers is:	\$		6,600.00

The total opinion of probable costs for **WTGs and MET Tower removal:** **\$ 3,003,000.00**

5. Electrical Collection System

Note that as the direct-buried underground collector is buried deeper than 2 ft, it will not be removed but be abandoned in place.

5.1 Disassembly of overhead collector lines and associated components:

- A. Disassembly and spooling costs for the overhead collector lines and associated components are based on the assumption that the labor effort required will be a 3-man crew working for four (4) hours per 1,000 feet of overhead wire.

Estimated total length of overhead lines:		93,900 feet	
Estimated labor rate:	\$	35.00 /man-hour	
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Total estimate for overhead collector lines disassembly:	\$		39,500.00

- B. Equipment rates are estimated at the following rate for approximately 47 days.

Estimated equipment rates:	\$	1,700.00 /day	
<hr/>			
Total estimate for overhead collector disassembly equipment:	\$		79,900.00

- C. Pole removal and filling of remaining hole, based on the following approximate quantities:

Amount of poles:		246 each	
Removal labor and equipment costs:	\$	160.00 /pole	
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Total estimate for overhead collector pole removal:	\$		39,400.00

Total for disassembly of overhead collector lines: **\$ 158,800.00**

5.2 Transportation of collector lines and associated components

- A. The cost to transport the collector line and associated components to facilities for scrap, recycling or disposal is based on the number of spools required per collector line sizes and lengths for the project, and a capacity of eight (8) spools per truck.

Estimated spools of collector line:		150 each	
Estimated labor & equipment cost:	\$	1,400.00 /truck trip	
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Total estimate for collector lines disassembly:	\$		26,600.00

- B. Pole removal will be transported at a rate of 30 poles per logging truck. It is assumed that poles will be sold or given away.

Amount of poles:		246 each	
Estimated labor & equipment costs:	\$	1,100.00 /truck trip	
<hr/>			
Total estimate for overhead collector pole removal:	\$		9,900.00

Total for transportation of collector line and associated components: **\$ 36,500.00**

- 5.3 Removal of pad-mount transformers. Removal of the pad-mount transformers is estimated to require a total



labor and equipment cost of \$500 per each.

Total for removal of pad-mount transformers for all 62 turbine sites: \$ 31,000.00

5.4 Transportation of pad-mound transformers. The cost to transport the pad-mount transformers to facilities for scrap, recycling or disposal is estimated to be a location within 2 hours (one-way) at an equipment and labor rate of \$225/hr. Assuming three (3) units can fit on one truck:

Estimated transportation costs:	\$	900.00 /truck trip	
<hr/>			
Total for transportation of pad-mount transformers for all 62 turbine sites:	\$		18,900.00

5.5 Removal of pad-mount transformer foundations. Removal of the pad-mount transformer foundations and cutting of cables and conduits to a depth of two feet below grade will require various types of hydraulic equipment.

Estimated labor & equipment cost:	\$	1,000.00 /site	
<hr/>			
Total for removal of pad-mount transformer foundations for all 62 turbine sites:	\$		62,000.00

5.6 Transportation of pad-mount transformer foundation rubble and disposal. The rubble from the pad-mount transformer foundations is approximately ten (10) cubic yards per turbine site. As it is assumed the steel rebar will be separated from the concrete debris, the rubble essentially becomes an inert material. Therefore, we have assumed that the concrete rubble generated will not be transported offsite but be used onsite as fill at toes of slopes, for road base or topping material, or at other locations in need of fill as desired by the property owner. Costs to transport the foundation rubble within the project boundaries, in comparison to other decommissioning costs, are assumed to be negligible. In the unlikely event the material cannot be used on-site, the material will be transported for offsite use. Costs to transport the foundation rubble to disposal are based on an estimated requirement of one (1) dump truck trip for each turbine site.

Total estimated labor & equipment cost:	\$	400.00 /dump truck trip	
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Total estimate for foundation transportation costs for all 62 turbine sites:	\$		24,800.00

The total opinion of probable costs for **Electrical Collection System removal:** \$ 332,000.00

6. Electrical Substation

The costs for removing the substation is difficult to assess. This section gives a general description of the assumptions made for the demolition costs of this item.

6.1 Disassembly of substation and associated components.

A. Disassembly costs for the substation is based on the assumption that the labor effort required will be a 5-man crew working for approximately four (4) weeks.

Estimated labor rate:	\$	35.00 /man-hour	
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Total estimate for substation disassembly:	\$		28,000.00

B. The disassembly will require a variety of construction equipment; it is difficult to estimate specific equipment requirements. In lieu of specific equipment rates, our opinion of probable cost includes a weekly rental equipment allowance for the assumed four (4) weeks.

Estimated equipment rental rate:	\$	33,000.00 /week	
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Total estimate for substation disassembly:	\$		132,000.00

Total for disassembly of substation and associated components: \$ 160,000.00

6.2 Transport substation components to disposal/reclamation site. Costs to transport the substation components to facilities for scrap, recycling or disposal are based on an estimated one (1) truck trip per day for four (4) weeks totaling 20 truck trips from the substation site.

Estimated labor & equipment costs:	\$	1,100.00 /truck trip	
<hr/>			
Total for transport of substation components to disposal/reclamation site:	\$		22,000.00

6.3 Removal and transportation/disposal of substation foundations.

A. Removal of the substation foundations to a depth of two (2) feet below grade will require various forms of



hydraulic equipment and various dozers and loaders. Estimated foundation rubble volume is based on the foundation dimensions of these facilities.

Estimated foundation rubble volume:		255 cubic yards
Estimated labor & equipment costs:	\$	100.00 /cubic yard
Total estimate for substation foundation removal:	\$	25,500.00

- B. We have assumed that the concrete rubble generated from the foundations (while separating rebar as necessary) will not be transported offsite but be used onsite as fill at toes of slopes, for road base or topping material, or at other locations in need of fill as desired by the property owner. In the unlikely event the material cannot be used on-site, the material will be transported for offsite use. Costs to transport the foundation rubble to disposal are based on 255 cubic yards of rubble, and 10 cubic yards per dump truck trip.

Estimated labor & equipment costs:	\$	400.00 /dump truck trip
Total estimate for substation foundation transportation:	\$	10,400.00

Total for removal and transportation/disposal of substation foundations: \$ 35,900.00

6.4 Re-grading of substation site:

- A. For the restoration of the substation site, we are assuming that all excavated areas will be brought up to grade and sloped to drain with suitable fill material generated from the re-grading of the site or from off-site sources. The estimated cost includes additional fill, topsoil or other organic matter to support growth, seed, and mulch.

Approximate disturbed area:		120,000 SF/Substation Site
Estimated cost per 1000 SF (1 MSF):	\$	330.00 /MSF
Total estimated re-grading material cost for substation:	\$	39,600.00

- B. This re-grading and restoration work is estimated to take a dozer and operator approximately seven (7) days to complete.

Labor & equipment rate:	\$	200.00 /hour
Total re-grading and restoration work for substation:	\$	11,200.00

Total estimate for re-grading substation site is: \$ 50,800.00

Total opinion of probable costs for **Electrical Substation removal:** \$ 268,700.00

7. Electrical GenLead System

7.1 Disassembly of overhead GenLead lines and associated components:

- A. Disassembly and spooling costs for the overhead GenLead lines and associated components are based on the assumption that the labor effort required will be a 3-man crew working for four (4) hours per 1,000 feet of overhead wire.

Estimated total length of overhead lines:		90,820 feet
Estimated labor rate:	\$	35.00 /man-hour
Total estimate for overhead GenLead disassembly:	\$	38,700.00

- B. Equipment rates are estimated at the following rate for approximately 46 days.

Estimated equipment rates:	\$	1,700.00 /day
Total estimate for overhead GenLead disassembly equipment:	\$	78,200.00

- C. Pole removal and filling of remaining hole, based on the following approximate quantities:

Amount of poles:		285 each
Removal labor and equipment costs:	\$	160.00 /pole
Total estimate for overhead GenLead pole removal:	\$	45,600.00

Total for disassembly of overhead GenLead lines: \$ 162,500.00



7.2 Transportation of GenLead lines and associated components

- A. The cost to transport the GenLead lines and associated components to facilities for scrap, recycling or disposal is based on the number of spools required per GenLead line sizes and lengths for the project, and a capacity of eight (8) spools per truck.

Estimated spools of GenLead line:		153 each
Estimated labor & equipment cost:	\$	1,400.00 /truck trip
Total estimate for GenLead lines disassembly:	\$	28,000.00

- B. Pole removal will be transported at a rate of 30 poles per logging truck. It is assumed that poles will be sold or given away.

Amount of poles:		285 each
Estimated labor & equipment costs:	\$	1,100.00 /truck trip
Total estimate for overhead GenLead pole removal:	\$	11,000.00

Total for transportation of GenLead line and associated components: \$ 39,000.00

Total opinion of probable costs for **Electrical GenLead System removal:** \$ 201,500.00

8. Dynamic Reactive Device Facility

8.1 Building removal

Demolition of the 12,000 square foot building, including labor, equipment, and transportation to facilities for scrap, recycling, or disposal is based on a removal rate of 20,100 cubic feet per day over 18 days at a daily cost of \$7,600:

\$136,800.00

8.2 Disassembly of exterior associated components.

- A. Disassembly costs for the exterior associated components is based on the assumption that the labor effort required will be a 5-man crew working for seven (7) days.

Estimated labor rate:	\$	35.00 /man-hour
Total estimate for exterior component disassembly:	\$	9,800.00

- B. The disassembly will require a variety of construction equipment; it is difficult to estimate specific equipment requirements. In lieu of specific equipment rates, our opinion of probable cost includes a weekly rental equipment allowance for the assumed seven (7) days.

Estimated equipment rental rate:	\$	33,000.00 /week
Total estimate for equipment rental:	\$	46,200.00

Total for disassembly of exterior associated components: \$ 56,000.00

8.3 Removal and transportation/disposal of Facility foundations.

- A. Removal of the Facility building and associated components foundations to a depth of two (2) feet below grade will require various forms of hydraulic equipment and various dozers and loaders. Estimated foundation rubble volume is based on the approximated foundation dimensions of these facilities.

Estimated foundation rubble volume:		860 cubic yards
Estimated labor & equipment costs:	\$	100.00 /cubic yard
Total estimate for Facility foundation removal:	\$	86,000.00

- B. We have assumed that the concrete rubble generated from the foundations (while separating rebar as necessary) will not be transported offsite but be used onsite as fill at toes of slopes, for road base or topping material, or at other locations in need of fill as desired by the property owner. In the unlikely event the material cannot be used on-site, the material will be transported for offsite use. Costs to transport the foundation rubble to disposal are based on 10 cubic yards per dump truck trip.

Estimated foundation rubble volume:		860 cubic yards
Estimated labor & equipment costs:	\$	400.00 /dump truck trip



Total estimate for Facility foundation transportation:	\$	34,400.00
Total for removal and transportation/disposal of Facility foundation:	\$	120,400.00

8.4 Re-grading of Facility site:

- A. For the restoration of the Facility site, we are assuming that all excavated areas will be brought up to grade and sloped to drain with suitable fill material. The estimated cost includes additional fill, topsoil or other organic matter to support growth, seed, and mulch.

Approximate disturbed area:		50,000 SF
Estimated cost per 1000 SF (1 MSF):	\$	330.00 /MSF
Total estimated re-grading cost for Facility Building:	\$	16,500.00

- B. This re-grading and restoration work is estimated to take a dozer and operator approximately three (3) days to complete.

Labor & equipment rate:	\$	200.00 /hour
Total re-grading and restoration work for Facility building:	\$	4,800.00
Total estimate for re-grading Facility site is:	\$	21,300.00

Total opinion of probable costs for **Dynamic Reactive Device Facility removal:** **\$334,500.00**

9. Operation & Maintenance Building

9.1 Building removal

Demolition of an approx. 5,916 square foot building, including labor, equipment, and transportation to facilities for scrap, recycling, or disposal is based on a removal rate of 20,100 cubic feet per day over 6 days at a daily cost of \$7,600:

\$45,600.00

9.2 Removal and transportation/disposal of building foundations.

- A. Removal of the O&M building and associated components foundations to a depth of two (2) feet below grade will require various forms of hydraulic equipment and various dozers and loaders. Estimated foundation rubble volume is based on the approximated foundation dimensions of this facility.

Estimated foundation rubble volume:		150 cubic yards
Estimated labor & equipment costs:	\$	100.00 /cubic yard
Total estimate for Facility foundation removal:	\$	15,000.00

- B. We have assumed that the concrete rubble generated from the foundations (while separating rebar as necessary) will not be transported offsite but be used onsite as fill at toes of slopes, for road base or topping material, or at other locations in need of fill as desired by the property owner. In the unlikely event the material cannot be used on-site, the material will be transported for offsite use. Costs to transport the foundation rubble to disposal are based on 10 cubic yards per dump truck trip.

Estimated foundation rubble volume:		150 cubic yards
Estimated labor & equipment costs:	\$	400.00 /dump truck trip
Total estimate for Facility foundation transportation:	\$	6,000.00

Total for removal and transportation/disposal of Facility foundation: \$ 21,000.00

9.3 Re-grading of Facility site:

- A. For the restoration of the Facility site, we are assuming that all excavated areas will be brought up to grade and sloped to drain with suitable fill material. The estimated cost includes additional fill, topsoil or other organic matter to support growth, seed, and mulch.

Approximate disturbed area:		18,000 SF
Estimated cost per 1000 SF (1 MSF):	\$	330.00 /MSF



Total estimated re-grading cost for Facility Building: \$ 6,000.00

- B. This re-grading and restoration work is estimated to take a dozer and operator approximately one (1) day to complete.

Labor & equipment rate: \$ 200.00 /hour

Total re-grading and restoration work for Facility building: \$ 1,600.00

Total estimate for re-grading Facility site is: \$ 7,600.00

Total opinion of probable costs for **Operation & Maintenance Building removal:** \$ 74,200.00

Disassembly & Removal Summary

The total opinion of probable disassembly and removal costs from summing the items above: \$ 7,686,410.00

Scrap / Salvage Value

For the purposes of this decommissioning plan, we have assumed that transformers would be sold for reuse and all other scrapable metal materials from the project decommissioning would be sold as scrap to a recycling yard in the Bangor, Maine area. The presumed scrap / salvage values are based on the following conservative estimates:

1. **Presumed scrap value of WTGs.** In estimating the scrap value of the WTGs, the following component weight estimates were used (all weights are in pounds). No scrap value was assumed for the blades or nacelle shell.

Base:	124,317	Nacelle	152,772
Lower Mid:	107,730	Rotor	76,235
Upper Mid:	137,545		
Top:	98,502		

Total estimated weight for each WTG: 697,101 lbs

Price for #1 steel scrap at a Bangor, Maine area metal recycling center:

#1 steel \$ 230.00 /ton

[(697,101 lbs / 2,000 lbs per ton) x \$230 per ton x 62 turbines = approx. \$4,970,400]

Total opinion of **presumed scrap value for all 62 WTGs:** \$ 4,970,400.00

2. **Presumed value of the external transformers.** Based on our research, typical transformers have a life expectancy of 50 years. Therefore, at 20 years a transformer could have a value of approximately 50% of its original cost. However, to be conservative, we have estimated the value of the external transformers at 10% of the original transformer cost:

Estimated original cost for external transformers: \$ 70,000.00 each

Estimated value (10%): \$ 7,000.00 each

Total opinion of **presumed value for all 62 external transformers:** \$ 434,000.00

3. **Presumed scrap value of the MET towers.** In estimating the scrap value of the MET towers, the following component weight and steel scrap values were used:

MET tower component weight: 6,000 lbs

Steel scrap value: \$ 230.00 /ton

Total opinion of **presumed scrap value of all five (5) MET towers:** \$ 3,500.00

4. **Overhead Collector wiring scrap value.** Quantities of overhead wire and wire sizes and lengths are based on electrical drawings prepared by SGC and used as a basis for estimated scrapable metal amounts. Overhead wiring consists of aluminum (steel reinforced) conductors.



Estimated linear feet of wiring:	281,685 ft
Estimated weight of scrappable aluminum:	246,155 lbs

Price for aluminum scrap at a Bangor area metal recycling center:	\$ 500.00 /ton
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Total opinion of **presumed scrap value of the overhead collector wiring:** \$ 61,600.00

5. **Presumed scrap value of Substation.** Based on our research, typical substation components have a life expectancy of 50 years. Therefore, at 20 years the substation could have a value of approximately 50% of its original cost. However, to be very conservative, we have estimated the substation scrap value at 2% of the total original cost:

Original substation construction estimate, less the transformer:	\$ 8,500,000.00
Estimated substation scrap value (2%):	\$ 170,000.00

Total opinion of **presumed scrap value of the substation:** \$ 170,000.00

6. **Presumed value of Substation Transformer(s).** Based on our research, typical transformers have a life expectancy of 50 years. Therefore, at 20 years a transformer could have a value of approximately 50% of its original cost. However, to be conservative, we have estimated the value of the substation transformer(s) at 10% of the original transformer cost:

Original substation transformer construction cost:	\$ 2,500,000.00
Estimated value (10%):	\$ 250,000.00

Total opinion of **presumed value of the substation transformer(s):** \$ 250,000.00

7. **Overhead GenLead wiring scrap value.** Quantities of overhead wire and wire sizes and lengths are based on electrical drawings prepared by SGC and used as a basis for estimated scrappable metal amounts. Overhead wiring consists of aluminum (steel reinforced) conductors.

Estimated linear feet of wiring:	272,460 ft
Estimated weight of scrappable aluminum:	297,799 lbs

Price for aluminum scrap at a Bangor area metal recycling center:	\$ 500.00 /ton
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Total opinion of **presumed scrap value of the overhead GenLead wiring:** \$ 74,500.00

Scrap / Salvage Value Summary

The total opinion of probable scrap / salvage value from summing the items above: \$ 5,964,000.00

**Decommissioning Summary**

The total opinion of probable disassembly and removal costs is:	\$	7,686,410.00
The total opinion of probable scrap / salvage value for the project is:	\$	5,964,000.00

The net estimated opinion of probable cost for decommissioning is:	\$	1,722,410.00
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Please do not hesitate to contact us with any questions regarding the information contained in this report. We appreciate the opportunity to work with you on this project.

Sincerely,

James W. Sewall Company

Janine S. Murchison, PE
Project Manager
jmurchison@jws.com
phone: (207)492-1014

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