

Section 7
Decommissioning

7. Decommissioning

Decommissioning

7.1 State Standards

According to Section 480-II of the Maine Revised Statutes, small-scale wind energy developments must “demonstrate adequate financial capacity to decommission the development” and “Decommissioning is required if the development's purpose or use is abandoned for a period of one year at any time after construction begins.”

Decommissioning is defined in the Statute as:

"Decommissioning" means the physical removal of all components of a small-scale wind energy development, including, but not limited to, wind turbines and associated foundations to a depth of at least 24 inches; structures, roads, cabling, electrical components and any other associated facilities and foundations to a depth of at least 24 inches to the extent they are not otherwise in or proposed to be placed into productive use; the grading and reseeded of all earth disturbed during construction and decommissioning; and restoration of any disturbed wetlands or critical wildlife habitat.

7.2 Local Standards

The Town of Roxbury has not enacted an ordinance addressing project decommissioning.

7.3 Major Components' Useful Life

When the major components approach the end of their useful life, RoxWind will assess the viability of continuing to use the major components or upgrading and/or replacing the major components (effectively resetting the Project's “useful life”), or decommissioning the major components and the related infrastructure as outlined in this Section 7.

7.4 Decommissioning Timeline

Decommissioning activities will commence on the site if the Project does not produce power for a period of twelve (12) consecutive months, absent a *force majeure* or other permission granted by the Department. *Force majeure* means fire, earthquake, flood, tornado, or other acts of God and natural disasters; and war, civil strife or other similar violence. If a *force majeure* event occurs, RoxWind will provide notice to the Department within two (2) business days of any catastrophic turbine failure. Catastrophic turbine failure shall include the voluntary or

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involuntary shut-down of a turbine due to a fire event, structural failure or accidental event resulting in a turbine collapse, a force majeure event, or any mechanical breakdown the Applicant anticipates will result in a turbine being off-line for a period greater than six months (in which instance the Applicant will inform the Department within two (2) business days of making such a determination).

7.5 Decommissioning Cost

RoxWind solicited decommissioning cost estimates from Baldwin Energy (“Baldwin”) and Reed & Reed, Inc. (“Reed”). Baldwin is an affiliate of Baldwin Crane, a 61-year old company which has significant experience erecting, maintaining and decommissioning wind energy facilities (<http://www.baldwincrane.com/about.html>). Reed is a 90-year old large construction company based in Maine with extensive experience constructing 18 wind energy facilities in New England, including involvement in 12 separate wind energy projects in Maine alone (<https://reed-reed.com/wind-power-services/>). The cost estimates are included in Exhibit 7-A.

Reed and Baldwin estimated that the cost to decommission the site would be \$821,000 and \$824,000, respectively. As estimated by Baldwin, the residual value of the turbines at the end of their useful life is \$150,000 per turbine. Therefore, the projected net cost for decommissioning all four turbines would be \$600,000 less than the cost estimates (\$150,000 x 4) for a net cost of decommissioning of \$221,000 and \$224,000 in today’s dollars when applied to the Reed and Baldwin quotes.

7.6 Decommissioning Financial Assurance

Prior to commencing construction of any components requiring removal under the statute,¹ the Applicant will provide financial assurance in the higher net amount of \$224,000 of the two proposals discussed above. The financial assurance will be provided as dictated in the Small-Wind Certification Application; i.e., via *“a performance bond, surety bond, letter of credit or other form of financial assurance acceptable to the Department.”*

7.7 Extension and Repowering Options

Nothing in this decommissioning plan requires RoxWind to decommission some or all of the Project at any point in time (aside from the abandonment requirement under the Statute). While the anticipated life of the equipment is 25 years, it’s possible that the equipment, being properly maintained, will be able to operate well beyond that time period. Further, it’s quite

¹ RoxWind interprets this to apply to construction of the items that require decommissioning such as the foundations or electrical equipment but excluding the items that will remain in place for “productive use” such as improvements to the roads.

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likely that at the end of the useful life of the equipment, the project may be repowered with then state-of-the-art equipment.

For example, Canada's oldest wind farm – Crowley Ridge – was commissioned in 1993, had an estimated life of 20 years, was depowered after 23 years,² and is now in the process of being repowered with more modern equipment.³

RoxWind anticipates that such may happen in the future for this Project as well. Much of the infrastructure – roads, foundations, power lines, interconnection, even towers and nacelles – provide significant value which can be used to minimize the cost of continuing to provide clean, renewable power for the State of Maine far into the future with then current technology.

² <https://www.windpowerengineering.com/business-news-projects/decommissioning-canadas-oldest-wind-farm/>

³ https://www.transalta.com/wp-content/uploads/2017/04/Cowley_Ridge_June_Update.pdf

7-A

Decommissioning Cost Estimates from Baldwin Energy and Reed & Reed, Inc.

BALDWIN ENERGY

232 Andover Street
Wilmington, MA 01887



PH: 978 657-7555

FAX: 978 657-5647

February 26, 2018

Lindsay Deane-Mayer
RoxWind LLC
c/o Palmer Capital Corporation
13 Elm Street, Suite 200
Cohasset, MA 02025
Lindsay@palmcap.com

**SUBJ: Roxbury, ME- Wind Turbines
Decommissioning**

Palmer Capital
Decommissioning- Roxbury, ME

**RE: Wind Turbine Decommissioning
BALDWIN JOB NO. 18053**

Dear Lindsay:

Please review the following estimate for the decommissioning of Four GE, 3.8 MW wind turbines on 85 meter steel towers.

Introduction:

Baldwin Crane and Baldwin Energy are New England's premier wind turbine transportation, erecting and O&M providers. Baldwin Energy has significant experience erecting and commissioning GE wind turbines, completing over 156 MW in 2017. Baldwin has also provided numerous cost models for decommissioning and has provided decommissioning services on a variety of projects. As a result, we clearly understand the scope and particular intricacies involved in decommissioning the wind turbines.

Our involvement in the North American Wind Energy Association and participation in several subcommittees guarantees the most advanced techniques are used in maximizing efficiency and safety. Further as a family business for over 50-years, Baldwin's unwavering commitment can be relied on for years to come.

Don't just take our word for it, contact our customers ...

“I have yet to find, as we go into our 5th year of wind production, a more qualified, productive and knowledgeable wind energy company in northeast.”

Michael Ort
Facilities Manager
Mark Richey Wind Turbine Project

Customer References:

Massachusetts Water Resource Authority (MWRA)
Kristen Patneade,
Program Manager Energy Management
Kristen.Patneade@MWRA.com
617 839-0082

Free Breeze Wind Energy Systems
John Hogg,
President
John.Hogg@FreeBreeze.com
519 885-4311



Mark Richey Woodworking
Michael Ort,
Director of Facilities
MOrt@MarkRichey.com
978 499-3800

City of Lynn Waste Water and Sewer
Robert Tina,
Director of Operations
BobJTina@aol.com
781 592-7048

Department of Capital Asset Management (DCAMM)
Robert Harvey,
DCP
Robert.Harvey@state.ma.us
617 727-4030

Our Quality Commitment to you...



Our quality commitment to RoxWind:

Quality Policy Statement: Quality at Baldwin means understanding and fully meeting our customer’s requirements through innovative and efficient solutions. This is our

commitment to RoxWind LLC

To review the details of our quality commitment and how we achieve this goal, see the attached Baldwin Energy- QC Overview.

Providing a Safe and Professional Working Environment...

Baldwin Energy Service is committed to ensuring a **safe workplace**. Baldwin has zero loss time injuries in wind energy, where it has been providing services for over a decade. Further, through its participation in the Safety Subcommittee of the American Wind Energy Association, Baldwin is a leading participant in establishing safe and efficient work standards in the Wind Energy Industry.

To review the details of Baldwin Energy’s Safety and Training Program and see how it ensures a safe and efficient workplace for the RoxWind Decommissioning Project, see the attached Safety and Training Program.



Pricing that maximizes value...

Option 1- Full Decommissioning:

Decommissioning (Net)- \$224,000

*\$56,000 per turbine based on the decommissioning of four turbines.

*SEE SCHEDULE B for pricing details

This estimate includes the following services:

- All Civil work to prepare existing roads for crane travel and return roads and surrounding landscape to original condition after equipment removal, including grading and reseeding
- Main Crane for tower disassembly including complete assembly, disassembly and hoist time
- Tailing Crane for tower disassembly, including all trucking of counterweights
- Complete tower, nacelle, hub and blade disassembly of three wind mills
- All necessary equipment for tower disassembly including (if necessary):
 - Rough terrain forklift
 - Aerial lift
 - Generator (for tools)
 - Specialty tools
- Foundation removal to a depth of 24+ inches.
- Site cleanup

This estimate is subject to the following conditions:

- Estimate does not include any applicable taxes.
- Estimate is based on an expected minimum residual value for all turbine components of 5%. Estimated construction (decommissioning cost) per turbine = \$206,000, less residual values of \$150,000 per turbine = \$56,000.
- Transportation of all components of site is factored into the residual values.
- The above estimate is based on estimated work hours performed during regular shifts Monday through Friday. If work is required on Saturday or Sunday additional premiums may apply.
- The above estimate is based on continual work with no work stoppage due to weather, site conditions, or delays beyond Baldwin Crane's control.

Because of the strength of the GE company and brand, it has gained strong market share in the Northeast. This translates to a higher market value for used equipment, rebuilt equipment and spare parts. There are multiple owners that would be interested in purchasing the used equipment to support existing projects. And because of the commonality of the GE components, each major part (such as the generator) can be rebuilt with a guarantee provided, which also makes this equipment suitable for new construction. As a result, the residual value is maximized and will drastically offset the construction costs.

Thank you for the opportunity to provide this estimate. We look forward to working with you and contributing to your success.

Sincerely,

A handwritten signature in black ink that reads "Mark Baldwin". The signature is written in a cursive style with a large, sweeping initial "M".

Mark Baldwin, CEO

APPENDIX B
RFP BID SHEET – COMPENSATION AND PAYMENT SCHEDULE
ROXWIND- DECOMMISSIONING (ROXBURY, MAINE)

[Return with submittal of proposal]

GENERAL

This document details the price information required to be submitted with the proposal/bid documents pertaining to the RoxWind Decommissioning in Roxbury, Maine.

PRICE

Supplier shall provide firm-fixed price for the Work, which shall be inclusive of all costs associated with performance of the Scope of Work.

	Cost	Salvage -Credit-	Total	Field man hours
1. Mobilization <i>(do not include crane costs here)</i>	NA			
2. Wind Turbine Foundation, Removal and Disposal Including: -demolition of existing wind turbine foundation; -disposal of wind turbine foundation	\$12,000 X 4 =\$48,000		\$48,000	
2. Foundation Installation Including: -materials; -electrical grounding installation; -equipment	NA			
3. Tower, WTG, and PMT Decommissioning Including: -fiber optic connection/splicing; -tooling/special fixtures handling; -tower sections; -nacelle and rotor; -cable, terminations, etc.; -decommissioning support	\$194,933	\$150,000 X 4 =\$600,000	\$-405,067	
4. Crane costs (itemize) Include: -mobilization; -rigging; -setup, assembly, disassembly, operators, etc.; -demobilization	\$285,067		\$285,067	
5. Civil (itemize, if applicable)	\$60,000		\$60,000	
6. WTG Transportation <i>(do not include crane costs here)</i>	\$236,000		\$236,000	
7. Temporary Office Trailer (optional)				
TOTAL PRICE			\$224,000	

APPENDIX B

RFP BID SHEET – COMPENSATION AND PAYMENT SCHEDULE
ROXWIND- DECOMMISSIONING (ROXBURY, MAINE)

TIME AND MATERIAL RATES

In the event Work is authorized by Purchaser to be performed in excess of the Base Price (Out-of-Scope), the Supplier shall provide a rate schedule for labor and supervision necessary for completion of the Work as described herein. The hourly labor rates provided should be “all-inclusive” for all disciplines required in the performance of the Work, including straight time, overtime, statutory requirements and per diem rates as applicable. The hourly labor rates should be inclusive of all base wages, applicable federal, state and local taxes, fringe benefits, applicable administrative expenses, overhead, profit, and all other like costs (except per diem) directly or indirectly associated with the performance of the Work. The rates for each position classification should be the total hourly billing costs to Purchaser, excluding per diem. Per diem should be quoted separately as applicable. The Supplier is responsible to accurately monitor and account for per diem entitlement.

T&M Rate Schedule

	Job Title/Classification	Billing Rate Cost Per Hour	OT Rate Cost Per Hour	Per Diem
1	Project Manager	\$115	\$155 / \$195	\$145 per Day
2	Technician	\$95	\$135 / \$160	\$145 per Day
3	Crane Operator	\$110	\$145 / \$180	\$145 per Day
4				
5				
6				

Note: Purchaser may request additional rates for disciplines not identified above, which will be subject to review and approval prior to incorporation into any resulting Contract/Change Order.

Overtime rates (for qualifying positions) will apply for Work performed on weekends, holidays or outside normal working hours (over 8 hours per day or over 40 hours per week). All overtime requires prior approval by Purchaser’s authorized representative. Overtime rates shall exclude costs which are fully recouped after the first forty (40) straight time hours. A maximum of 8 hours shall be charged for travel time e.g. in and out.

Reasonable expenses incurred during performance of the Work will be reimbursed at cost without markup and are subject to Purchaser approval. All such expenses and costs must be substantiated and support by actual receipts with time / date / location / name of establishment.

Materials, Equipment, Rental Equipment, Consumable Supplies, and Subcontracts authorized by the Purchaser for performance of Time and Material Work will be billed at cost plus 5%.



SAFETY AND TRAINING

Commitment, Experience, Training

Baldwin Energy Service is committed to ensuring a **safe workplace**. Baldwin has zero injuries or health related incidents in wind energy, where it has been providing services for over a decade. Further, through the American Wind Energy Association Baldwin is a leading participant in establishing safe and efficient work standards in the Wind Energy Industry.



Commitment

Baldwin Energy is an active member of the American Wind Energy Association and has several members on the AWEA Safety Committee. This committee reports to the Board of Directors for the American Wind Energy Association on issues of wind energy worker health and safety. It is instrumental in evaluating the specific health and safety needs in the wind energy sector and ensuring that best practices are understood and become standard practice. As members of the Safety Committee, Baldwin is continually reviewing policies and procedures while obtaining the input of industry specialists from around the world.



O&M Committee ● Safety Committee ● Construction Safety

OSHA Mission: to assure safe and healthful working conditions for working men and women by setting and enforcing standards and by providing training, outreach, education and assistance

Baldwin Energy shares **OSHA's mission** and realizes that safe and healthful working conditions are a benefit to everyone. As a result, Baldwin's Safety & Training Program utilizes input from OSHA and the AWEA Occupational Environmental, Health and Safety Program to surpass industry standards. And, because Baldwin has been involved in all aspects of wind turbine development, its turbine specialists are experts in this environment and provide continual feedback. The result is one of the most comprehensive and effective health and safety programs in the industry and a safe and efficient worksite.





Transportation, Erecting, Maintenance

Diverse experience, one mission

Experience



Baldwin Energy's unique experience in turbine logistics, erecting and maintenance combine to provide an in depth working knowledge of wind turbines. Safety is enhanced when technicians understand the interdependence among trades and how performance in a particular area can impact overall jobsite safety.



RRB ENERGY LIMITED
Pioneers in Wind Power
Since 1987



Baldwin Energy has experience with a variety of Manufacturers. Understanding the unique requirements of each turbine is critical to ensuring jobsite safety, maximizing tower production and extending the useful life of the asset.

Wind Turbine Projects (Sample):

- MWRA Wind Turbine Project (Deer Island, MA)
 - Fox Islands Wind Project (Vinalhaven, ME)
 - Mark Richey Wind Turbine Project (Newburyport, MA)
 - University of Maine Wind Project (Presque Isle, ME)
 - Scituate Wind Project (Scituate, MA)
 - Mount Wachusett Community College Project (Gardner, MA)
 - The North Central Correctional Institution Wind Project (Gardner, MA)
 - University of Massachusetts Dartmouth Wind Project (Dartmouth, MA)
 - MWRA Wind Turbine Project (Charlestown, MA)
 - MWRA Wind Turbine Project (Deer Island, MA)
 - Varian Semiconductor Wind Project (Gloucester, MA)
 - Gloucester Engineering Wind Project (Gloucester, MA)
 - Ipswich Wind Energy Project (Ipswich, MA)
-

Technician Training Requirements



- OSHA General Construction Standards and Wind Specific Guidelines
- First Aid/CPR
- Confined Space
- Tower Rescue
- Fall Protection
- Torque Equipment and Specialized Tools
- Electrical Safety
- Personal Protective Equipment
- Crane Safety
- Hazard Communication
- Ergonomics

*NOTE: Baldwin Energy offers specialist training in particular areas, such as composites. This training must be completed to be endorsed as a Specialist within Baldwin Energy.

Training



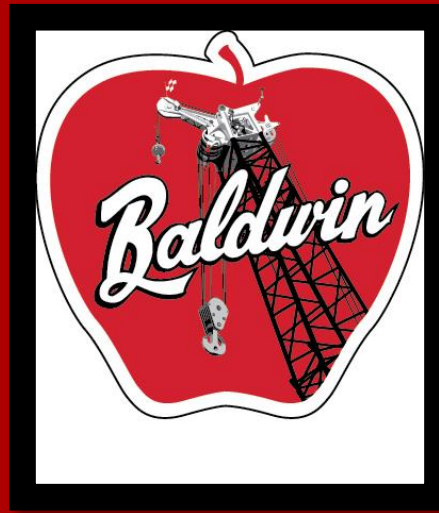
Field Training

Successful training requires onsite implementation and support. Our technicians work and train in teams, with a team leader ensuring standards are understood and applied. This approach ensures that safety is a fundamental part of the culture at Baldwin Energy.





**Work Safe, Someone is
Counting on You.**



TQM

BALDWIN ENERGY

TOTAL QUALITY MANAGEMENT- Overview

Quality Policy Statement: Quality at Baldwin means understanding and fully meeting our customer's requirements through innovative and efficient solutions.



Quality

quality is our commitment

To provide the highest customer satisfaction, Baldwin has adapted standards established by the United States Navy for TQM. The following TQM principles taken from the *Navy Personnel and Research Center* reveal fundamental guidelines:

- “Quality is defined by customers' requirements.”
 - Baldwin’s approach: Listen, review and fully understand the customer’s requirements. Understand the projects purpose and environment in order to provide valuable recommendations and feedback.
- “Top management has direct responsibility for quality improvement.”
 - Baldwin’s approach: Empower QC Managers and provide direct line to CEO.
- “Increased quality comes from systematic analysis and improvement of work processes.”
 - Baldwin’s approach: Work with customer to form efficient and effective monitoring tools. Continuously seek to improve methods with 360 degree feedback.
- “Quality improvement is a continuous effort and conducted throughout the organization.”
 - Baldwin’s Approach: Recognize individual efforts to improve quality and reinforce each improvements impact on the team, organization and mission.

Total Quality Management

Total Quality Management is a team approach under the direction of the QC Manager. Baldwin's QC Managers, Jeff Berry and Jean Cormier, are QC Certified by the Army Core of Engineers . The QC Manager reports directly to the Project Manager.

It is the QC Manager's direct responsibility to understand the customer's requirements and to ensure an appropriate method for measuring performance . The TQM effort is the responsibility of everyone at Baldwin.

The QC Manager provides continuous feedback to all vested parties. The QC Manager also continually monitors customer satisfaction based on current performance and leads all changes towards continuous improvement.



Roles & Responsibilities

Baldwin's **Seven Steps** to Total Quality Management:

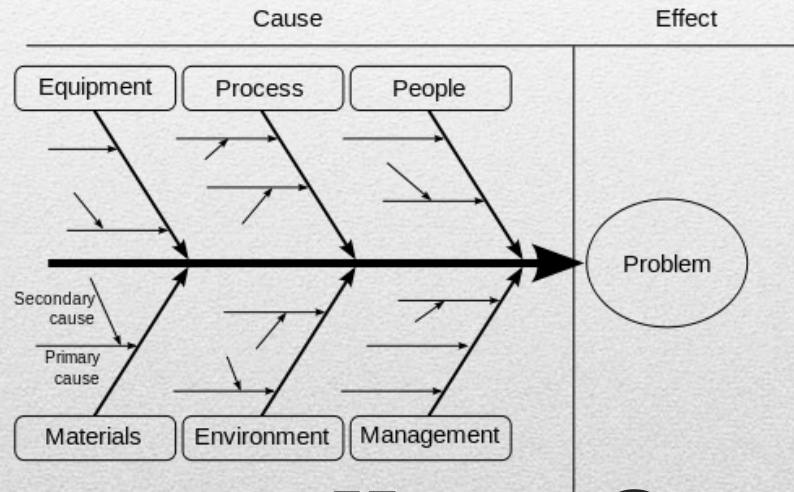
1. Understand (Cause & Effect)
2. Train
3. Tool
4. Report
5. Monitor
6. Inspect
7. Review



TQM Process



Baldwin's TQM Program begins by understanding the customer's requirements and the environmental conditions where services will be performed. These requirements include policies, legislation, regulations, rules and standards that dictate methods. Understanding these requirements helps to establish a cause and effect relationship for each activity and is crucial in establishing standards and monitoring defect prevention.



Understanding- Cause & Effect

Baldwin's personnel receive general construction training as well as specialized training unique to their particular task. Baldwin works in conjunction with the National Commission for the Certification of Crane Operators (NCCCO) to provide training and certifications for workers in crane related activities.

Baldwin's union affiliation further ensures each worker is skilled in their particular trade and has completed the appropriate apprenticeship programs. Each worker is required to maintain current licenses and certifications as part of the union programs.



Training

Having the proper equipment for each task is an essential part of maintaining the TQM process at Baldwin. Each tool must be suited to the particular task and capable of performing according to manufacturer's specifications. As a result each tool must be inspected and tested periodically. All tensioning or torquing tools must be in premium working condition and be properly calibrated. All hoisting equipment must be inspected daily and cranes must have daily, monthly and annual inspections according to OSHA regulations.



Tooling

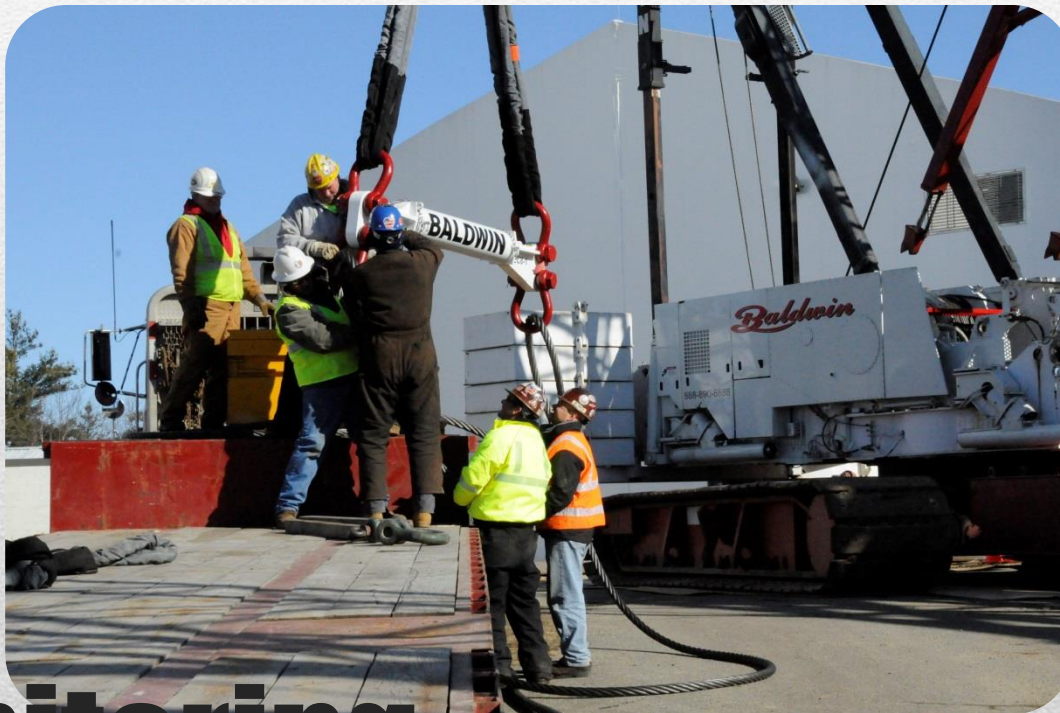
Reporting and documentation methods will be predetermined in order to meet the customer and Baldwin's quality control standards. The reports will be used to document which particular work was performed and that quality standards were met. The TQM Manager will ensure that the paperwork is completed thoroughly and on a timely basis.

Job reports, including job write-ups and inspection reports are kept in Baldwin's office for a period of seven (7) years. Copies are also supplied to the customer on an ongoing basis throughout the project.



Reporting

Monitoring is performed daily by Team Leaders and the TQM Manager. Team Leaders will be assigned to larger work groups to ensure continual monitoring. Monitoring is conducted to confirm that daily work conditions and practices are in conformance with quality standards.



Monitoring

The inspection process is broken into two distinct steps; task inspections and a final inspection. Each has the following objectives:

Task Inspection: Team Leaders inspect the completed assignment. Routinely, TQM managers audit these inspections to ensure proper standards are being used. Task inspections are intended to inspect quality standards of sub-components.

Final Inspection: Led by the TQM Manager, the QC Team and Project Manager will complete a final review of the completed assembly. Findings will be documented and reviewed with the customer to align QC standards with total performance.



Inspecting

The review process is a critical component of Baldwin's TQM Program. To continuously improve the program, Baldwin and the customer must go back to the initial program phase (understanding) and identify any deficiencies that surfaced. Reviewing the deficiencies and the corrections will help safeguard effective practices while revealing opportunities to improve.

Conducting the review process in each of the seven TQM areas will strengthen the program for future projects, while revealing QC targets in the maintenance process. For example, if it was discovered that torqueing particular bolts was challenging because of confined space issues, new practices or tooling can be used throughout the maintenance procedure.

The review process is designed to affirm the customer's satisfaction level and seek ways of improving Baldwin's TQM process. In doing so, Baldwin can continue to improve while the customer can maximize its component performance and the useful life of its asset.

Reviewing



Satisfaction

REED & REED



P.O. Box 370, Woolwich, ME 04579 Tel: 207.443.9747 Fax: 207.443.2792 www.reed-reed.com

March 5, 2018

Attn: Ms. Lindsay Deane-Mayer
RoxWind, LLC
13 Elm Street, Suite 200
Cohasset, MA 02025

Re: North Twin Mountain Wind Project
Decommissioning Cost Estimate

Dear Lindsay:

We have analyzed the decommissioning costs associated with the North Twin Mountain Wind Farm project. Our pricing assumes that the project will not have an O&M building. The total estimated cost is \$821,000 for the decommissioning work excluding salvage.

The cost estimate is summarized as follows:

General Conditions	\$117,000
O&M Building	N/A
Crane Mob/Demob	242,000
Turbine Removal for Salvage	303,000
Blade Disposal	30,000
Foundations (Remove to 24" Below Grade)	66,000
Collection System	15,000
Storm System	26,000
Site Restoration	22,000
Total	<u>\$821,000</u>

Please contact me with any questions.

Best Regards,

Arthur J. Cavanagh
Director, Wind Energy Services
Reed & Reed, Inc.