WESTERN Community Energy
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November 4, 2007

Montana State University – Great Falls • College of Technology
Attention: Mr. Joe Schaffer, Dean
2100 16th Avenue South
Great Falls, MT 59405
(406) 771-4300

Re: MSU-GF Wind Energy Project; Site Assessment and Feasibility Study Report

Mr. Schaffer,

Western Community Energy, LLC ("WCE"), per the Service Agreement executed on September 22, 2008 by and between WCE and Montana State University – Great Falls College of Technology ("College"), has concluded the Site Assessment and Feasibility Study Report for the wind project (the "Project") being considered at the College's new Trades Building. The following are our key findings and recommendations.

Table 1: WCE's Key Findings and Takeaways

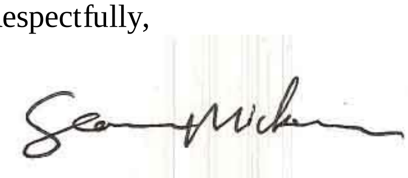
Report Section	Key Findings & Takeaways
Wind Resource	• Computer-generated modeling and the Great Falls Airport weather station indicate the chosen site lies in a Class 1-2 wind resource (11.5-12.5 mph estimated average at 30m). • A Class 1-2 wind resource is marginal, but will create enough energy to offset a significant portion of the Trade Building's energy usage.
Equipment Assessment	• The Candidate Turbine grading process indicates that the Entegrity EW50, 50 kW turbine best meets the College's objectives for the Project. • WCE was unable to locate any refurbished or remanufactured turbines that met the aforementioned criteria.
Transmission	• The wire run from the Project to the likely turbine location will be ~550'-700' depending on the final turbine location and routing of the wire run. WCE recommends that the College take special care to site the turbine and wire run such that the Project has minimal interference with future development. • The Project should be interconnected to a 480V transformer and meter located on the southwestern edge of the Trades Building. • The Project should execute a Net-Metering Agreement with NorthWestern Energy.
Annual Revenue	• The electricity usage of the Trades Building and chillers metered at the same location was 34,880 kWh for the month of September, 2008. WCE estimates that the electricity consumption at this meter will be at least 350,000 kWh/yr. • The energy expenses that can be net-metered are currently $0.066937/kWh. • Assuming a 12 mph average wind speed, and that energy expenses will increase by 5% per year, WCE estimates ~$8,747/year in average gross annual cost savings over 20 yrs.

Table 1: WCE's Key Findings and Takeaways, cont.

Report Section	Key Findings & Takeaways
Project Cost	• The total recommended Project cost is estimated to be ~$224,000 using a monopole tower and ~$212,000 using a lattice tower. • Applying available USB grants from NorthWestern Energy ($10,000) reduces the effective Project cost to ~$214,000 using a monopole tower and ~$202,000 using a lattice tower. • The purchase of the recommended EW50 includes a 5-year warranty/operations and maintenance service package.
Project Financing	• NorthWestern Energy's Universal System Benefit ("USB") grant program will provide $10,000 towards the cost of the Project. • Using USB funds will preclude the College from selling RECs from the Project. WCE recommends, however, that the College should avoid REC market risk and utilize NorthWestern's USB monies to buy the Project cost down. • WCE sees no potential disadvantage to the College using Plant Funds to finance the Project. • USB funds will be applied after the Project is completed.
Financial Pro Forma	• Based upon WCE's pro forma inputs, the Project's simple payback period is between 22 and 23 years using a monopole tower, and between 21 and 22 years using a lattice tower.
Implementation Plan	• WCE recommends that the College initiate the Conditional Use Permit process immediately following Board of Regents Approval. • WCE has assumed that Project construction will begin in or before May 2009 and that the Project will be operational by the end of June 2009.

If you have any questions about the Project, our Report, or how the College should proceed, please do not hesitate to phone/email me using my contact info (below).

Respectfully,



Sean Micken
WCE Project Coordinator
(406) 581-8460
smicken@westerncommunityenergy.com

cc: Jeri Pullum, Marry Ellen Baukol, Mike Costanti

Attachments: MSU-GF Wind Energy Project: Assessment Trip Report Feasibility Study Report

MSU-GF College of Technology Wind Project

Assessment Trip & Feasibility Study Report

Introduction

On September 22, 2008, the Montana State University – Great Falls, College of Technology ("College") retained Western Community Energy, LLC ("WCE") to conduct a feasibility study for the development of a wind energy project at the College's new Trades Building (the "Project"). The Scope of Work included an Assessment Trip and a Project Feasibility Study.

WCE's Scope of Work for the Assessment Trip was to:

1. Meet with Project Stakeholders,
2. Determine Project size range, scope, schedule, and budget,
3. Discuss Project funding alternatives,
4. Assess Project site to determine likely infrastructure locations, and
5. Identify relevant fiscal, political, community and other technical issues that may impede or assist Project development or operation.

WCE's Scope of Work for the Project Feasibility Study was:

1. Wind Energy Resource Assessment: Review available data to determine site energy production potential.
2. Equipment Assessment: Analyze availability of new and refurbished turbines and develop Equipment Acquisition Options.
3. Transmission Assessment: Analyze available transmission system to recommend a Transmission Plan.
4. Annual Revenue Assessment: Summarize opportunities to sell Project electrical output and Renewable Energy Credits and recommend a Power Sales Plan and a REC Sales Plan.
5. Annual Operations and Maintenance Assessment: Summarize expected annual operation and maintenance requirements, responsibilities and cost, and recommend an Operation and Maintenance Plan.
6. Project Financing Assessment: Summarize available debt financing alternatives, including loans, bonds, and grants, and recommend a Project Financing Plan.
7. Project Cost Assessment: Establish turn-key Project costs including engineering, procurement, management, and construction costs;
8. Financial Pro Forma: Analyze and develop a financial pro forma to determine cash flows.
9. Implementation Plan: Use the findings of the "Scope of Work" to develop an Implementation Plan, outlining sources, schedules, and budgets of all related equipment, services, and infrastructure required to complete the Project.
10. Report: Generate a written report detailing the results of the Feasibility Study.

The following is WCE's Assessment Trip summary and Project Feasibility Study findings.

Assessment Trip—Key Findings

Introduction

On Monday, October 7th, Sean Micken of Western Community Energy ("WCE") met with Joe Schaffer, Jeri Pullum, and Marry Ellen Baukol of Montana State University – Great Falls ("College"), to discuss the Project and to tour the Project site. The following items were salient outcomes of the Assessment Trip:

Project Size/Scope Discussions

Scope

The College seeks to install a net-metered wind turbine generator ("Project") to meet the following primary objectives:

1. Energy Production: Reduce energy costs for the Trades Building and hedge against future electricity rate increases.
2. Education: Provide students with a tool to learn and practice mechanical, electrical, and construction trade skills.
3. Promote the College's forthcoming Wind Technician program.

WCE and College staff also discussed the secondary objectives that College has for the Project, in order for WCE to establish grading criteria that will be used to make a turbine recommendation. See *Equipment Assessment* below for a detailed discussion of turbine grading criteria and results.

Size

The College is seeking to offset as much of the Trades Building's annual electricity (kWh) consumption as possible. Project size is limited by NorthWestern Energy's upper limit of 50 kW nameplate capacity for wind generators engaged in net-metering.

The Trades Building has been in use by students and staff for about one month. WCE agreed to evaluate the electricity usage that the Trades Building experienced in September, and employ other techniques (including analysis of a similar building at Flathead Valley Community College) to estimate the Trade Building's annual energy consumption. This figure will then be compared to the estimated annual energy production of different available turbines to determine the best choice to meet the University's production goals within the given Schedule and Budget.

Schedule

The College seeks for the Project to be constructed and commissioned by June 31, 2009. This target date has been set, in part, to address the objectives of Governor Schweitzer's "20x10 Initiative". As indicated in the *Implementation Plan* below, WCE believes that this target date is feasible. College staff have indicated that the College intends to proceed with the Project even if the target date proves unachievable.

Steps to Project development that must be completed sequentially, and therefore, have the potential to impede schedule goals include:

- Review of the Feasibility Study Report by University Architects and Engineering (A&E) staff,
- Montana Board of Regents approval to proceed by the City of Great Falls Conditional Use Permit ("CUP") approval,
- Drafting, issuing, acquisition, and review of Request for Proposals ("RFP") for Project construction,
- Lead time for ordering and delivery of key Project components such as electrical equipment and especially the wind turbine itself, and
- Project construction.

Budget

The College defined a target Project budget of up to $200,000. The College seeks to incur no debt to build the Project.

WCE informed the College that a $200,000 budget may not be sufficient to fund the construction of at least one of the Candidate Turbines that will be analyzed (Entegrity's EW50), because;

- The price of the turbine has risen significantly in the last 6 months (since the installation of the EW50 at the Cascade County Shop).
- The use of a monopole (preferred by MSU-GF), rather than a lattice tower, would add $10,000 to $20,000 to the Project budget.

College staff identified return on investment ("ROI") as an important criterion for judging turbine selection and Project feasibility. 20 years was identified as a target "simple payback" period.

College staff informed WCE that the Project must provide ample training opportunities to students in order to justify the use of federal "Perkins" funds towards Project financing.

Transmission Discussions

WCE confirmed with College that the most cost-effective method of utilizing Project electrical output will be through net-metering Project production.

Equipment Discussions

WCE agreed to evaluate 3-5 wind turbines to determine the turbine that best fits the College's objectives for the Project. A few takeaways of the discussions on equipment selection include:

- College staff indicated that any choice of a turbine for the Project would need to employ "current" and not "outdated" technology.
- The College intends for the chosen turbine to be utilized for observation and hand-on educational and training purposes.
- College staff prefer the use of a monopole tower, rather than a lattice or guyed tower.

- The College prefers that production and other performance data from the Project be visible, accessible, and housed on-line.
- College staff require that any turbine used in the Project have a warranty of least 2 years, and prefer a warranty period of 3-5 years.

Project Funding Alternatives

WCE noted that a $10,000 Universal Systems Benefit ("USB") grant from NorthWestern Energy ("NWE") could be used to buy the Project cost down.

WCE agreed to investigate other available grand funding sources.

Site Visit

Ms. Pullum drove WCE to the site and showed where the College would like to locate the Project.

WCE and College staff agreed that the Trades Building's meter provides the best point of interconnection ("POI"). The only alternative POI is another meter located on the interior of the main campus. This alternative would pose a very complicated and costly wire run, and would cause the Project's energy production to be consumed by the main campus, rather than the Trades Building.

WCE measured the physical wire run from the likely point of interconnection at the Trades Building's 480V transformer and meter to the likely turbine location up near the campuses southern property line. WCE's measurements indicated a 500'-800' wire run, depending on the precise placement of the wire run and the turbine itself.

College staff provided WCE with site plans that WCE used in building the Project's design and budget.

Figure 1: Trades Building

Feasibility Study Report

Wind Energy Resource

The wind energy resource at the Project site, driven primarily by average wind speed, is difficult to accurately predict without on-site observational data. Lacking on-site, hub height empirical data, WCE relied on an analysis of the Project's site characteristics, regional observational data, and computer-generated geography-based wind speed models to arrive at a best estimate of the Project's likely wind energy resource. The following sub-sections contain a summary of the Project's site characteristics, regional observational data, and computer-generated modeling.

Project Site Characteristics

Due to the layout and surroundings of the MSU-GF campus, the Project's best available wind resource is near the campuses' southern property line, at least 300' feet from the western property line. A wind turbine at this location will be able to capture the property's prevailing south/southwest winds because it is at a sufficient distance from any upwind structures that might cause unwanted wind interference and turbulence.

WCE assumed that the site would have a Roughness of 1.0, which is defined as being open agricultural lands with gentle topography, and few fences and buildings. Figure 2 and Figure 3 are pictures of the recommended site taken during the Assessment Trip, while Figure 4 is a Google Earth image and preliminary layout of the site and Project.

Figure 2: Looking south from turbine location

Figure 3: Looking South from meter to turbine location

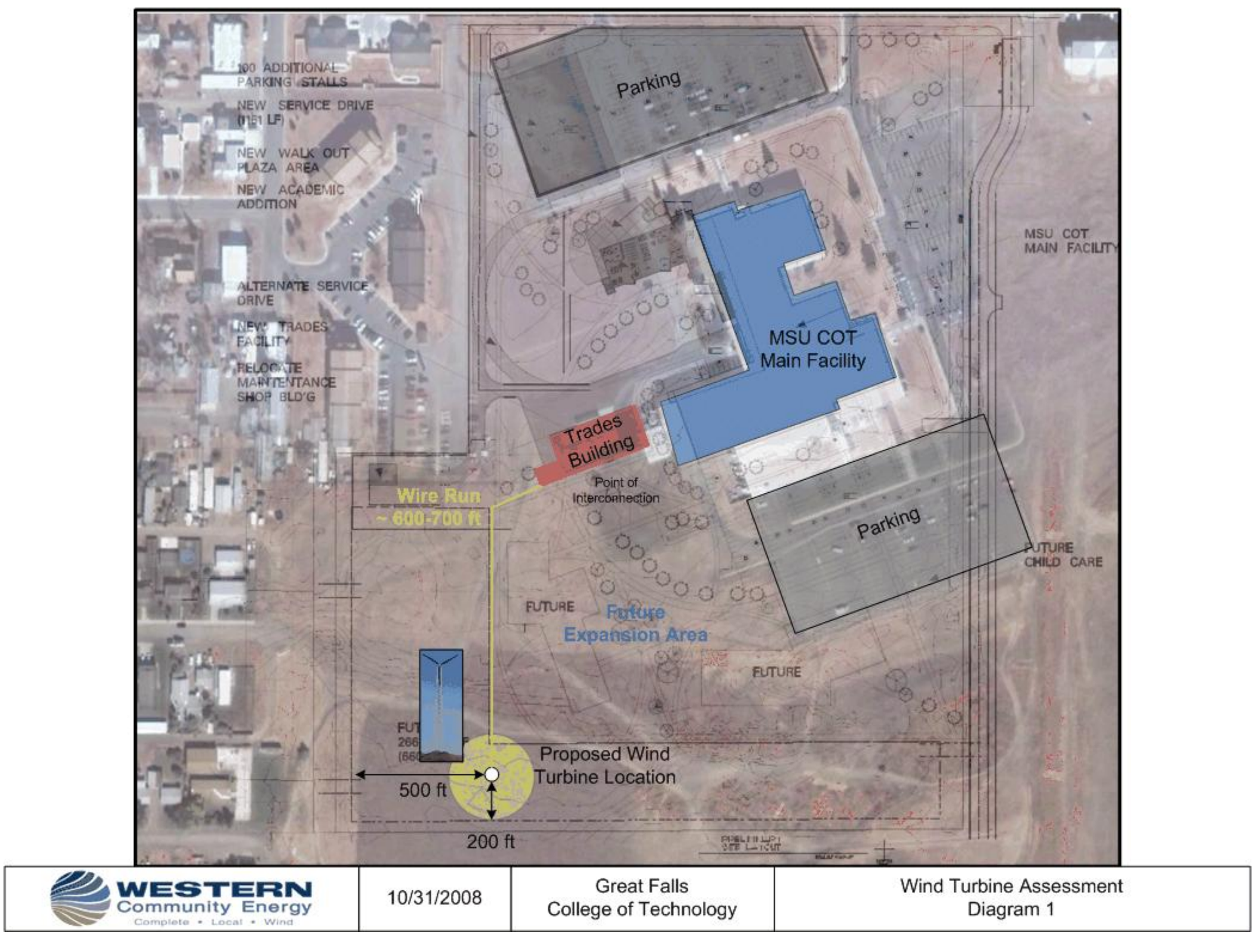


Figure 4: Google Earth image of site and Project

Regional Observational Data

The nearest publicly available observational wind speed data is from the Great Falls International Airport weather station, located approximately 4 miles west of the Project site. The airport weather station is located in an open area near a runway, and stands at 10m (32 ft) above ground level. Average wind speeds at the airport weather station for a recent twelve month period are contained in Table 2. WCE used wind shear calculations to scale the 10m wind data at an assumed Roughness Class of 1.0. These shear calculations estimate an annual average wind speed at 30m to be 11.4 mph for the airport weather station.

Table 2: Great Falls Int'l Airport 10m Monthly Wind Speeds; Scaled to 30m

Great Falls Airport Wind Data (mph)		
Month /Year	Actual 10m Monthly Average Data	Wind Data Scaled to 30m
Nov-06	15.2	14.9
Dec-06	14.8	14.5
Jan-07	16.6	16.3
Feb-07	10.8	10.6
Mar-07	14.5	14.2
Apr-07	9.4	9.2
May-07	9.3	9.1
Jun-07	9.4	9.2
Jul-07	7.8	7.6
Aug-07	8.6	8.4
Sep-07	10.1	9.9
Oct-07	12.7	12.5
Annual Average	**11.6**	**11.4**
Assumed Roughness	*Roughness = 0.5*	*Roughness = 1.0*

Although using shear calculations from an off-site, non-hub height data source is a rudimentary method of estimating wind resource (e.g. nothing beats hub-height, on-site data; the airport weather station data was not cleaned up for icing, availability, etc., and has a different elevation and topography), the wind shear calculations show that the airport site appears to contain a Department of Energy ("DOE") high Class 2 to low Class 3 wind resource.

Computer-Generated Models

The Cascade County GIS Department has created a "Wind Map Book" in concert with the "County Road Atlas" and "Rural Address System" that provides a wind power classification for the entire County. Using the "Wind Map Book" WCE estimates that the site has a high Class 1 – low Class 2 wind power potential.

WCE confirmed the County's "Wind Map Book" with the State's National Resource information System ("NRIS") mapping system that has generated a county-wide atmospheric map containing the estimated wind speeds at 50 meters. These wind maps were produced by TrueWind Solutions, the National Renewable Energy Laboratory, and other wind energy meteorological consultants. The resulting wind speed map shows Cascade County estimated annual average wind speeds at 50m (Figure 5).

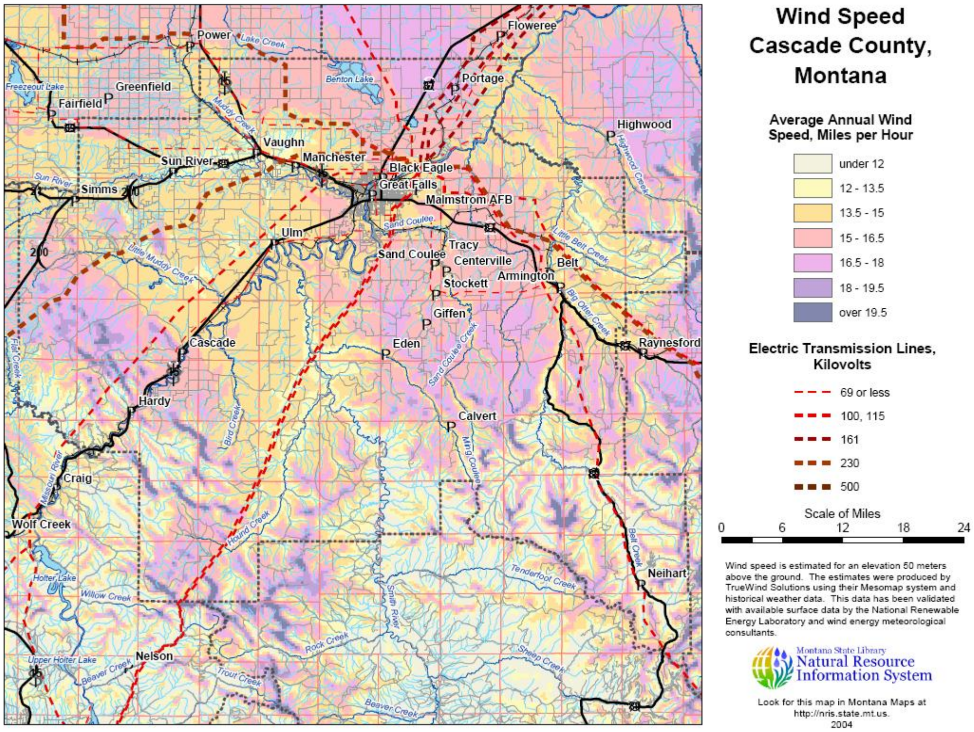


Figure 5: Cascade County NRIS Wind Speed Map

The NRIS wind speed map indicates that the Project appears to lie in a DOE Class 2 wind regime that will typically yield an average annual wind speed of 12.5 - 14.3 mph (5.6 - 6.4 m/s) at 50m. Using wind shear calculations to scale a DOE Class 2 site to a DOE Class 2 site at 30m yields an annual average wind speed of 12.0 - 13.7 mph (5.3 - 6.1m/s).

WCE estimates the average annual wind speed at the Project site to be ~11.5-12.5 mph.

Equipment Assessment

WCE analyzed five wind turbines with a nameplate generator capacity of 10-50 kW (Table 3). Each of these “Candidate Turbines” possesses the following attributes:

- Capacity to produce a “substantial” percentage of the Trades Building’s electrical consumption,
- Recognition by the American Wind Energy Association (AWEA),
- Published power curve data,
- Current availability within the U.S.,
- Certified or qualified by recognized agencies as meeting established standards and recommended business practices[1], and
- At least a 2-year warranty or extended warranty option.

[1] Other turbines and manufactures can be found at: http://www.consumerenergycenter.org/cgi-bin/eligible_smallwind.cgi

Table 3: Candidate Turbine Specifications

	ARE 442	BWC Excel-S	WT15000	Jacobs 31-20	EW50
Manufacturer	Abundant Renewable Energy	Bergey Windpower	Proven	Wind Turbine Industries	Entegrity
Rated Output	10 kW	10 kW	15 kW	20 kW	50 kW
Rotor Diameter	23.6 ft.	23 ft.	29.5 ft.	31 ft.	49.2 ft.
Swept Area	442 ft.^{2}	415 ft.^{2}	683 ft.^{2}	755 ft.^{2}	1902 ft.^{2}
Rated Wind Speed	25 mph	31 mph	27 mph	26 mph	25 mph
Cut-In (mph)	6 mph	8 mph	6 mph	8 mph	9 mph
kWh/yr. @ 10 mph*	14,100	6,240	22,000	19,727	52,600
kWh/yr. @ 12 mph*	21,960	10,800	35,000	32,297	96,600
Simple Payback @ 10 mph	39 years	53 years	35 years	40 years	31 years
Simple Payback @ 12 mph	31 years	41 years	27 years	32 years	22 years
Standard Tower Options	100', 120' lattice	100', 120' lattice	82' monopole	80', 100', 120' lattice	100' monopole; 100', 120' lattice
Operating Voltage	120V or 240V	120V or 240V	240V	240V	480V
Audibility	n/a	94.8 dBA @ hub**	65 dBA @ 20m*	n/a	64 dBA @ 30m*
Maintenance	annual inspection	semi-annual inspection	semi-annual service	annual service	semi-annual service
Warranty	5 year	5 year	5 year	1 year (2.5%/yr. ext)	5 year
Web Monitoring Included	Yes	No	Yes	No	Yes
Installed Cost ***	$75,000-85,000	$65,000-72,000	$108,000	$110,000-135,000	$212,000-224,000
Website	www.abundantre.com	www.bergey.com/	www.provenenergy.co.uk/	www.windturbine.net	www.entegritywind.com

*From manufacturer's literature: because average wind velocities can have varying distributions of wind speeds, average power production is necessarily an approximation and will vary in accordance with local factors such as height, obstructions, wind shear, turbulence, diurnal variance etc.

**Migliore, P., van Dam, J. and Huskey, A., (2003). Acoustic Tests of Small Wind Turbines, NREL SR-500-34601. Golden, CO: National Renewable Energy Laboratory

*** from local dealer consultation: Cost varies with tower options

Remanufactured Turbines

WCE investigated the current availability of refurbished turbines from reputable (AWEA-recognized) remanufacturing and reseller firms. No remanufactured turbines were discovered that came with more than a one-year warranty. WCE was unable to locate any refurbished or remanufactured turbines that met the aforementioned criteria.

Tower Options

Towers for wind generator come in two basic styles: freestanding and guyed. Guyed towers required the use of cables or guy wires. Freestanding towers are self-supporting. Every wind turbine has several tower options that will work, but most turbine manufacturers recommend and provide stamped engineered drawings for just a few tower designs.

All of the towers recommended for the Candidate Turbines are freestanding. They are either lattice (truss style, with three or four legs and diagonal and/or horizontal braces holding the legs together), or monopole (typically tubular steel).

The EW50 has both tower style options. The 100' lattice tower used diagonal braces that discourage perching and nesting from birds. One advantage of the EW50's lattice tower is its lower cost. Hardware alone is about $12,000 less than the EW50 monopole option. WCE has not installed a foundation for the EW50 monopole tower, but has received estimates that indicate that the foundation costs up to 50% more to install. In all, an EW50 monopole installation will probably cost up to $19,000-$27,000 more than an EW50 lattice installation.

Candidate Turbine Grading

WCE used grading criteria that was based on preliminary and follow-up conversations with College staff. See Table 4 for Grading Criteria and Table 5 for Candidate Turbine Scoring. See Appendix 1 for a turbine-by-turbine detailed explanation of Candidate Turbine scoring.

Table 4: Candidate Turbine Grading Criteria

Criteria/Objective	High Score	Points Available
Energy Generation	The Candidate Turbine will offset a significant portion of the electricity consumption of the Trades Building.	25
Education/Training	The Candidate Turbine will provide observational and hands-on opportunities for students to learn from and interact with modern wind turbine technology.	20
Return on Investment	The Candidate Turbine will achieve a simple Return on Investment of 20 years or less.	15
Warranty	The Candidate Turbine has a comprehensive warranty of at least 3-5 years.	10
Web Monitoring	The Candidate Turbine includes web monitoring and data acquisition capability.	10
Operation and Maintenance	The Candidate Turbine will have low cost, time, and technical proficiency requirement (if required) from by the College for O&M.	10
History/References	The Candidate Turbine will be supplied by a company with a proven track record of customer support, and that is known to be established and reputable.	5
Noise	The Candidate Turbine has a reasonable level of audibility.	5

Table 5: Candidate Turbine Scoring

Criteria	Possible	ARE 442	BWC Excel-S	WT15000	Jacobs 31-20	EW50
Energy Generation	**25**	10	5	12	11	20
Education/Training	**20**	14	10	14	10	18
Return on Investment	**15**	8	6	10	8	12
Warranty	**10**	10	10	10	5	10
Web Monitoring	**10**	8	2	8	2	10
Operation and Maintenance	**10**	8	10	8	7	6
History/References	**5**	4	5	4	5	5
Noise	**5**	4	4	4	4	4
Total	**100**	**66**	**50**	**70**	**52**	**85**

Conclusion: WCE's Equipment Assessment demonstrates that the Entegrity EW50 is clearly the best turbine to meet the Colleges objectives for the Project. From this point forward in the Report, WCE will assume the use of the EW50 for the Project.

Estimated Project Energy Production

WCE asked Entegrity to estimate the site's energy production based upon available wind data, the Project's available wind resource discussed above, National Renewable Energy Laboratory data, AWS TrueWind data, and the power curve of the EW50 wind turbine. Using this information, Entegrity estimates that the Project should produce approximately 85,000-105,000 kWh/yr (Figure 6).

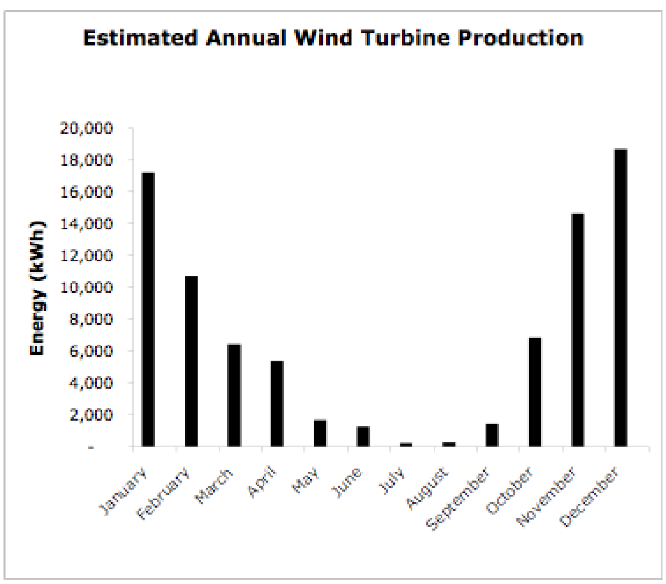


Figure 6: Estimated Annual EW50 Production

Transmission

The Project has adequate access to an energy transmission system via the Trade Building's utility service. WCE recommends that the Project's energy production be net-metered with

NorthWestern Energy ("NorthWestern"). The following sub-sections contain a brief discussion of the Project's transmission issues.

Net-Metering Rules

Montana law allows NorthWestern customers to "net-meter" up to 50 kilowatts (kW) of generation capacity for wind or other renewable energy systems that produce electricity. This rule allows any energy generated by the customer's renewable energy system to be added to the utility electric system, allowing the customer to receive "credit" for the energy put back on the system at retail rates.

Net-metering allows the any net excess generation created by the Project to be credited to the customer's next monthly bill. A customer may choose to start the annual net-metering period at the beginning of January, April, July or October to match seasonal loads. Any unused kWh credit accumulated during the net-metering period is granted to NorthWestern. Customer-generators must comply with industry standards and requirements including those of the NEC, National Electrical Safety Code, IEEE, and Underwriters Laboratories.

Wire Run

WCE recommends that the Project's wire run skirt the edge of any planned future development areas in the line of site between the EW50 and the point of interconnection at the Trades Building. A wire run of this nature will be approximately 750 feet. See Figure 4 (above) for recommended site layout.

The Project will require direct-burial 2/0 Al or 1/0 Cu cable to keep voltage drop within 3% at the point of interconnection.

Annual Revenue

To estimate the annual revenue the Project will create, WCE analyzed the energy rates the Project would be offsetting.

Energy Use of the Trades Building

The College provided WCE with the utility bill form September, 2008, the first month of the Trades Building's occupancy. WCE has learned that the meter at the Trades Building records energy usage from both the Trades Building and a set of "chillers" that service the main campus. Since the electrical loads are not individually monitored, WCE does not know the energy consumption of the Trades Building apart from the circuit that feeds the chiller system.

The Trades Building/chiller loads consumed 34,880 kWh in the 30 days from September 3 to October 3. Discussions between College staff and the Building's architectural firm (CTA Architects), along with the fact that the Trades Building can expect increased usage as College programs and enrollment expands, lead WCE to estimate that electricity usage of the Trades Building/chillers will be at least 350,000 kWh/year. Subsequently, WCE believes that the Project's entire estimated annual energy output of ~95,000 kWh will be net-metered at the Building's current electric tariff, and that the Project will not generate more electricity than the Trades Building/chillers can consume in the course of a year.

Net-Metered Power Rates

The Trades Building receives its power from NorthWestern via an energy-demand tariff known specifically as a GS-1, Secondary Demand Tariff ("Tariff"). Only specific items within the Tariff can be offset via net-metering. Table 6 contains the specific Tariff items that can be offset and those that cannot.

The Project will currently offset $0.0669 for every kWh generated by the Project. The Project will not offset demand (kW) charges, as demand for each billing cycle is computed as the highest demand period during the month. WCE assumed that the College's energy rates will increase 5% per year for 30 years due to inflation and rising energy costs.[2]

Table 6: Net-Meter Eligible Charges for GS-1 Tariff Customers

Net-Meterable Items	$/kWh	$/MWh
Supply-Energy	$ 0.060562	$ 60.562
Supply Deffered Costs	$ (0.002704)	$ (2.704)
Distribution Energy	$ 0.004641	$ 4.641
CTC-QF	$ 0.003295	$ 3.295
USCB	$ 0.001143	$ 1.143
Total	**$ 0.066937**	**$ 66.937**
Non-Net-Meterable Items	**$/kW-mo**	
Transmission-Demand	$ 2.870244	
Distribution-Demand	$ 5.853200	
Total	**$ 8.723444**	

REC Revenue/Value Assessment

Renewable Energy Credits ("RECs") also known as green certificates, green tags, or tradable renewable certificates, represent the environmental and economic value of electricity produced from renewable energy projects. The Project will create a significant number of RECs that will have real financial value and a dynamic marketplace. The market value of individual wind-produced RECs, which represent one megawatt-hour (MWh) of electrical generation, is currently between $6.00 and $15.00, depending on the location and nature of the Project, the terms of the sale, and the REC broker. The Department of Energy's Office of Energy Efficiency and Renewable Energy maintains an on-line network of REC marketers.[3]

The College, based on Estimated Project Energy Production and the marketplace discussed above, could generate $570-$1,425/yr. by certifying and selling RECs generated by the Project (95 RECs/yr. x $6.00 = $570 etc.).

A key drawback of using NorthWestern's USB (see discussion below) grant funds lies in the fact that NorthWestern does not allow USB grant recipients to sell RECs created by the Project. Subsequently, using the USB funds to reduce the Project's cost will prohibit the College from selling RECs created by the Project.

[2] GS-1 energy rates have increased by over 7.5% in the previous 12 months.

[3] http://www.eere.energy.gov/greenpower/markets/certificates.shtml?page=2

The financial impact of prohibiting the College from selling Project RECs is difficult to determine, as the market value of RECs will be difficult to determine over the 30-year life of the Project. However, WCE would like to offer the following analysis:

1. The Project's USB grant will be $10,000.
2. WCE believes the Montana REC market will continue to range between $5.00 - $10.00/REC.
3. If the Project produces 95 MWh of energy per year, the Project will create 95 RECs per year that could theoretically be sold.
4. Therefore, not taking into account the time value of money and assuming the Project would be able to sell its RECs for $5.00 - $10.00/REC, the Project would recover the value of the USB grant in ~21 years (at $5.00/REC) and ~10.5 years (at $10.00/REC).
5. If the College chooses to take on REC market risk and choose to forgo available USB grant monies in lieu of selling Project RECs, then the College should choose not to apply to NorthWestern for the $10,000 USB grant.
6. To avoid REC market risk (e.g. REC values may collapse at some point during the Project's lifetime) WCE recommends that the College utilize NorthWestern's USB monies to buy the Project cost down.
7. WCE's financial pro forma assumes that the College will utilize the $10,000 USB grant to buy the Project cost down and forgo annual REC sales revenue.

Operation and Maintenance

The Operation and Maintenance ("O&M") section discusses the required O&M activities during the Project's lifetime, the available educational training opportunities, and the EW50's design life.

Required O&M Activities

Purchase and installation of the EW50 wind turbine includes a five-year warranty package and O&M service package from Entegrity and Entegrity Resellers. Entegrity's five-year warranty on the Project covers all Project materials and labor.

Biannual service and up to 20 hours of additional maintenance support service will be provided for the Project by Entegrity or an approved Reseller at no cost to the College. Biannual service tasks include inspection of the control box, tower, drive train, rotor, blades and tip brakes to check for weather, electrical, and other damage. During at least one semi-annual service visit, a basic lubrication must be performed according to specifications and procedures set forth in the EW50 Installation and User Manual.

Following the five-year warranty and Reseller operations and maintenance service period, the Project, and the proper operation and maintenance thereof, will be the sole responsibility of College. At this point, WCE recommends that the College conduct O&M activities in-house via designated personnel. The College could also contract with the Reseller or another qualified agent. Entegrity or the Reseller will provide College personnel with comprehensive training in regular, scheduled maintenance of the EW50, and in common troubleshooting procedures.

Educational Training Opportunities

The EW50 is a commercial-scale turbine that employs technologies that closely resemble those of contemporary utility-scale wind turbines, and subsequently the EW50 has a variety of educational training opportunities, including:

- Power conditioning,
- Power electronics,
- Generator operation,
- Gearbox operation,
- Electrical and mechanical control programming,
- Electrical interaction,
- Active, real-time control systems,
- Remote monitoring,
- Remote access,
- Wind data analysis,
- System error troubleshooting, and
- Additional sensor integration.

Design Life

The EW50 has a design life of 30 years.

Project Cost Assessment

The following subsections contain the Project budget and key annual expenses:

Project Budget

The estimated Project Budget of $223,992 (Table 7) represents the anticipated turn-key engineering, procurement, and construction costs to build the Project using a 100' monopole tower. Use of a lattice tower would reduce the Project cost to $211,992. A grant from NorthWestern's Universal System's Benefit fund would buy-down the cost of either option by $10,000.

The Project Budget makes the following assumptions:

- Materials and Labor Costing: WCE has used the best available information to provide indicative pricing for Project. The actual price of materials and labor may increase or decrease depending on market changes and the bidding process between the issuance of this Report and the time of Project implementation.
- Foundation: Site-specific geotechnical soil attributes may significantly affect foundation design and cost. The foundation cost for the EW50's monopole and lattice tower may vary significantly. WCE has not built a foundation for the monopole option, and anticipates that the actual cost of the monopole foundation may be up to 50% more than shown here

Table 7: Anticipated Project Budget

Item	100' Monopole	100' Lattice
EW50 Turbine	$ 135,000	$ 135,000
Tower	$ 27,000	$ 15,000
Geotechnical Report	$ 3,500	$ 3,500
Foundation	$ 15,950	$ 15,950
Foundation P.E. Stamp	$ 1,000	$ 1,000
Tower/Nacelle Shipping (estimated)	$ 9,000	$ 9,000
Erection Labor	$ 2,700	$ 2,700
Crane Rental	$ 1,650	$ 1,650
Electrical Interconnection	$ 11,600	$ 11,600
Program Management Fee	$ 16,592	$ 16,592
Project Cost	$ 223,992	$ 211,992
Less USB Grant	$ (10,000)	$ (10,000)
Net Project Cost	**$ 213,992**	**$ 201,992**

Key Annual Expenses

The key annual expenses that will affect the Project's financial viability are:

- Operations and Maintenance Costs,
- Sinking Repair Reserve Fund, and
- Insurance.

The following is a brief summary of these key annual expenses.

Operations and Maintenance Costs

Purchase and installation of the EW50 wind turbine includes a five-year warranty package and operation and maintenance ("O&M") service package. Biannual service and up to 20 hours of additional maintenance support service will be provided for the Project at no cost to the College.

After the initial five-year O&M period is up, WCE recommends that the College conduct O&M activities in-house via a designated College employee that would be trained by either WCE or Entegrity. WCE has set the annual Project O&M budget starting at ~$15/MWh, which is increased annually due to inflation. If the College chooses not to conduct O&M activities in-house, the College should be able to locate a qualified, local O&M provider to conduct O&M activities.

Biannual service tasks include inspection of the control box, tower, drive train, rotor, blades and tip brakes to check for weather, electrical, and other damage. During at least one biannual service visit, a basic lubrication must be performed according to specifications and procedures set forth in the EW50 Installation and User Manual.

Sinking Repair Reserve Fund

WCE recommends that the College establish a sinking repair reserve account of $250 per year (increased annually by inflation) to cover unscheduled repairs that may be necessary after the Project's initial warranty has expired.

Insurance

The Project should be added to the property's existing Liability/Comprehensive insurance policy, which WCE has assumed for analysis purposes that the addition of the EW50 at the College will not increase the cost of the College's existing Liability/Comprehensive insurance policy. WCE has seen insurance adders for adding EW50 systems to an existing policy running between no additional cost per year and $800 per turbine per year.

Project Financing

Because the College seeks to avoid incurring debt to finance the Project, WCE's Project Financing assessment will only focus on the utilization of College Plant funds and available Federal, State, and utility grants.

College Plant Funds

WCE understands that the College may have available Plant funds to implement the Project. The amount of Plant funds required will be subject to available grant monies, as well as the ultimate Project cost given the tower option, foundation cost, and final cost of the required materials, equipment and labor to build the Project. WCE sees no disadvantage to the use of Plant funds.

WCE understands that the College will have to request required Plant funds through a request to the Montana Board of Regents, and WCE is prepared to support the College in any manner necessary to facilitate this formal Board of Regents Plant funding request.

Federal & State Grants

WCE explored grant funding via the United States Department of Agriculture ("USDA") Farm Bill and State Department of Environmental Quality ("DEQ").

USDA Grants

The USDA Farm Bill grant program does provide for up to 25% of eligible Project costs, however the Farm Bill program is not available to public institutions.

DEQ Grants

WCE contacted the DEQ to determine if there was available grant funding for the Project. At this point the DEQ does not have any eligible grant programs.

Other Grant Sources

WCE did not research education specific grant programs that the College may have better access to through its extensive educational network. More in-depth College investigation into education-specific grant programs may yield compatible grant programs.

NorthWestern Energy USB Program

NorthWestern manages the Universal System Benefit ("USB") Renewable Energy Program, which provides a $2/watt grant up to $10,000 per customer for eligible wind projects. NorthWestern also provides larger competitive grants ($20,000+) for renewable energy projects on public facilities that include an education or demonstration component.

The Project would be eligible for the full $10,000 standard USB grant. WCE believes that the Project would have a good chance of receiving a larger competitive grant if the College were to demonstrate and carry out the educational/demonstration activities that it has planned.

For purposes of this Report WCE has assumed that the Project will receive the standard $10,000 USB grant from NorthWestern's USB Program. Information about the USB Renewable Energy program can be found at NorthWestern's website.[4]

Financial Pro Forma

Based on the inputs listed below, WCE generated a financial pro forma that generated the cash flows in Table 8.

- **Project Grants:** $10,000 available via USB Program
- **Cash Available:** 100% of Project cost via Plant Funds; post-USB grant reduction
- **Annual Inflation Rate:** 2.5% (O&M, Repair Reserve Account)
- **Power Sales Price:** $69.93/MWh (the current energy rate, increases at 5% per year)
- **O&M Costs:** $15.00/MWh beginning in year 6 (actual costs TBD)
- **Repair Reserve Account:** $250/year beginning in year 1

Key Financial Findings

With an ~12 mph average wind speed (as predicted) WCE anticipates the "simple payback" period for the Project to be ~22 years using the 100' lattice tower, and ~23 years using the 100' monopole tower.

With an ~13.5 mph average wind speed (higher than expected) WCE anticipates the "simple payback" period for the Project to be ~19 years using the lattice tower, and ~20 years using the monopole tower.

Production Estimates

Because average wind velocities can have varying distributions of wind speeds, average power production is necessarily an approximation and will vary in accordance with local factors such as height, obstructions, wind shear, turbulence, diurnal variance etc. WCE and all turbine manufactures provide baseline estimates. Production yields will necessarily vary at each location.

[4] http://www.northwesternenergy.com/showitem.aspx?M=17&I=108

Table 8: Estimated Project Cash Flows

Year	10 mph (56 MWh/yr.)	12 mph (95 MWh/yr.)	13.5 mph (115 MWh/yr.)
1	$ 3,563	$ 6,239	$ 7,447
2	$ 3,748	$ 6,558	$ 7,826
3	$ 3,942	$ 6,892	$ 8,223
4	$ 4,145	$ 7,243	$ 8,641
5	$ 4,359	$ 7,612	$ 9,080
6	$ 3,617	$ 6,353	$ 7,589
7	$ 3,829	$ 6,719	$ 8,024
8	$ 4,052	$ 7,104	$ 8,483
9	$ 4,288	$ 7,510	$ 8,966
10	$ 4,536	$ 7,938	$ 9,474
11	$ 4,797	$ 8,388	$ 10,009
12	$ 5,072	$ 8,862	$ 10,573
13	$ 5,362	$ 9,361	$ 11,166
14	$ 5,667	$ 9,886	$ 11,791
15	$ 5,989	$ 10,439	$ 12,449
16	$ 6,327	$ 11,021	$ 13,141
17	$ 6,684	$ 11,634	$ 13,870
18	$ 7,059	$ 12,279	$ 14,636
19	$ 7,454	$ 12,958	$ 15,443
20	$ 7,870	$ 13,672	$ 16,292
21	$ 8,307	$ 14,424	$ 17,186
22	$ 8,768	$ 15,215	$ 18,126
23	$ 9,253	$ 16,048	$ 19,115
24	$ 9,763	$ 16,923	$ 20,156
25	$ 10,300	$ 17,845	$ 21,251
26	$ 10,865	$ 18,814	$ 22,403
27	$ 11,459	$ 19,834	$ 23,615
28	$ 12,084	$ 20,907	$ 24,889
29	$ 12,743	$ 22,035	$ 26,230
30	$ 13,435	$ 23,222	$ 27,640
30-yr. Total	**$ 209,337**	**363,935**	**433,736**
(green)	= Simple Payback achieved with 100’ lattice tower		
(yellow)	= Simple Payback achieved with 100’ monopole tower		

Implementation Plan

If the College chooses to move forward with the Project, it should sequentially carry out the following steps:

1. Conduct a review of the Feasibility Study Report by University Architects and Engineering (A&E) staff,
2. Obtain Montana Board of Regents approval to proceed,
3. Begin the process of obtaining a City of Great Falls Conditional Use Permit ("CUP"),
4. Conduct a Request for Proposals process ("RFP") for Project construction, and
5. Contract with a qualified firm for Project construction.

See Figure 7 (bottom of Report) for a sample construction schedule that demonstrates how the Project can be designed and built by the end of June 2009.

Conditional Use Permit

A wind turbine is considered a "Utility Installation" by the City of Great Falls, and will require a Condition Use Permit ("CUP") to be constructed.

The City of Great Falls has no specific code or regulations governing the placement or installation of wind turbines. CUPs are granted on a project-specific basis. The City Zoning Commission will be responsible for evaluating the Project and ultimately recommending a course of action for CUP approval to the City Commission. The following is a summary of the CUP issuance process:

1. The CUP application process is initiated by the request for a pre-submittal meeting with the Director of the Planning Department. Prior to this conference, any preliminary drawings and maps will be submitted to the Director. A representative from a variety of City departments (as appropriate) will participate in this preliminary discussion.
2. Prior to submitting its application, the College should meet with representatives of the local neighborhood council to present the Project and solicit feedback.
3. The College will then submit an application to the Planning Department along with a $400 application fee.
4. When the application in deemed "complete", a public hearing will be held with the Zoning Commission.
5. Based on its review and public input, the Zoning Commission will recommend to the City Commission to:
   a. approve the conditional use permit,
   b. approve the conditional use permit with conditions, or
   c. deny the conditional use permit.
6. The City Commission will then hold a public hearing to consider the Project. The Commission will make its decision (option a, b, or c above) with 10 days.

The Zoning Commission's recommendation and the City Commission's decision to approve, conditionally approve, or deny an application will be based on whether the application, staff report, public hearing, Zoning Commission recommendation, or additional information demonstrates that each of the following criteria have been satisfied:

1. The conditional use is consistent with the City's growth policy and applicable neighborhood plans, if any.
2. The establishment, maintenance, or operation of the conditional use will not be detrimental to, or endanger the public health, safety, morals, comfort or general welfare.
3. The conditional use will not be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted, nor substantially diminish or impair property values within the neighborhood.
4. The conditional use will not impede the normal and orderly development and improvement of the surrounding property for uses permitted in the district.
5. Adequate utilities, access roads, drainage and/or necessary facilities have been or are being provided.
6. Adequate measures have been or will be taken to provide ingress and egress so as to minimize traffic congestion in the public streets.
7. The conditional use shall, in all other respects, conform to the applicable regulations of the district in which it is located, except as such regulations may, in each instance, be modified by the City Commission.

The College and/or an aggrieved citizen may appeal the Commission's final decision by filing an appeal with a court of competent jurisdiction within 30 days of the final decision.

Based on discussions with Great Falls City Planners, in a best-case scenario a CUP could be obtained for the Project within three months of initiated the application process. On the other hand, the City could place a moratorium on wind turbine construction until Commissioners become adequately informed. Even following a final decision, there is potential for appeals.

<u>WCE recommends that the College begin the CUP application process immediately following Project approval by the Board of Regents.</u>

ID	Task Name	Duration	Start	Finish	Predecessors
1	**Civil Design**	**5 days**	**Mon 4/20/09**	**Fri 4/24/09**	
2	**Geotechnical**	**4 days**	**Mon 4/20/09**	**Thu 4/23/09**	
3	Fieldwork	1 day	Mon 4/20/09	Mon 4/20/09	
4	Laboratory Testing	1 day	Tue 4/21/09	Tue 4/21/09	3
5	Full Geotech Report	2 days	Wed 4/22/09	Thu 4/23/09	4
6	Stuctural Eng. Foundation Design	1 day	Fri 4/24/09	Fri 4/24/09	5
7	Civil Project Procurement	4 days	Fri 4/24/09	Wed 4/29/09	5
8	**EWSI Procurement**	**7 days**	**Mon 4/27/09**	**Tue 5/5/09**	
9	Tower	7 days	Mon 4/27/09	Tue 5/5/09	
10	Generator/Blade	7 days	Mon 4/27/09	Tue 5/5/09	
11	**Construction**	**10.5 days**	**Thu 4/30/09**	**Thu 5/14/09**	
12	**Civil Build**	**8.5 days**	**Thu 4/30/09**	**Tue 5/12/09**	
13	**Foundation Install**	**3 days**	**Thu 4/30/09**	**Mon 5/4/09**	
14	Build Rebar cages	3 days	Thu 4/30/09	Mon 5/4/09	7
15	Drill Pier/Footings	0.5 days	Thu 4/30/09	Thu 4/30/09	7
16	Install Cages/ Form Caps	0.5 days	Thu 4/30/09	Thu 4/30/09	15
17	Concrete Pour	0.5 days	Fri 5/1/09	Fri 5/1/09	16
18	Regrade the worked area	0.5 days	Fri 5/1/09	Fri 5/1/09	17
19	Concrete Cure Time	7 days	Fri 5/1/09	Tue 5/12/09	17
20	**Electrical Build**	**2 days**	**Fri 5/1/09**	**Tue 5/5/09**	
21	Trenching	0.5 days	Fri 5/1/09	Fri 5/1/09	17
22	**Wire Install**	**0.5 days**	**Mon 5/4/09**	**Mon 5/4/09**	
23	480 V	0.5 days	Mon 5/4/09	Mon 5/4/09	21
24	**Interconnect**	**1 day**	**Mon 5/4/09**	**Tue 5/5/09**	
25	Protection Gear	0.5 days	Mon 5/4/09	Mon 5/4/09	23
26	Secondary Connections	1 day	Mon 5/4/09	Tue 5/5/09	23
27	**Turbine Build**	**1 day**	**Tue 5/12/09**	**Wed 5/13/09**	
28	Tower 1	1 day	Tue 5/12/09	Wed 5/13/09	19,10
29	Generator 1	0.5 days	Tue 5/12/09	Tue 5/12/09	19
30	Blade 1	0.5 days	Tue 5/12/09	Tue 5/12/09	19
31	Commissioning	1 day	Wed 5/13/09	Thu 5/14/09	28,29,30
32	**Utility coordination**	**11 days**	**Wed 5/13/09**	**Thu 5/28/09**	
33	Electrical Inspection	1 day	Wed 5/13/09	Thu 5/14/09	28,29,30
34	Net Metering Agreement/Install	10 days	Thu 5/14/09	Thu 5/28/09	33

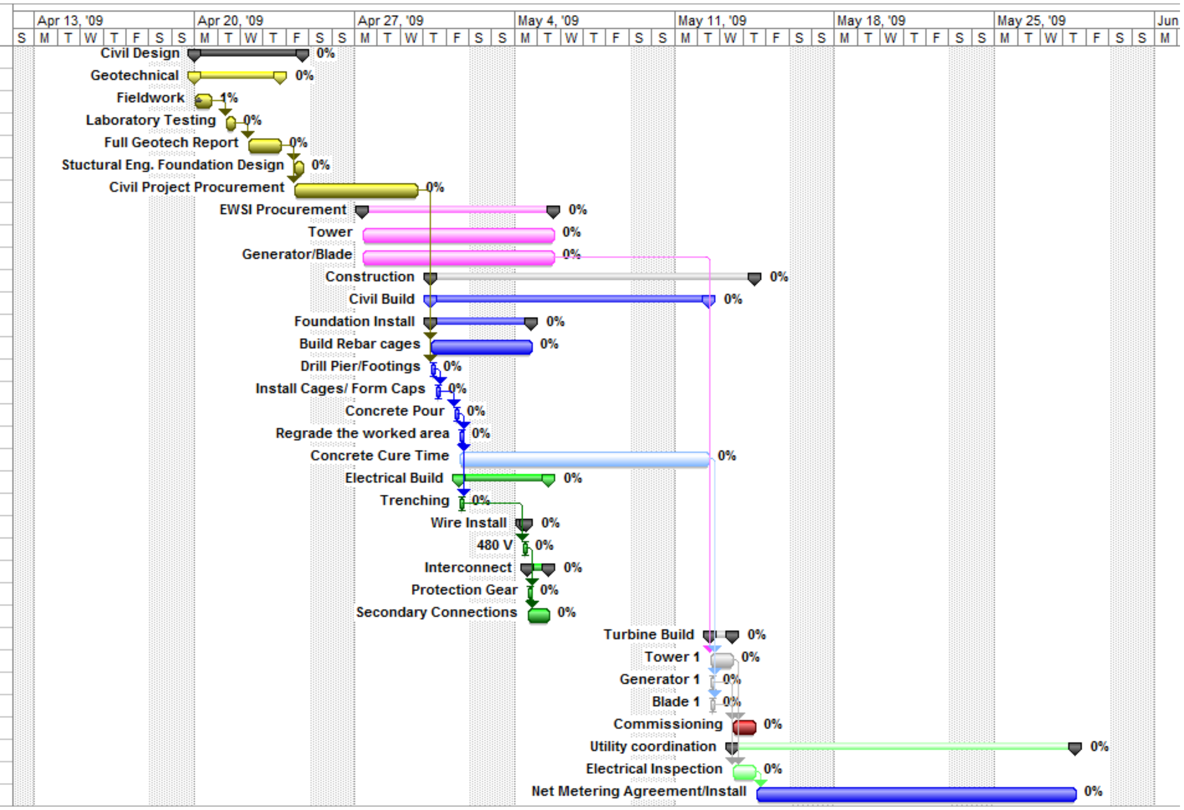


Figure 7: Sample Construction Schedule

Appendix A: Candidate Turbines

Abundant Renewable Energy: ARE 442

Criteria/Objective	ARE 442	Points Given
Energy Generation	The ARE 442 will produce ~22,000 kWh of the electricity per year.* This is 6.2% of the consumption of the Trades Building and 22.9 % of the estimated production of the EW50.	(10/25)
Education/Training	The ARE 442 is a residential-scale turbine that lacks many interactive O&M opportunities. It employs design technology that does not closely resemble that of contemporary utility-scale wind turbines. It comes with performance data acquisition equipment, but no anemometer.	(14/20)
Return on Investment	The ARE 442 will achieve a simple Return on Investment of ~31 years.*	(8/15)
Warranty	The ARE 442 has a comprehensive 5-year warranty.	(10/10)
Web Monitoring	The ARE 442 typically comes with SMA WB 6000US inverters, which interface with SMA's free Sunny Portal web service.	(8/10)
Operation and Maintenance	The ARE 442 requires annual inspection, and no routine maintenance.	(10/10)
History/References	Abundant Renewable Energy has a proven track record of customer support, and that is to be established and reputable. The ARE 442 has a limited number of field installations.	(4/5)
Noise	The ARE 442 has an unknown level of audibility.	(4/5)
*@ 12 mph ave. wind speeds	**Total**	**68/100**

Figure 1: ARE 442

Bergey Wind Power Co.: BWC Excel-S

Criteria/Objective	BWC Excel-S	Points Given
Energy Generation	The BWC Excel-S will produce ~10,800kWh of the electricity per year.* This is 3% of the consumption of the Trades Building and 11.3% of the estimated production of the EW50.	(5/25)
Education/Training	The BWC Excel-S is a residential-scale turbine that lacks many interactive O&M opportunities. It employs design technology that does not closely resemble that of contemporary utility-scale wind turbines, and does not come with an anemometer or data acquisition equipment.	(10/20)
Return on Investment	The BWC Excel-S will achieve a simple Return on Investment of ~41 years.*	(6/15)
Warranty	The BWC Excel-S has a comprehensive 5-year warranty.	(10/10)
Web Monitoring	The BWC Excel-S typically comes with inverters that lack data acquisition or web service, but which can be interfaced with monitoring systems that are available from third-party providers.	(2/10)
Operation and Maintenance	The BWC Excel-S requires semi-annual inspection, and no routine maintenance.	(8/10)
History/References	Bergey Windpower Co. has a proven track record of customer support, and that is to be established and reputable.	(5/5)
Noise	The BWC Excel-S has a moderate level of audibility.	(4/5)
*@ 12 mph ave. wind speeds	**Total**	**50/100**

Figure 2: Bergey Excel S

Proven Energy: WT15000

Criteria/Objective	WT15000	Points Given
Energy Generation	The WT15000 will produce ~35,000 kWh of the electricity per year.* This is 6.2% of the consumption of the Trades Building and 37.8 % of the estimated production of the EW50.	(12/25)
Education/Training	The WT15000 is a residential-scale turbine that lacks many interactive O&M opportunities. It employs design technology that does not closely resemble that of contemporary utility-scale wind turbines. It comes with performance data acquisition equipment, but no anemometer.	(14/20)
Return on Investment	The WT15000 will achieve a simple Return on Investment of ~27 years.*	(10/15)
Warranty	The WT15000 has a comprehensive 5-year warranty.	(10/10)
Web Monitoring	The WT15000 typically comes with SMA WB 6000US inverters, which can interface with SMA's free Sunny Portal web service.	(8/10)
Operation and Maintenance	The WT15000 requires semi-annual inspection, and no routine maintenance.	(8/10)
History/References	Proven Energy has a proven track record of customer support, and id established and reputable. They have limited distribution in the U.S.	(4/5)
Noise	The WT15000 has a moderate level of audibility.	(4/5)
*@ 12 mph ave. wind speeds	**Total**	**70/100**

Figure 3: Proven Energy WTI15000

Jacobs Wind Systems: 31-20

Criteria/Objective	31-20	Points Given
Energy Generation	The 31-20 will produce ~10,800kWh of the electricity per year.* This is 9.2% of the consumption of the Trades Building and 34% of the estimated production of the EW50.	(11/25)
Education/Training	The 31-20 Excel-S is a residential-scale turbine that lacks many interactive O&M opportunities. It employs design technology that does not closely resemble that of contemporary utility-scale wind turbines, and does not come with an anemometer or data acquisition equipment.	(10/20)
Return on Investment	The 31-20 will achieve a simple Return on Investment of ~32 years.*	(8/15)
Warranty	The 31-20 has a one-year warranty. Extended warranty can be purchased for ~2.5% of system cost per year in years 2 and beyond.	(5/10)
Web Monitoring	The 31-20 typically comes with inverters that lack free web service, but which can be interfaced with monitoring systems that are available from third-party providers.	(2/10)
Operation and Maintenance	The 31-20 requires annual maintenance service.	(7/10)
History/References	Jacobs Wind Systems has a proven track record of customer support, and that is to be established and reputable.	(5/5)
Noise	The 31-20 has a moderate level of audibility.	(4/5)
*@ 12 mph ave. wind speeds	**Total**	**52/100**

Figure 4: Jacobs Wind Systems, 31-20

Entegrity Wind Systems Inc.: EW50

Criteria/Objective	EW50	Points Given
Energy Generation	The EW50 will produce ~95,000 kWh of the electricity per year.* This will offset ~27.1 % of the consumption of the Trades Building.	(20/25)
Education/Training	The EW50 is a commercial-scale turbine that has a variety of interactive O&M opportunities. It employs technology that closely resembles that of contemporary utility-scale wind turbines. The data acquisition equipment (including anemometer) allows for extensive educational opportunities.	(18/20)
Return on Investment	The EW50 will achieve a simple Return on Investment of ~22 years.*	(12/15)
Warranty	The EW50 has a comprehensive 5-year warranty.	(10/10)
Web Monitoring	The EW50 comes with the Hawkeye S.C.A.D.A. web-enabled monitoring and maintenance alert service.	(10/10)
Operation and Maintenance	The EW50 requires semi-annual maintenance service.	(6/10)
History/References	Entegrity Wind Systems Inc. has a proven track record of customer support, and is established and reputable.	(5/5)
Noise	The EW50 has a moderate level of audibility.	(4/5)
*@ 12 mph ave. wind speeds	**Total**	**85/100**

Figure 5: Entegrity Wind Systems Inc., EW50