Comfrey Wind Energy, LLC

Large Wind Energy Conversion System
Site Permit Application

Docket Number: IP6630/WS-07-318

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Section 1
Introduction

Comfrey Wind Energy, LLC, "CWE" or "the applicant" submits this application for a Site Permit to construct a large wind energy conversion system (LEWCS). The project site is located in Brown and Cottonwood Counties west of the town of Comfrey, Minnesota. The project will consist of 31.5 megawatts of LEWCS and associated facilities.

Comfrey Wind Energy (CWE) is committed to optimize the wind resource for this project. Decisions with respect to equipment selection, site layout and spacing have designed to make the most efficient use of the land and wind resources. Project design decisions will be based on environmental, topographical features, available technology, and the nature of the prevailing wind resources.

Section 2
Proposed Site

2.1 Identification of Project Area

The Project site is located in Brown and Cottonwood Counties approximately 1 to 3 miles northwest, west, and southwest of the town of Comfrey, MN. The project is in the townships of Selma in Cottonwood County and Bashaw in Brown County. The land is owned by local farmers, and CWE controls the right to develop wind energy on the properties through an option-to-lease arrangement. Approximately 3940 acres will be involved in the state permitted wind park area.

The project site requested for the permit consists of parcels in the following sections:
----T107N, R34W (township of Selma in Cottonwood County): Sections 3, 4, 5, 9 and 10
----T108N, R34W (township of Bashaw in Brown County): Section 27, 28, 29, 32, 33 and 34

2.2 Wind Characteristics in Project Area

To get an accurate representation of the wind resource in the project area the following were analyzed:

Mn Department of Commerce State Wind Maps for 30m, 80m and 100m. The 2006 wind maps have been developed for the Department of Commerce by WindLogics. The 2006 maps show the wind speed resources at 30, 80, and 100 meters, as well as capacity factor and energy production estimates for a 1.65 MW wind turbine at 80 meters.

Mn Department of Commerce WRAP Report for Mt Lake (Darfur location) Darfur is located 6 miles SE of the proposed site of the project. Data included for this report is from 1995 thru 2001 at 30m, 50m and 70m (98, 164 and 229 feet). A summary of the data recorded from June of 1995 through Dec of 2001 is included in Appendix A.

Windlogics Wind Resource Analysis Report: The WindLogics modeling system was used to gather statistics and information covering the entire site, with a comprehensive analysis reported for one virtual tower located within the bounds of the site. Using data from the WindLogics Weather Archive, WindLogics executed a detailed, twelve-month modeling process that was then normalized to reflect long-term values using forty years of additional WindLogics data. Finally, these results were used to generate the conclusions and details in this report detailed in Table 2.2.1.

The project area is classified as a Class 4 wind site (roughly equivalent to IEC Class IIB), having average annual wind speeds in the range of 7.0 to 7.5 meters/second (m/s) (15.7 to 16.8 miles/hour) at a height of 50 meters (164 feet).

The average annual wind speed found in data reported by WRAP for the Mt Lake tower at Darfur is 6.2 m/s (13.9 miles/hour) at 30 meters (98 feet), 6.6 m/s (14.8 miles/hour) at 50 meters (164 feet) and 7.3 m/s (16.3 miles/hour) at 70 meters (229 feet).

The WindLogics report for a virtual tower located within the project reports 8.06 m/s (18.07 miles/hour) at 80 meters (262 feet).

An onsite MET tower will be installed as part of the construction process to access the annual wind.

2.2.1 Interannual Variation

The expected annual average wind speed at the site is 8.06 m/s at an 80-meter hub height (18.02 miles/hour at 262 feet). Computer modeling typically indicates that average wind speed has a 50% probability of occurrence, and any given year will be within 8% of the expected average wind speed about 90% of the time.

TABLE 2.2.1

Table of Prediction Intervals on Annual Gross Energy Production
(Based on Annual Averages)
Cottonwood County, MN - Tower 1 - 80 m

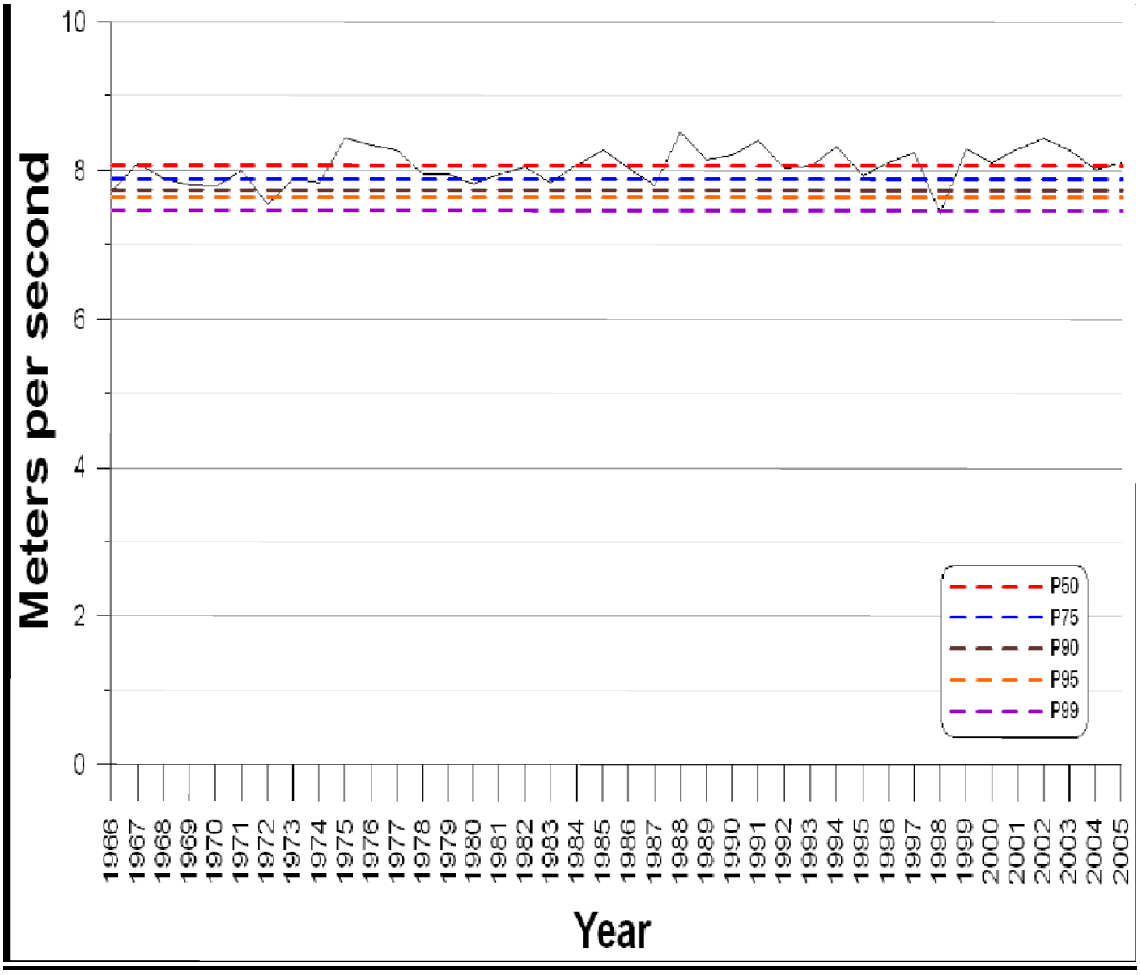
	P50	P75	P90	P95	P99
Energy (MWh)	7943	7629	7343	7167	6826
Capacity Factor	43.18%	41.47%	39.91%	38.96%	37.11%

Number of Years	40
Mean	7943
Standard Deviation	455

A view of the variation in the annual average wind speed predicted for the project site along with the P values listed in the above Table 2.2.1 can be seen in the following graph (Figure 2.2.1 A)

FIGURE 2.2.1 A

Graph of Annual Wind Speed Average Time Sequence
Cottonwood County, MN - Tower 1 - 80 m



2.2.2 Seasonal Variation

Table 2.2.2 from WindLogics study shows the predicted monthly average wind speeds for the site at a hub height of 80 meters (262 feet). Wind speeds are highest in January at 8.71m/s (19.47miles\hour) and lowest in July at 6.82 m/s (15.25 miles/hour) Wind speeds are the highest in spring, fall and winter months. They
decrease during the summer months.

TABLE 2.2.2

Normalized Monthly and Annual Wind Speed Averages (in m/s)
Cottonwood County, MN - Tower 1 - 80 m

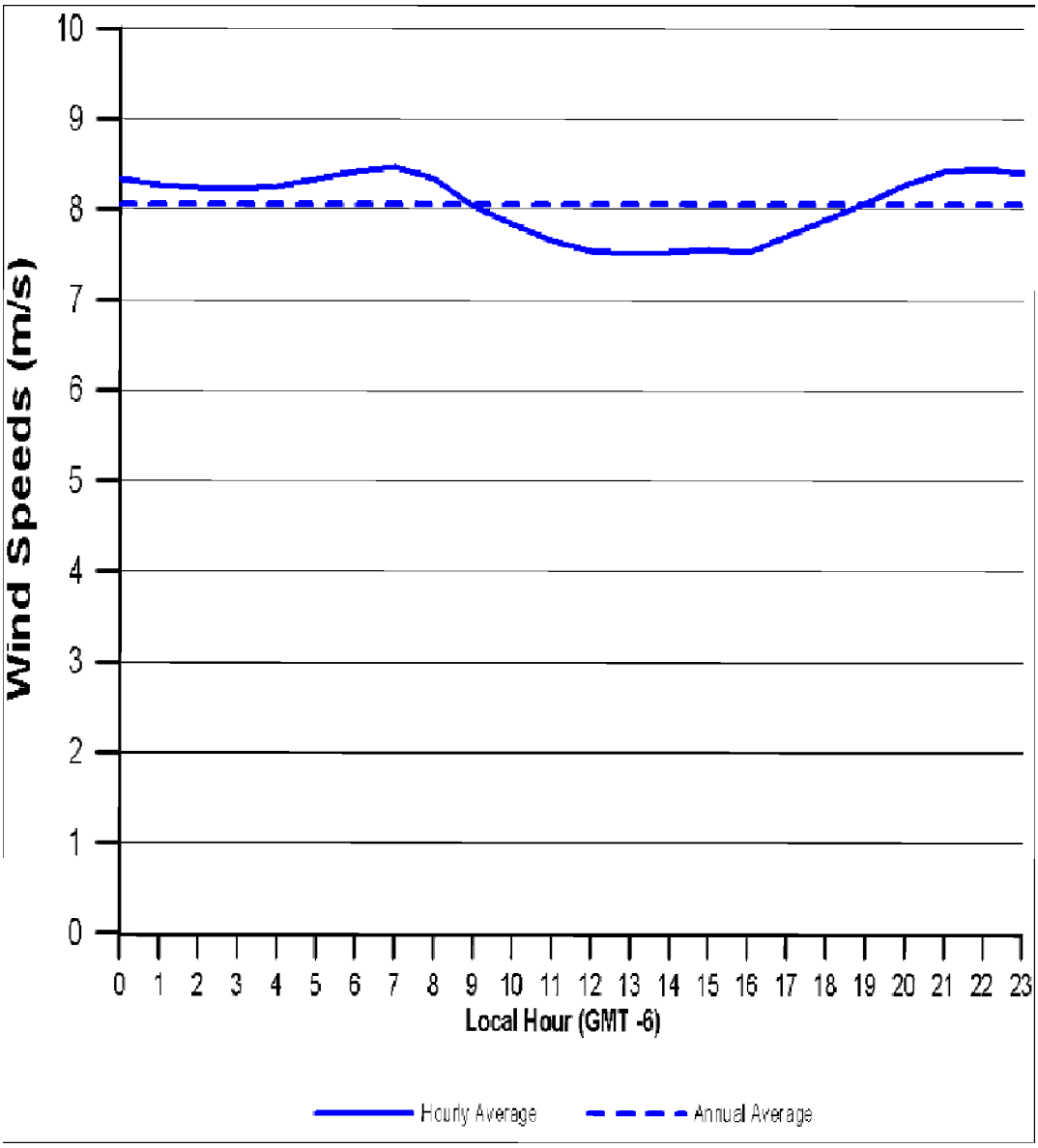
Month	m/s
January	8.71
February	8.27
March	8.34
April	8.35
May	7.96
June	7.50
July	6.82
August	7.08
September	7.91
October	8.56
November	8.55
December	8.63
Annual Average	8.06

2.2.3 Diurnal Conditions

Figure 2.2.3 shows projected wind speeds throughout the day at a height of 80 meters (262 feet), based on computer modeling.

FIGURE 2.2.3

Normalized Wind Speed Diurnal Distribution Shown in Local Time
Cottonwood County, MN - Tower 1 - 80 m
Annual



2.2.4 Atmospheric Stability

Such data has not been compiled for this site as the inputs are normally not collected with on site equipment. However, it is expected to be "moderately stable" in the general area, since stability conditions for the open and relatively flat terrain in the Southwestern Minnesota region do not vary significantly. Storm events can occur in the area, although their intensity, frequency, and duration are not unusual. Other wind farms have been placed in similar environments.

2.2.5 Hub Height Turbulence

The turbulence intensity (TI) is measured using standard deviation of wind speeds, divided by the mean wind speed for the period of time. Durability of turbines is sometimes predicted using the turbulence intensity factor and turbine manufacturers may request TI for a site, typically from wind speeds recorded in

10-minute intervals. A calculation based on the Jeffers WRAP tower, 10-minute wind speed data at 30 meters (98 feet), yields an expected TI of 0.116 when all wind speeds are included.

2.2.6 Extreme Wind Conditions

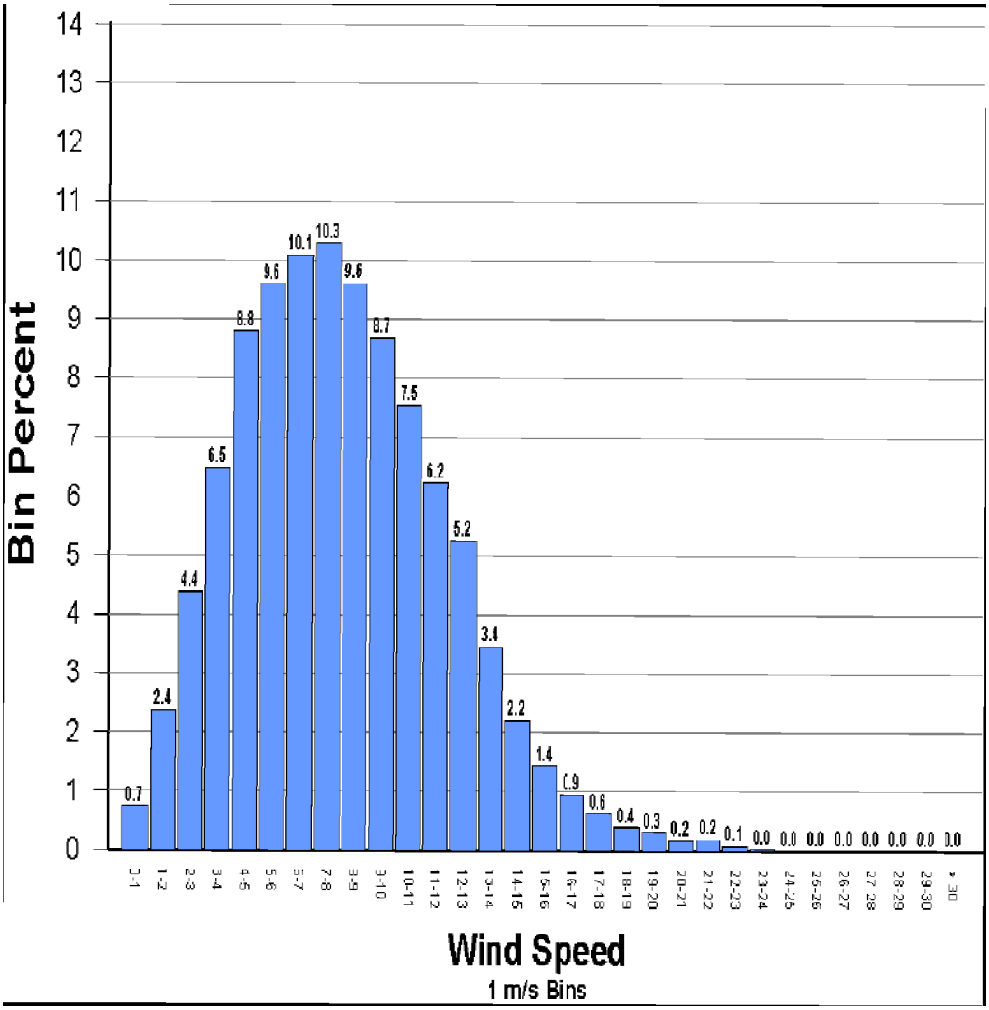
Extreme wind speeds may occur with winds from any of the prevailing directions and may happen during any season. The possibility of a tornado exists in the project area. Wind speeds in the 200+ mph (89 m/s) range can occur in a tornado; with the last tornado occurring in the area in 1998.

2.2.7 Wind Speed Frequency Distribution

The following histogram (Figure 2.2.7) shows the expected wind frequency distribution at a height of 80 meters (262 feet).

FIGURE 2.2.7

Normalized Average Wind Speed Frequency Distribution Histogram (in 1 m/s bins)
Cottonwood County, MN - Tower 1 - 80 m
Annual



2.2.8 Wind Variation with Height

Wind variation with height can be assessed by observation of the wind shear from the wind power law. The mathematical formula for wind shear (α) is as follows:

$\alpha = \ln(V/V_o) / \ln(H/H_o)$, where V_o and H_o are wind speed and height associated with a lower height, and V and H are wind speed and height at a higher height.

Analyses of the wind shear data have shown significant variation, depending on season, direction, and time of day. Based upon data collected in the WRAP report for Mountain Lake, MN, during the yeas of 1995-2001, the average wind shear from the height of 50-70 meters is .26 (see Appendix A).

2.2.9 Spatial Wind Variation

Little wind variation exists in the project area due to the land cover of the area which is mostly farmland and void of significant tree cover.

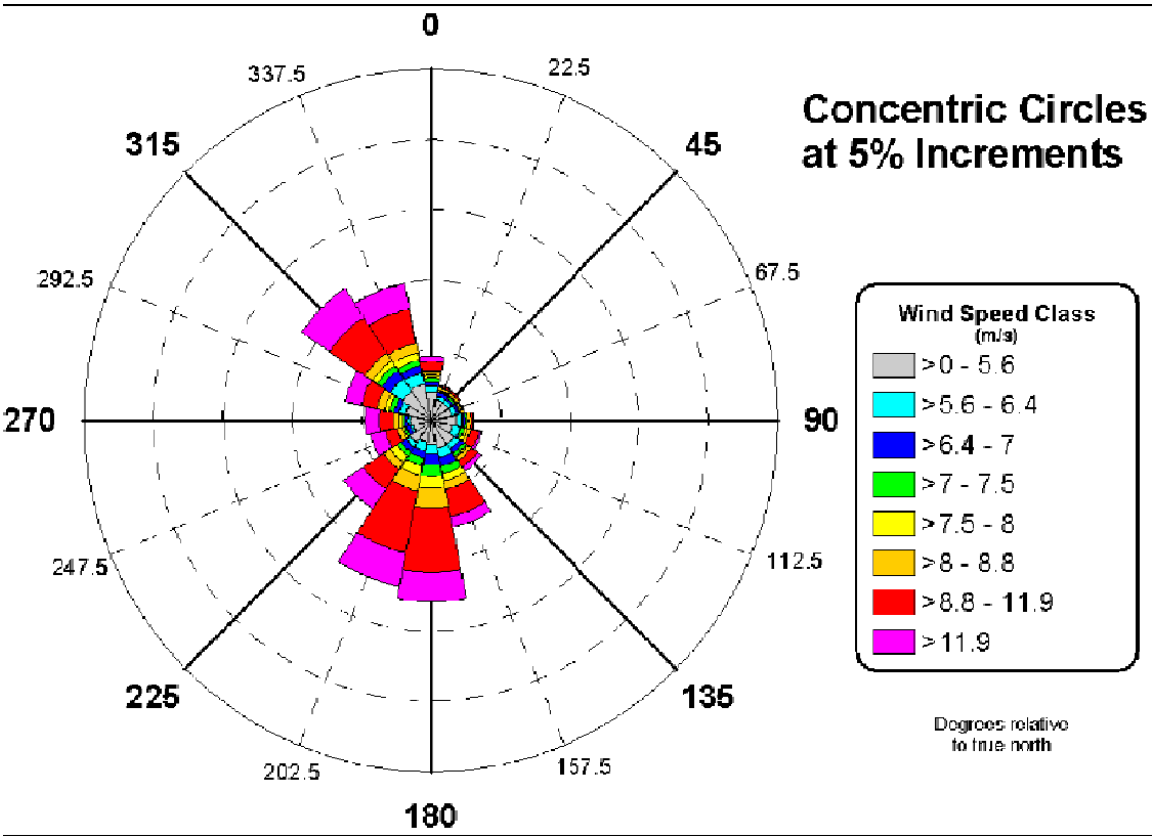
2.2.10 Wind Rose

The primary average wind direction for the site is south by southwest, with a strong secondary component from the north by northwest. Figure 2.2.10 obtained from the WindLogics report (WindLogics, Inc., 2006) indicates a wind rose for the Project area.

FIGURE 2.2.10

Normalized Wind Speed/Direction Occurrences - Wind Rose (in %)

Cottonwood County, MN - Tower 1 - 80 m
Annual



2.3 Other Meteorological Conditions at Proposed Site

2.3.1 Average Weather Conditions

Appendix B presents average monthly meteorological conditions for the proposed site, based on National Weather Service data recorded at the Cottonwood County Airport.

2.3.2 Extreme Weather Conditions

Extreme weather conditions in this area are occasional and include hail, ice storms, lightening, tornados and severe thunderstorms. Due to the low frequency and short duration of these conditions, minimal effects are expected on turbine performance.

2.4 Location of Other Wind Turbines in General Area

The only other known operating wind farms within a 20-mile radius is the Bingham Lake project.

Section 3
Wind Rights

Comfrey Wind Energy has worked with local landowners to obtain lease and easement agreements sufficient to build this 31.5 megawatt Project. The secured site lease and easement option agreements ensure access to the site for construction and operation of the project and prohibit landowners from any activities that might interfere with the execution of the project. The lease terms are for 20 years. Wind option agreements have also been obtained from property owners with land adjoining the project.

Section 4
Project Design

4.1 Project Layout
Appendix C includes the layout of the proposed wind farm. Turbines will be placed at a minimum spacing of approximately 1,500 feet (457 m); turbine locations shown on Appendix C are approximate, and are subject to change during final design. The proposed electrical collector system will be located on properties leased by Comfrey Wind Energy, LLC and the public right of ways. The substation will be located adjacent to the Alliant Energy Comfrey Substation on one of the CWE member's land. It will include a 75' X 75' parcel south of the existing Alliant Substation in the NW corner of the NW 1/4 of Section 2 in Selma Township in Cottonwood County.

4.2 Major Wind Turbine Components
The project will consist of fifteen Suzlon 2.1 MW wind generators built on 80-meter tall steel towers. The rotor diameter is 88 meters (288 feet). The blades are made of fiberglass-reinforced epoxy resin.

The current general product specifications for the Suzlon S88 turbine are available upon request from the developer, Southwest Wind Consulting.

Other system components will be designed and installed in accordance with the standards of high-voltage engineering practice to be compatible with the specified requirements of the interconnecting area transmission system as set forth by the local transmission owners, and the reliability and operating organizations.

4.3 Project Electrical System
The proposed fifteen Suzlon 2.1 MW turbine generators are each rated at a 690 V output. The electric output from each generator will be transformed to 34.5 kV via padmounted 690 V/34.5 kV transformers at the base of each turbine.

Based on preliminary design plans, power at 34.5 kV will then be collected via an underground system of cables. Power cables and communication lines, if a wireless system is not used, will be buried in trenches adjacent to the project access roads on private property optioned, or under consideration for option, for this service. The cable system will be routed to a nominally rated 60 MVA 34.5 kV/69 kV transformer at a site switchyard located in CWE's substation which is adjacent to the Alliant Energy Substation, then to the point of grid interconnection on the 69kV line which runs adjacent to the substations. 34.5 kV cable will be installed to collect all of the power from the turbines and transmit it to the CWE substation. Any aboveground feeder lines, if used, will be 34.5 kV conductor mounted on wood poles. Details will be developed in the final design.

A proposed location of an electrical collector system is shown in orange in Appendix C.

The final electrical system design and interconnection details will be determined through discussions with Midwest Independent System Operator (MISO) and Alliant Energy. The project will meet electrical design requirements, including power factor, voltage control, and grid system protection set forth by the MISO, Alliant Energy, and the purchasing utilities.

4.4 Associated Facilities
The individual wind turbines will each have a gravel access road that allows access to the

wind turbines year round. These roads will be approximately 16 feet wide with class-five gravel and a fabric underlay. The exact location of the building to house operations and maintenance facilities has yet to be determined.

CWE will continue to work with the landowners to reach agreements on the locations of the turbines, access roads, and collector system to minimize land use disruptions.

An on-site MET tower will be added to the project during the construction process.

Section 5
Environmental Analysis

5.1 Description of Environmental Setting

5.1.1 Project Site

The project site consists of parcels in the following sections:
----T107N, R34W (township of Selma in Cottonwood County): Sections 3, 4, 5, 9 and 10
----T108N, R34W (township of Bashaw in Brown County): Section 27, 28, 29, 32, 33 and 34.

5.2 Human Settlement

5.2.1 Demographics/Homes

The project site is a located in southwestern Minnesota in Cottonwood and Brown Counties near the city of Comfrey. The area is mainly agricultural related businesses. The population of the city of Comfrey is 360 as of 2005.

The construction of the proposed wind farm will likely have little or no negative impact on the demographics or residences. In fact, local service-related businesses will realize potential short-term benefit resulting from patronage by workers during the construction phases of the project. Additionally, the County and local government should benefit from the tax revenue generated by the wind farm.

To further reduce any impact on local citizens, the minimum setbacks from occupied homesteads to turbines will be equal to, or greater than, those required to meet noise standards The minimum setbacks of turbines from roads will be 76 meters (250 feet). A variance will be required from the city of Comfrey as 2 of the turbines will be within one mile from the outermost border of the city of Comfrey. CWE does not anticipate any difficulty in getting this variance.

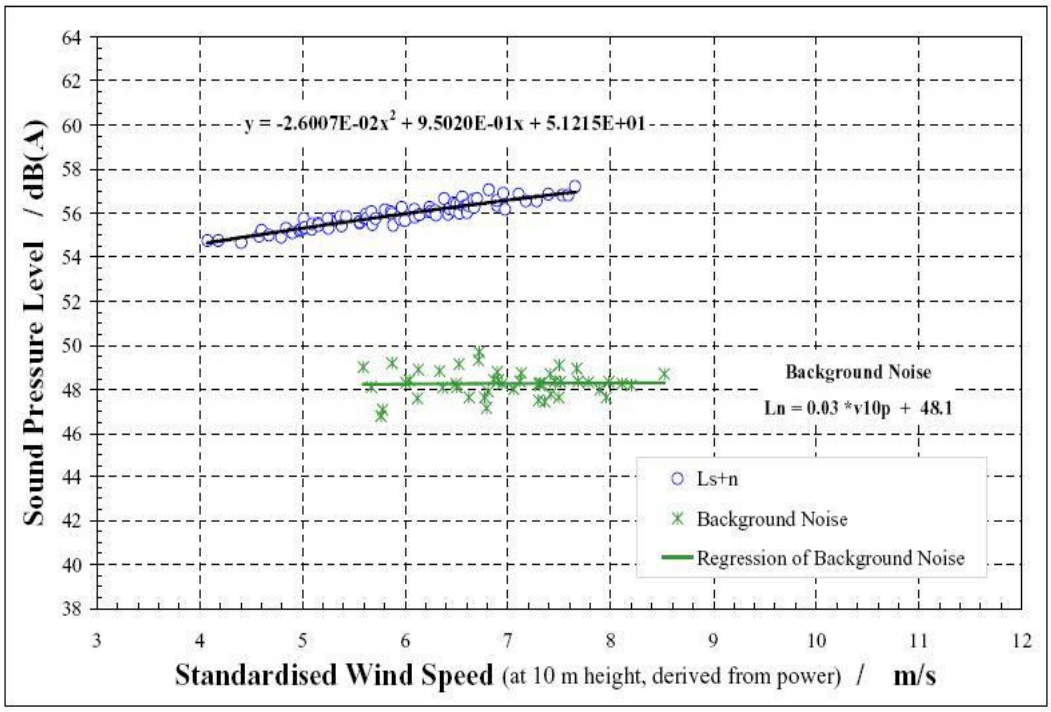
5.2.2 Noise

Background noise levels in the project area are typical of those in rural agricultural areas and are commonly in the low to mid-30dBA (equivalent to household level noise). These are relatively low background levels and are generally representative of the proposed site location. Higher levels exist near roads and other areas of activity such as noise associated with agricultural practices, and activities occurring in the rural town of Comfrey.

Wind turbines emit a perceptible sound when in motion. The level of this noise varies with the speed of the turbine and the distance of the listener of the turbine. On relatively windy days, the turbines create more noise, however, the noise from the wind tends to override the turbine noise as distance from the turbines increases. The turbines will meet noise standards issued by the the Minnesota Pollution and Control Agency for state permitted wind projects. The impact to nearby residents and other potentially affected parties will be taken into consideration as part of the actual siting of the turbines and setback requirements.
The information shown in Figure 5.2.2 is from a Deutsches Windenergie Institute study of the noise emissions of the Suzlon S88 2.1 MW wind turbine. The noise level readings and calculations are based on measurements taken at a distance of 124 meters (407 feet) from the test turbine. CWE will use a minimum setback from occupied buildings of 800 feet. From the information available from actual tests of the Suzlon S88 wind turbine it is expected that these turbines should easily meet the state noise standards.

FIGURE 5.2.2

Noise Emission Study of Suzlon S88 2.1 MW Wind Turbine



Sound pressure levels measured at the WTGS operating and parked versus the standardised wind speed at 10 m above ground (fitted by a 2nd order regression)

the sound level was obtained at 124 m (470 ft) from the WTGS.

5.2.3 Visual Impacts

The landscape in the project site is rural open cropland with gently rolling topography. The area is characterized by agricultural fields and farmsteads. The most widely grown crops in the area are corn and soybeans. Farmsteads are often surrounded by trees planted as windbreaks.

Wind turbines will have a visual effect on the area. This impact is often based on a subjective response. Although a wind farm could be perceived as an intrusion on the rural landscape, wind farms do posses a unique character all their own. Change is inevitable in our society, and over time residents adapt to the impact of this change. Population density is fairly low in the areas, therefore impacts are reduced. It is critical to also point out that residents are becoming accustomed to this new form of "farming" as several sites have gone up within neighboring counties with similar agricultural settings, and residents perceive this renewable energy as having similar characteristics to current agricultural practices. In general, the residents and local governments understand the visual impact of wind farms and are receptive to their presence.

The project will not generate an increase in traffic volumes or daily human activity, except for a short period of time during construction and occasionally during operation and maintenance activities. Thus the rural and remote feeling of the vicinity would be left intact.

The following mitigative measures are proposed:

- Turbines will not be located in biologically sensitive areas such as wetlands.
- Turbines will be illuminated to meet Federal Aviation Administration (FAA) regulations.
- Collector lines will be buried to minimize aboveground structures within the turbine array;
- Existing roads will be used for construction and maintenance to the extent possible.
- New access roads will be located on gentle grades to minimize visible cuts and fills.
- Temporarily disturbed areas will be converted back to cropland or otherwise reseeded to blend in with existing vegetation.

5.2.4 Public Services and Infrastructure

The proposed wind farm is expected to have minimal effects on the existing public services and infrastructure. Impacts may include the following:

- A production tax from the wind energy produced by the turbines will create local tax revenues.
- Short-term wear and tear on local roads will occur as a result of the transport of heavy equipment and other materials. CWE will repair any road damage occurring during the construction of the wind farm.
- CWE is expected to create new job opportunities within the local community.

5.2.5 Archaeological, Cultural, and Historic Resources

We contacted the Minnesota State Historical Society and they did not indicate any known archaeological sites in the proposed project area with the exception of the Jeffers Petroglyphs, which have been previously identified and discovered within a 20-mile radius of the proposed construction site. However, if any archaeological or historic sites are discovered in the proposed area, every possible measure will be taken to minimize impacts to archaeological and historic sites.

5.2.6 Recreational Resources

Recreational activities would not be significantly impacted by the wind farm as the turbines are located on agricultural ground. The impact to wild game should also not be impacted because of the lack of cover.

5.3 Effects on Public Health and Safety

5.3.1 Air Traffic

No public-use airports are located within the proposed project area. The nearest public airports are the Springfield Municipal Airport, located approximately 12 miles to the northwest and Windom Municipal Airport located approximately 17 miles to the southwest. However, because there is agricultural land use within the project site, crop dusting may occur periodically. Crop dusting is typically done during the day by small aircrafts. Some local aircraft applicators are familiar with application of chemicals in areas which contain wind turbines. Turbines do not constitute any known impediment. On-site MET tower wires will be marked.

5.3.2 Security

The proposed wind farm is located in a rural area with relatively low population. Construction and operation of the project would have minimal impacts on the security and safety of the local population. During the project construction period and during subsequent operation it is expected that the wind farm

will have no significant impact on the security and safety of the local community of Comfrey and its surrounding area. Some additional risk for worker or public injury will exist during the construction phase, as it would for any large construction project. However, work plans and specifications would be prepared to address worker safety during the construction.

5.3.3 Hazardous Materials

During normal operation, all fluids will be contained within the wind turbine structure. Leakage from the structures is not anticipated. Storage of fluids at the maintenance facility will be in compliance with state and federal regulations. Proper maintenance procedures and fluid-handling practices will be followed.

5.3.4 Road Traffic

Other than short-term impacts, no significant permanent changes in road traffic patterns or volume are expected.

Wear and tear on roads will occur as a result of the transport of heavy equipment and other materials. Applicant will repair any road damage occurring during construction of the wind farm.

5.4 Effects on Land-based Economics

5.4.1 Land-Based Economics

The area in which the wind farm will be located consists of rural agricultural based farming operations, mostly row crop. In addition, within the town of Comfrey there are various small businesses but no large-scale manufacturing. Eight miles to the west of Comfrey there are 2 hard rock mines. It is anticipated that this project will contribute to the local economy by way of lease payments, real estate tax payments, and the acquisition of local goods and services in support of CWE.

5.4.2 Community Benefits

Tourism in Brown and Cottonwood Counties is mainly related to game, wildlife, and agriculture. Comfrey itself has little to no tourism. The closest tourist site is the aforementioned Jeffers Petroglyphs, which is a cultural and historical site featuring rock carvings done by Native Americans and an interpretive center.

It is likely that the Comfrey Community will experience an increase in tourism and community activities associated with the wind facility, as has proven to be true in other communities which host wind farms. Another benefit of the wind project is the generation of a production tax assessed on the wind farm, which will go directly into the local government treasury and benefit the local community, e.g. fire, police, and education.

5.5 Effects on the Natural Environment

5.5.1 Topography

The majority of Cottonwood and Brown Counties are made up of low rolling hills and agricultural country, which was once prairie. The proposed wind farm was sited in this area for its openness and ease of access. In addition to topography, land-use patterns were also considered as to provide sufficient space so that any negative impacts can be avoided.

No significant impacts on topography are anticipated. Access roads, wind turbine locations, and the proposed collector system route will not require significant cut or fill.

5.5.2 Soil

The soil in the project area consists primarily of a clay-loam. CWE will make every effort to minimize negative soil impacts. We have contacted the local Natural Resources Conservation Service office to obtain information to prevent disturbance of any natural wetland.

CWE will construct a plan to minimize soil erosion and re-seed any areas disturbed by construction. CWE will be making very few changes to the landscape, and will not be affecting drainage patterns. We will also identify plans for grading, construction and drainage of roads and turbine pads as well as a comprehensive plan to restore the site after temporary project activities to minimize any surface damage. Any damage to drain tiles will be repaired or re-routed at the expense of CWE.

Construction of the wind turbines and access roads will minimally increase the potential for erosion during the short period of construction. Only a limited amount of farmland will be taken out of production.

5.5.3 Geologic and Groundwater Resources

In the proposed wind farm site, the land is well-drained and tiled farmland. The foundation designs cannot be completed for the wind turbines and transformers until geo-technical core sampling has been done at each turbine site. The construction of the foundations for each wind turbine and transformers will be done without affecting the local subsurface water resources.

The terrain affected by the project has very little surface water. The only feature in the project area is a man-made drainage ditch, which will not be affected.
Impacts to geologic and groundwater resources are not anticipated. Water supply needs during construction will be quite limited, and local supplies are adequate. No water will be needed for operations.

5.5.4 Surface Water and Floodplain Resources

The proposed wind farm will be built on relatively flat agricultural land and fields. The land is not located in a designated flood plain. The projects will not disturb water run off areas during pre and post construction or during decommissioning. The only surface water in the project area consists of a man-made drainage ditch, which will not be affected.

Construction of wind turbines, the electrical collection lines, and access roads will only disturb approximately 30 acres of land within the project site. Access roads will be low-profile constructed so as not to impede natural drainage patterns.

If construction is required across drainage ways and drain tile, it will be conducted in a manner such that they will not be impacted. The electrical collector system lines will be installed underground, and will not alter drainage patterns. Erosion control measures will be used throughout construction until disturbed areas have been re-vegetated.

5.5.5 Wetlands

CWE will be completing a 1026 form (Appendix D) to ensure that no wetlands will be affected by the projects. CWE is working in conjunction with Farm Service Agency and NRCS. CWE will make every effort to avoid locating any wind turbines on biologically sensitive areas such as wetlands, relic prairies, and grass ways.

5.5.6 Vegetation

The proposed wind farm will be located on land which has historically been used for row crop production. There is no known native prairie lands located in the projected site area. Tree coverage is minimal. CWE does not foresee the removal of any trees, groves of trees or shelter belts in its present proposal. Any disturbed grasses in the right of ways will be re-seeded.

5.5.7 Wildlife

The wildlife found in the project area is typical of that found in agriculture-related habitats. The resident species are representative of Minnesota game and non-game wildlife that are associated with roadside ditches, fencerows, wetlands, and areas of non-maintained grasses and shrubs.

The projected turbine sites and roads are lacking in cover vegetation for wildlife, therefore it is anticipated that wind farm development will have minimal impact on any resident wildlife. Operation of the wind farm will not change the existing land use.

Birds and Bats

Based on the history of existing wind power projects in the United States, the primary impact of concern to wildlife would be to avian and bat populations. Birds and bats have been documented to occasionally collide with wind turbines at other sites. This same potential exists in the current proposed wind farm. The primary avian species that frequent the project area are migratory and song birds, none of which are endangered species. Those species in the county that are considered endangered do not frequent the proposed project environments.

Fish and Mammals

Both small and large game are found within the general area of the proposed wind farm, including deer, rabbits, and ground rodents. There are no fish located in the project area. The actual site area is fully tilled farmland, which does not act as a habitat to the mammals located in the Comfrey area. Therefore, the wind farm is not expected to disturb fish and mammal numbers or habitat.

**Communications with the Department of Natural Resources Natural History Data Base is ongoing and the most recent communication has been included in Appendix E.

5.6 Rare and Unique Natural Features

The Endangered Species Act of 1973, as amended, requires protection of those species federally listed as threatened or endangered, as well as protection of habitat designated as critical to the recovery of those listed species. Projects that could potentially have an adverse effect on listed species or critical habitat require consultation with the USFWS.

The Minnesota DNR's NHD also maintains records of documented occurrences of state-listed species or other rare and unique species. The results of a NHD query for the Project Area search radius found that there are three occurrences of rare species within the project area. These include:

Brown County

Bald eagle *(Haliaeetus leucocephalus*) is threatened and found mainly near- mature forest by water.

Prairie bush clover *(Lespedeza leptostachya*) is of threatened status found on Native prairie on well-drained soils.

Cottonwood County

Prairie bush clover *(Lespedeza leptostachya*) is of threatened status found in gravelly soil in dry to mesic prairies.

Dakota skipper *(Hesperia dacotae)* is a candidate to become threatened and is found in native prairie habitat.

The following measures will be used to help avoid potential impacts to wildlife in the project area during selection of the turbine locations and subsequent development and operation.

- Avoid disturbance of individual wetlands or drainage systems during construction of the project.
- Protect existing trees and shrubs that are important to the wildlife present in the area.
- Maintain sound water and soil conservation practices during construction and operation of the project to protect topsoil and adjacent resources and to minimize soil erosion. Practices may include containing excavated material, protecting exposed soil and stabilizing restored material.
- Re-vegetate non-cropland and range areas with native species.
- Wind turbines will be sited away from areas of large concentrations of birds and migration corridors.

Section 6
Project Construction

A schedule of preconstruction, construction, and post-construction activities involved in the development of a wind energy project would list hundreds of individual tasks. In order to efficiently work through these processes, CWE will work very closely with Southwest Wind Consulting (SWC). SWC has the team in place from previous projects and the experience of past construction on wind parks to perform all of the necessary functions that are required to bring a wind park from the inception stage to the commercial operation phase.

Immediately following the procurement of the Interconnection Agreement, and Power Purchase Agreement, the project is in a good position to move quickly with financial partners to secure equipment for the 2008 construction season.

The Turbine Supply Agreement would be the item completed next to allow the project to be in the manufacturing queue for turbines for 2008. Several manufacturers have been contacted for the turbine equipment on this project.

SWC has, as part of it's team, worked with Central Engineers Group of Farmington, Minnesota to procure transformers, design the underground transmission systems, and subcontract for the installation of the interconnection system. This company will also be involved in the design and installation of the substation for interconnection to the grid system.

The soil qualification work for the CWE project will be contracted through Barr Engineering (Barr). This firm will do the soil boring necessary for the project as well as design work for the foundations and roads. Boring will be required for some of the underground transmission lines as well. Barr will also be responsible for concrete testing during and on site foundation inspection when the foundations are under construction. Local contractors in the immediate Comfrey, Minnesota area will be solicited for the road construction process. The availability of crushed aggregate very close to the CWE park area will be of large benefit to the project once construction begins. The road design will be from previous road experience and will accommodate a road matting and local aggregate combination with an over all capacity rating of 9 plus tons. Rather than provide for more comprehensive design features in the preconstruction phase the roads will be surveyed as built to eliminate the doubling of costs for this phase.
As previously stated, land surveys will be completed prior to construction of the project. This will assist contractors during the construction phase, and will be amended after construction to more accurately the final project as built.

Several independent contractors will be solicited for the erection of the turbines on site. These companies may include the foundation construction, in tower wiring, erection of the tower and nacelle, and assist in the commissioning of the turbine, in their scope of work for the project. The competitive bid process will be used to determine this at a later time.

The commissioning will be a part of the scope of the tower installation team, but this team will work closely with the manufacturer to complete the turbines and get them in to commercial operation.

6.1 Construction Management

Construction management will be handled using the prior experience of SWC, and the local investors in the project. In the event the local investors were to require daily site inspection services from SWC, these are available on a per cost or lump sum basis. Other contractors may be hired for individual areas of expertise, such

as civil work, electrical work, and turbine erection. The services of local contractors to assist in project construction will be secured where possible.

SWC and the local investors will also oversee the installation of roads, concrete foundations, towers, turbines and blades, electrical infrastructure, as well as the coordination of materials receiving, inventory, and distribution.

The construction team will be on-site to handle materials purchasing, construction, and quality control. An on-site project manager will coordinate all aspects of the work, including ongoing communication with local officials, citizens groups, and landowners.

6.2 Civil Works

Completion of the project will require various types of civil works and physical improvements to the land. These civil works may include improvement of existing roads, construction of access roads adjacent to the wind turbines; clearing and grading of land, trenching for, and installation of underground electric cables and communication wires, and foundation work. Improvements to existing access roads will typically consist of re-grading and filling of the gravel surface to allow access even in inclement weather. Access roads will be built adjacent to the towers, allowing access both during and after construction. The final roads will be approximately 16 feet wide with gravel cover. During construction only, those roads will be temporarily widened by an additional 16 feet of compacted soil, covered with geotextile/gravel, if required, to support the size and weight of heavy-duty cranes and turbine delivery vehicles.

The final road design will be dependant on geotechnical information obtained during the engineering phase.

During the construction phase, several types of light, medium, and heavy-duty construction vehicles will travel to and from the site, as well as private vehicles used by the construction personnel. The busiest traffic will occur when the majority of the foundation and tower assembly is taking place.

The specific turbine placement will determine the amount of roadway that will be constructed for this project. These roads will be sited in consultation with local landowners and completed in accordance with specified design requirements and will be located to facilitate both construction (cranes) and continued operation and maintenance. Siting roads in areas with unstable soil will be avoided wherever possible. Roads may include appropriate drainage and culverts while still allowing for the crossing of farm equipment. The roads will consist of graded soil, overlain with geotextile and covered with gravel. Once construction is completed, the roads will be re-graded, filled, and dressed as needed. Local requirements will be followed wherever access roads join state or local roadways.

Underground concrete foundations will be constructed to support the steel tubular towers of the turbines. Geotechnical surveys, turbine tower load specifications, and cost considerations will dictate final design parameters of the foundations.

6.3 Commissioning

The project will be commissioned after completion of the construction and testing phases. Inspection and testing occurs for each component of the wind turbines, as well as the communication system, meteorological system, the low- and high-voltage collector system, and the SCADA system. These commissioning procedures ensure that the generation units are

performing to guaranteed levels and that the project meets electrical system requirements. The turbine manufacturer will provide technical engineers to assist in the commissioning process. Assistance will continue until the turbine is capable of more than 72 hours of continuous operation.

Section 7
Project Operations and Maintenance

7.1 Project Operations

Applicant will enter into a contractual agreement with Suzlon to provide service and maintenance for the project at least through the warranty period given by Suzlon. Thereafter, Applicant will contract with a qualified contractor for service and maintenance for the project. The service and maintenance activities will be performed by qualified technicians, trained specifically on Suzlon wind turbines. Applicant may choose to use a qualified operations manager. The applicant has not made a determination at this time if this will be performed in house or could be a separate contract with SWC. The operations manager will oversee the maintenance and service program, ensure utility interconnection and respond to turbine outages. The operations manager will be responsible for all management, administration, service and maintenance activities. After the initial warranty period, Applicant and Suzlon may elect to take over service and maintenance duties.

The maintenance and operations facilities will be equipped with all necessary tools, instruments and spare parts to accomplish service, repairs and project/site operational control. Spare parts in relation to the electrical infrastructure will also be maintained based on similar historic project demands. The project staff will be complemented with the necessary service vehicles—light trucks, boom trucks, cranes, etc.—to ensure timely response. Turbine maintenance will be accomplished as an on-going cyclical function during the project lifetime, so as to minimize downtime. Transformer and pole-line maintenance will be accomplished on an annual basis and will be scheduled and performed during non- or low-wind periods.

On-site service and maintenance activities include routine inspections, regular preventive maintenance on all turbines and related facilities, and unscheduled maintenance and repair. Routine minor maintenance on the wind turbines, electrical power system, and communications system may include maintenance of oil levels and filters, tightening of bolts, minor electrical repairs, upgrading of computer software, and system testing. Civil maintenance includes maintaining project structures, access roads, drainage systems, and other facilities. The third party may also provide labor, services, consumables, and parts required to perform scheduled and unscheduled major maintenance on the wind farm, including repairs and replacement of parts and removal of failed parts.

Other maintenance activities include cooperation with wildlife studies as may be required, management of lubricants, solvents, and other hazardous materials; the hiring, training, and supervision of personnel; and the implementation of appropriate security methods. An operations and maintenance building will be built to house consumables, spare parts, and some control functions.

7.2 Maintenance Schedule

During turbine commissioning and initial commercial operation, the project will be inspected on-site daily to see that it is operating within expected parameters. Following the "break-in" period, the turbines will be remotely monitored on a daily basis with planned service and maintenance at the following intervals:

1. ***First service inspection.*** The first service inspection will take place 1 to 3 months after the turbines have been commissioned. Activities include tightening bolts, greasing bearings, and filtering gear oil.
2. ***Semiannual service inspection.*** Routine service inspections commence 6 months after the first inspection. The semiannual inspection consists of lubrication and a safety test of the turbine.
3. ***Annual service inspection.*** The annual service inspection consists of a semiannual inspection plus a full component check.
4. ***Two-year service inspection.*** The 2-year service inspection consists of the annual inspection,

plus the checking and tightening of terminal connectors.
5. ***Five-year service inspection.*** The 5-year inspection consists of the annual inspection, an extensive inspection of the wind braking system, the checking and testing of oil and grease, a balance check, and the tightening of terminal connectors.

Section 8
Costs

Specific cost information is confidential to the business of CWE. Final costs for the project have not yet been confirmed. Based on previous experience, SWC estimates that the installed capital cost for wind farm design and construction will be approximately $1,700.00 per kilowatt hour. Operating costs are expected to be about 2 percent of the capital costs per year.

The actual cost of the project will not be known until final design, procurement, construction, and contractual arrangements are complete. Power Purchase Agreement Applications are in place or under way with both GRE and Xcel Energy.

Section 9
Project Schedule

9.1 Land Acquisition
Applicant has entered into land leases and wind rights options for all of the property required to support the Project. The applicant anticipates exercising these remaining options by Fall 2007 or Winter 2008, if additional land leases are required.

9.2 Permits
Applicant will be responsible for undertaking all required environmental review and permits, and hopes to obtain a LWECS Site Permit before the end of 2007. This includes all permits indicated in Section 12. Any additional permits required beyond the state site permit will be obtained prior to construction.

9.3 Equipment Procurement, Manufacture, and Delivery
CWE will order the wind turbine components as soon as practicable. Delivery of the turbines is anticipated within 4 to 12 months of the order. The transformer for the substation will arrive within approximately 6 months after ordering. Collector system cable will arrive approximately 4 months after ordering. Once the Power Purchase Agreement and Interconnection Agreement are obtained, financial members are in place to make this portion of the wind project move forward in an expeditious manner.

9.4 Construction
It is estimated that the construction and commissioning phase will take approximately seven months to complete. Construction will likely commence in the fall of 2007 or spring of 2008 and be completed by the latest December, 2008.

9.5 Financing
CWE is responsible for financing predevelopment, development, and construction activities. CWE is financing the cost of predevelopment activities through internal funds. Permanent financing is being arranged with partner investors and will be completed prior to commercial operation.

9.6 Expected Commercial Operation Date
Applicant anticipates that the wind project will begin operation no later than Dec 2008, if not sooner.

Section 10
Energy Projections

A preliminary analysis of the net energy output based on turbine types and locations indicate that approximately 104,857 MWh will be delivered annually to the point of interconnection. Final energy estimates will be developed once the wind farm final design is complete.

A WindLogics prediction interval study of the gross energy production from the Comfrey Wind Energy park site was conducted on January 5,2007. Using the virtual met tower included in the Comfrey Wind Energy Park area the gross energy production from this site is estimated at a 43.18% capacity factor when normalized to a long-term 40 year average. Normalizing the data through WindLogics using the 40 year computer run does result in a lower gross energy production number than if one is to use a smaller year computation. Therefore a reduction from this number of 5% to include for such losses as array, grid, icing, blade and availability would be considered more than reasonable, and should provide for as accurate a calculation as can be obtained from a virtual met tower setting. This results in a capacity factor for this wind park of plus 38% modeling the Suzlon S88 2.1 megawatt machine, and is the capacity factor being used for both the financial and tower manufacturer proforma assumptions.

Section 11
Decommissioning and Restoration

At the end of commercial operation, the Comfrey Wind Energy owners will be responsible for removing wind facilities, and removing to a depth of 48" the turbine foundations. CWE reserves the right to extend options instead of decommissioning at the end of the site permit term. These options may include applying for an extension of the site permit, if necessary, and continuing operation of the project. In this case, a decision may be made on whether to continue operation with existing equipment or to retrofit the turbines and power system with upgrades based on newer technologies.

11.1 Anticipated Life of the Project

The anticipated project life is 25 years beyond the date of first commercial operation for each respective phase.

11.2 Decommissioning

The owner will be responsible for costs to decommission the project and associated facilities. In the event any wind turbine has exhausted its useful life and is decommissioned, the site will be excavated back to four-foot below grade as required by local zoning ordinances.

11.3 List of Decommissioning and Restoration Activities

In addition to any requirements under the site permit, each individual land lease requires proper decommissioning of turbines. Decommissioning of the site would include removal of turbines and related facilities. Removal of related facilities would include access roads, equipment, towers, buildings, transformers, and cables or wires. Foundations will be removed to a depth of 4 feet below grade and buried back to grade. Additionally, any disturbed surface would be graded, reseeded, and restored as nearly as possible to its preconstruction condition.

Section 12
Identification of
Required Permits/Approvals

Signed resolutions of support have been obtained from the City of Comfrey, Selma Township (Cottonwood County), and Bashaw Township (Brown County). See Appendix F.

A preliminary list of required permits and approvals identified for the project are shown in Table 12-1.

TABLE 12.1

Permit	Permitting Agency	Trigger	Permit Required
Federal			
Notice of Proposed Construction or Alteration	Federal Aviation Administration	Facility safety lighting	Yes
Determination of No Hazard	Federal Aviation Administration	Turbines and facility safety lighting	Yes
Clean Water Act Section 404 Permit: GP/LOP-98-MN	U.S. Army Corps of Engineers; St. Paul District Office	Discharges of dredged or fill material into waters of the United States, including their adjacent wetlands	No
Exempt Wholesale Generator Status	Federal Energy Regulatory Commission	Seeking status as an exempt wholesale generator must file with the Commission	Yes
Market-based Rate Authorization (Petitions for Rate Approval pursuant to Section 284.123(b)(2) 18 C.F.R. Section 381.403)	Federal Energy Regulatory Commission	Commissioning of the wind facility	Yes
State of Minnesota			
Site Permit	Minnesota Public Utilities Commission (PUC)	Construction of a Large Wind Energy Conversion System (LWECS) defined as a system capable of generating over 5MW	Yes
General NPDES Permit for Stormwater Discharges Associated with Construction Activities	Minnesota Pollution Control Agency (MPCA)	Disturbance of greater than 1 acre of ground.	No
Section 401 Water Quality Certification	MPCA	Impacts to waters of the US (Corps Section 404 permit)	No
Permit	Permitting Agency	Trigger	Permit Required

Very Small Quantity Hazardous Waste Generator License	MPCA	Generation more than 100 pounds of hazardous waste each year	No
Above-ground Storage tank (AST) Notification Form	MPCA	Any above-ground petroleum storage tank 500 gallons or greater	No
License for Crossing Public Lands and Waters	Minnesota DNR	Any wind farm facilities that require crossing of or location on State administered Public Lands or Waters	Yes
Public Waters Work Permit	Minnesota DNR	Any construction activities that impact waterways, including Wetlands, applies to public waters that are identified on DNR public waters inventory maps	Yes
Wetland Conservation Act Compliance	Brown & Cottonwood County Soil & Water Conservation District – MN Board of Soil and Water Resources (rules)	Construction activities that impact non-state wetlands	Yes
Well Construction Notification	Minnesota Dept. of Health (MDH)	Installation of private well(s) for O&M building	No
Highway Access Permit	Minnesota Dept. of Transportation	Access to State roads from wind farm facilities.	No
Utility Access Permit	Minnesota Dept. of Transportation	Utility construction impacts to state roads	No
Oversize & Overweight Permit	Minnesota Dept. of Transportation	Use of oversize and overweight vehicles	Yes
Local			
Cottonwood County & Brown County	Conditional Use		No
	Foundations and Buildings		No
	Access Roads		Yes
	County Road use		Yes
	Township right of way		Yes
City of Comfrey	Zoning variance	Within 1 mile of border	Yes