



Project Matching: Facilitating New Renewable Energy Projects Project Proposal Submittal Form

The EPA Green Power Partnership's (GPP's) [Project Matching Initiative](#) works to connect stakeholders with new, not-yet-built renewable energy projects that may align with their energy, environmental, and financial objectives. The initiative's goal is to spur the development of new renewable generation by facilitating the signing of long-term green power contracts between end-users and project developers, thereby providing a guaranteed stream of revenue that developers can use to secure project financing.

The GPP, in collaboration with EPA's [RE-Powering America's Land Initiative](#), will host a project matching webinar on Wednesday, June 24, 2015. Project developers are invited to submit project proposals to GPP for possible inclusion in the webinar. This form includes all anticipated criteria that EPA will use to select projects for the webinar. All projects submitted for review that meet minimum requirements for data completeness and basic eligibility will be posted on the GPP website. A renewable energy project's inclusion in this initiative does not constitute endorsement or recommendation by EPA.

Project proposals are due by June 5, 2015 and must be submitted electronically to James Critchfield, critchfield.james@epa.gov.

Contact Information

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Project Summary

Project name: GreenCastle Wind Farm (the "Project")

Developer name: GreenCastle Wind Farm, LLC and NativeEnergy, Inc.

Renewable energy type: Wind

Project city/state: Gilman, Iowa

Project geographic coordinates (To find, use: www.latlong.net/): Latitude 41° 54.983'N, longitude 92° 51.205'W.

Total planned megawatt (MW DC) size: 10 to 15 MW. Final size will depend on specific needs of the PPA offtaker and investor, and overall financial performance of the Project.

Are there phases? If so, how many and in what size tranches? No. The Project will be built in one phase.

What is the expected annual output of the completed project (MWh)? 50,500 MWh @ 12 MW total installed capacity. Estimate is based on nearly eight years of on-site wind data which has been evaluated by an independent, experienced wind resource consultant. Note that this production estimate may be confirmed with data from a nearby utility-scale wind project, if such data can be made available to the Project.

Expected date of construction commencement: May, 2017

Expected date of commercial operation: December, 2017

What is the largest development hurdle and how is it anticipated to be overcome? Securing an investor. Lack of an attractive PPA has been the limiting factor in attracting investors. To date, there have been no regional utility buyers interested in entering into a PPA at a rate which will make the Project financially viable. The Project is exploring (in part, via this EPA webinar) alternate power and REC offtake arrangements with end-users attracted to smaller wind projects that promote distributed wind energy benefits and provide local community-ownership and strong REC or carbon credit marketing/public relations characteristics.

Can you provide examples of similar projects you have developed? This is the first project developed by GreenCastle Wind Farm LLC. The individual controlling members of the LLC are the landowners and owner/operator of the Project and have a family history of farming in the community for 60 years.

NativeEnergy has been involved in financially supporting community wind projects for 15 years by directly leveraging the REC and carbon credit markets. The company has helped advance over 40 wind energy projects on behalf of its many corporate clients across the U.S. NativeEnergy's clients are motivated to support these projects to meet their corporate sustainability objectives *and* the desire to support projects with additional societal benefits beyond just the verified carbon emissions reductions.

Site Readiness

Has the project received all necessary federal, state, and local permits to proceed with construction and operation? If not, please outline the key permits required to proceed with project construction/operation and describe the steps you have taken in order to evaluate and address permitting risk for this project.

- Marshal County Zoning Special Use Permit has been granted.
- Project will apply for a Marshall County Building Permit once project financing and construction is confirmed.
- Project will apply with the FAA regarding the administration's "Notice of Proposed Construction or Alteration – Off Airport" once final turbine size and locations are confirmed.
- A noise analysis has been completed for the project site, assuming a 6 x 2 MW layout. Results from this analysis indicate the Project will not emit noise levels of concern at residences of non-participating land owners, consistent with the Marshall County Zoning Special Use Permit.
- An avian species report has been completed for the project site, assuming a 6 x 2 MW layout. Results from this report indicate that the Project will unlikely have a detrimental impact to avian species present in the area.
- Project has developed a turbine Decommission Plan consistent with the Marshall County Zoning Special Use Permit.
- No other permits are expected at this time.

Note that the Project site is approximately 4 miles from the 120 MW Laurel Wind Farm which began commercial operations in December, 2011. Given the close proximity and large size of this existing large wind farm project relative to the proposed 10 to 15 MW GreenCastle Wind project, permitting risk of the Project is expected to be very low.

Have you secured long-term site control? If so, please describe the nature of the agreement (lease, ownership, etc.)? Yes. Controlling members of GreenCastle Wind are the landowners.

Have land leases been filed with the county? No.

Does the project require either an Environmental Impact Statement or Environmental Assessment? If so, what is the status? The Project will not require either of these assessments.

Is this project sited on a current or formerly contaminated land, landfill or mine site?¹ If so, has the site addressed the related environmental issues? No. The Project is not sited on contaminated land.

Interconnection

What is the status of interconnection, and have system impact and facility studies been completed? (Distribution or transmission level projects are both eligible) The Project initiated a System Impact Study with Central Iowa Power Cooperative (CIPCO) on May 13, 2010 using a 15 MW project configuration connecting to CIPCO's 34.5 kV line. The study completed flow analysis and assessed constrained interfaces. The results showed that the Project is small relative to the system and "will have no adverse impact on regional flowgates or local area facilities, therefore no transmission network upgrades are required in order to approve the interconnection and transmission service." Input from the Midcontinent Independent System Operator (MISO) was also provided in this study.

A Siemens Energy, Inc. study was also conducted to support CIPCO, and completed on November 29, 2011. The study performed transient stability analysis under the same proposed 15 MW configuration connecting to CIPCO's 34.5 kV line. The results of this study similarly concluded that the Project "does not have a detrimental impact on the stability of the local area transmission system."

When do you expect the interconnection study process will be complete? Given the time that has passed since the above studies were completed, it is expected that this process will need to be revisited to account for any new conditions of the regional system. However, given the relatively small size of the project, it is unlikely that the Project will create any impacts that were not identified in the original studies. Based on progress with a PPA buyer and subsequent financing, the Project will reengage with CIPCO to upgrade these studies.

Does the transmission owner (TO) or independent system operator (ISO) have a process to study the project's impact on the local or regional grid and the subsequent cost to interconnect? Yes. The Project is located in the MISO, and MISO has an established generator Interconnection Procedures and Requirements. Note that this process provides a fast-track process for projects no more than 5 MW and may be considered pending feedback from interested PPA and financing parties.

Operation & Financing

Is any element of the project – technology or systems – experimental or pilot-phase or proven technology? No. The Project will employ commercially proven and available wind turbine technology.

¹ Examples of such properties could include brownfields, municipal solid waste landfills, abandoned mine lands, and Superfund sites, among others subject to state or federal authorities or cleanup programs.

What is the long- and short-term plan for operating and maintaining the project? The Project is expecting to enter into an O&M services agreement either with the turbine vendor or qualified/experience third party.

For wind projects, has a meteorological tower been installed? If yes, when was the tower installed and how much data has been collected? Yes. A 50-meter meteorological tower was erected on July 12, 2007. Data is still being collected and a recent assessment of this data and resulting energy estimate of a 12 MW project configuration has been performed.

Provide a short summary of how you view project finance and structure/ownership taking shape for this project: Currently, the primary focus is to secure a long-term PPA with a credit worthy buyer at a rate that is financially viable for the Project. Once the PPA is secured, the Project will use its available contacts to engage with one or several qualified parties with an interest in investing in wind energy projects of this scale and timeframe.

Individual controlling members of GreenCastle Wind have been approved to receive the Iowa State Production Tax Credit (Iowa Code Chapter 476C) for its eligible, proposed wind facility. Under this tax credit incentive program, 51% of the project must be owned by an Iowa entity; the individual controlling members of GreenCastle Wind LLC will be the Iowa entities.

Partners

In what ways can organizations participate in the project? (Check all that Apply)

- Power purchase agreement for bundled power and RECs**
- Financial hedge or contract for differences**
- Long term REC offtake**
- Financial investment / ownership stake**
- Other, please specify: _____**

What are some of the characteristics of your ideal power purchaser, investor, or other partner? The ideal power purchaser will be specifically looking at a smaller project with attractive marketing and PR benefits that a larger utility-scale wind farm typically cannot provide. Consequently, the power purchaser will be seeking RECs in the range of 50,000 MWh per year, or higher value verified carbon emissions reduction credits of approximately 35,000 tCO₂ per year. The power purchaser will also have the capacity to accept the risks associated with the local LMP market pricing if the Project's PPA is ultimately crafted as a merchant plant/hedging structure/CFD, along with the additional costs to manage such a structure. These risks will, in part, be offset by the Project's modest size (if the power purchaser's overall energy needs are markedly larger than 50,000 MWh), extensive historical wind resource data, and well-understood development/permitting of MW-scale wind turbines in Iowa.

What marketing opportunities exist at the project? As noted above, due to its smaller size and distributed nature, the Project affords several marketing opportunities that do not exist for the typical larger wind farms that attract larger corporate end users.

- The Project landowners and owner/operators are local farmers that are members of the community and have a family history of farming for 60 years. The financial benefits that they receive from the project will supplement and strengthen their farming income. The generally

consistent and predictable annual returns received from the Project will provide a hedge against potential year to year volatility associated with farming.

- The majority of the revenues the local Project owner/operators receive are expected to remain in the community simply due to the fact that they are a local business and, thereby, pay local taxes, provide employment locally, and purchase local goods and services.
- Smaller electric generation projects able to connect to distribution-voltage transmission lines can provide certain distributed generation benefits. Multiple distributed generation projects spread out across the distribution grid should be encouraged.
- Smaller projects typically face economies of scale challenges and are less attractive to conventional PPA offtakers. However, due to the attractive aspects associated with the marketing of the RECs or carbon emissions reduction credits, and the relatively modest PPA volume commitment, these small projects can appeal to a client base that has yet to have many opportunities in which to participate. The success of this project will provide a proof-of-concept for future similar opportunities around technically feasible but financially stalled distributed energy projects in need of PPAs.