

## **Arkansas Anemometer Loan & Wind Energy Resource Assessment Program Application**

### **Instructions**

The Arkansas Anemometer Loan Program was established with the objective of encouraging the use of wind energy in the State of Arkansas. This program is administered through John Brown University (JBU) with funding from the Arkansas Energy Office. To participate in the program, please fill out this application in its entirety and please send it to:

**Larry Bland / Fernando Vega**  
John Brown University  
Renewable Energy Program  
2000 West University St.  
Siloam Springs, Arkansas 72761

If you are applying for more than one location, please complete separate applications for each specific site. Only one site per participant can be selected. Completion of the application does not guarantee the loan of an anemometer system. Applications are due by January 15<sup>th</sup>, 2012 for springs and summer installations. The selection process will be done in two steps. The first step will require reviewing the applications and selecting potential participants. The second step will involve actual site assessment to determine viability of the site. Anemometer systems will be installed for a period of one year and decommissioned immediately afterwards.

The following factors are used to evaluate and select a site:

**Strength of the Proposal:** The participant must state the purpose and main objectives of the project, demonstrating clear intentions of investing in small wind power. Situations such as on-site energy use with consequent potential energy savings, net metering in the area, etc, should be addressed. Is the potential project expected to be large scale (commercial), medium scale (school, town, state, non-profit, Indian land), or small scale (private ownership, residential, business, ranch)? How clear are the objectives of the proposed plan? Who will use the power?

**Attributes of the Site:** The proposed location should have favorable topography and the potential of an adequate wind resource. Do factors such as elevation, vegetation, and/or nearby land forms/topography suggest a quality wind resource? Factors that would suggest a quality wind site often include being higher than the surrounding area, being clear of obstructions that would create wind flow turbulence (large trees, buildings, geological features, etc.), tree/vegetation flagging (trees are permanently bent in direction of prevailing wind, with branches longer on the downwind side and shorter or missing on the upwind side), and proximity to mountains, valleys, or canyons that may accelerate wind flow. High elevation, whether on a ridge top or a plateau, can also suggest higher wind speeds.

Another possible factor concerns the quality of the wind resource as predicted on the Arkansas 50-meter **Wind Resource Map**. Sites located within or close to regions that have a high-predicted wind resource are looked on favorably. However, these maps give a rough estimate of available wind resources and are not taken as definite. Many quality sites have been identified inside areas that were predicted to have poor wind resources by these maps. The Arkansas wind resource maps can be viewed and downloaded from the Loan Anemometer Website.

**Accessibility:** Is there enough clear area at the proposed site to erect a tower and is it easily accessible by car? A clear, flat space of roughly 160ft x 215ft is required to erect a 34-meter tower.

**Favorable Land Use:** Is the site appropriate for a wind energy project? Are there (or will there be) building restrictions, zoning problems, or opposition from surrounding neighbors? Ideally the program would like to address participants with diverse operations: agricultural land, remote water pumping applications, small business, etc.

**Transmission of Data:** The wind data will be transferred through wireless communications (GSM) to JBU. The participant is required to purchase a SIM card and pay a data subscription fee for the one year measurement campaign (AT&T, Verizon, etc, offer a data service package). This will require the site to have adequate cellular coverage.

**Risk to Wildlife:** Is the site known to have the presence of bats or is a corridor to annual migratory path? An assessment by the U.S. Fish and Wildlife Service's will be done prior to selection of the sites to predict the species and habitats that would be harmed.

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**Contact Information:** *(the person our office will be working with for the loan)*

Last Name \_\_\_\_\_ First Name \_\_\_\_\_

Mailing Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Home Phone (include area code) \_\_\_\_\_

Work Phone \_\_\_\_\_ Cell Phone \_\_\_\_\_

E-mail \_\_\_\_\_ Fax \_\_\_\_\_

**Landowner Information:**

Go on to the next section if the Landowner and the Contact person are the same. If they are not the same, please fill out this section.

Last Name \_\_\_\_\_ First Name \_\_\_\_\_

Mailing Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Home Phone (include area code) \_\_\_\_\_

Work Phone \_\_\_\_\_ Cell Phone \_\_\_\_\_

E-mail \_\_\_\_\_ Fax \_\_\_\_\_

**Project Description / Location Specifics:**

Physical Address \_\_\_\_\_

City/Town \_\_\_\_\_

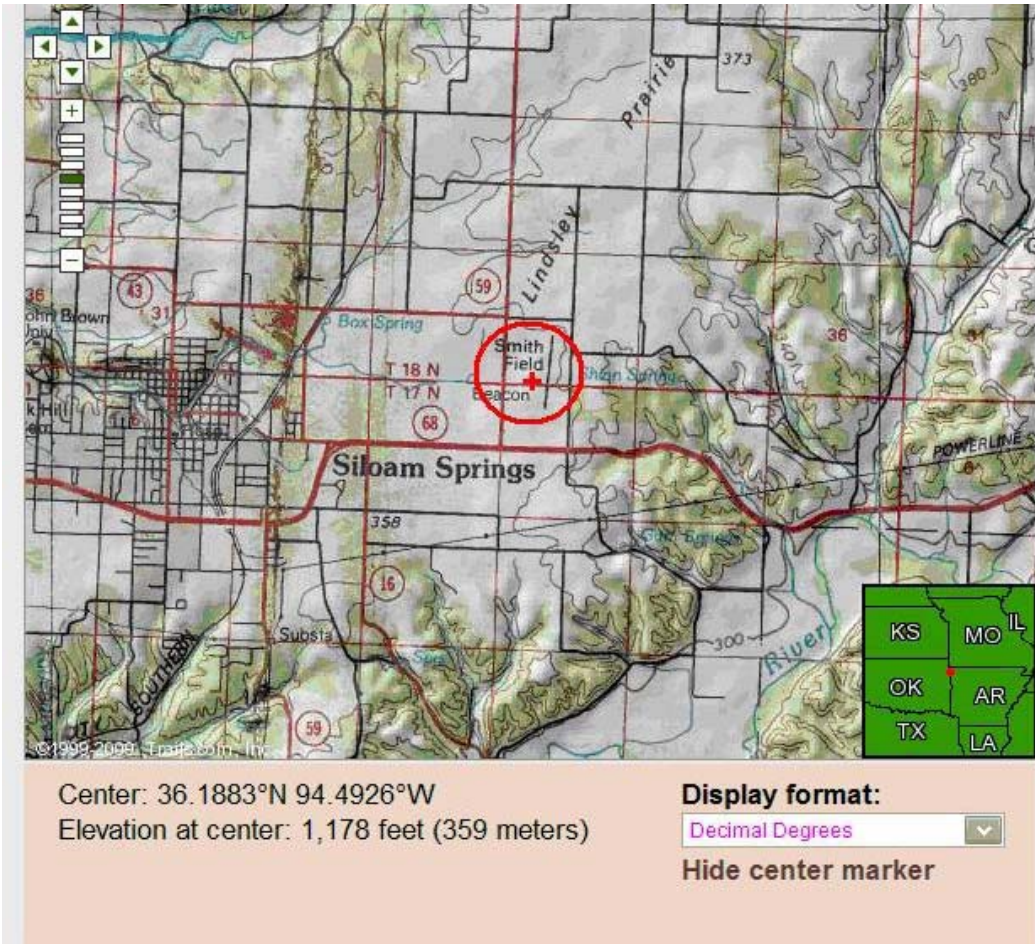
County/Zip Code \_\_\_\_\_

Acres at site - \_\_\_\_\_

Site Elevation - \_\_\_\_\_ Is the land where the anemometer will be placed  
higher than the surrounding area? \_\_\_\_\_

Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_

Please provide **detailed** GPS Coordinates: (you can obtain the latitude, longitude, and altitude of your site (as well as a topographical map) by going to [www.topozone.com](http://www.topozone.com). Get a free subscription, type in your area, then place the cursor on your site and click. The coordinates of the site should be listed at the top of the map. (i.e. *degrees latitude, degrees longitude and elevation*). An example of a location from [www.topozone.com](http://www.topozone.com) is depicted below showing Smith Field with 36.1883° Latitude, 94.3926° Longitude and 1178 ft. as elevation.



Accessibility: How far is the site from the nearest paved road? \_\_\_\_\_ Unpaved road? \_\_\_\_\_

Can the site be easily accessed with a vehicle? \_\_\_\_\_

Please describe the ground conditions for your land at the location where the anemometer tower will be installed: (circle one) Soil type [rocky, clay, sand, topsoil, etc.]

Covenants and Restrictions: Are there any local restrictions on structure height, zoning, building or other requirements? \_\_\_\_\_ If so, what are they? \_\_\_\_\_

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\_\_\_\_\_

Is the site grid connected ? (check one) YES    NO

Provide name of Utility Company \_\_\_\_\_

Neighbor: How far is the nearest neighbor from the site?

Approximate feet \_\_\_\_\_ or miles \_\_\_\_\_

Nearest Structure: How far is the nearest structure?

Approximate feet \_\_\_\_\_ or miles \_\_\_\_\_

Please describe the site: (*i.e. vegetation, topography, obstacles, etc. Photographs of the site are also helpful.*) \_\_\_\_\_

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Property Line: How far is the nearest property line from the site?

Approximate feet \_\_\_\_\_ or miles \_\_\_\_\_

Airports: Name of the nearest airport \_\_\_\_\_

Approximate distance to the airport \_\_\_\_\_

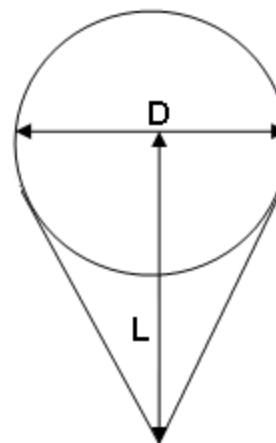
**Transmission/Distribution Lines:**

How far are you from electrical transmission or distribution lines?

Approximate feet \_\_\_\_\_ or miles \_\_\_\_\_

A potentially good wind site will be a cleared field at least 215 ft. x 160 ft. square at an altitude greater than the surrounding landforms, or it will have little to no obstructions to the line of sight in the direction of the prevailing winds. An ideal wind site would have a clear horizontal view sweeping from the north to the south in a westerly direction to capture the prevailing winds in the area. There should not be any trees or buildings taller than 30 ft. within a 500 ft. radius from the anemometer site. The site should not be closer than 120 ft. to a house, building or property line.

Tower Height	Minimum <b>D</b> (Guy diameter)	Minimum <b>L</b> (Space to Lay the Tower down )	Total Envelope
34 m ( 111 feet)	141 feet (43 m)	114 feet (35 m)	215ft x 160ft



Describe how your site compares with these ideal conditions. What are the obstructions to the west and how tall are they? Is the site on the eastern or western slope of a hill or mountain? List any obstacles that may influence the wind flow. What is the elevation and exposure of the surrounding areas? Draw a sketch with met-mast symbolized by a red star and attach pictures of the site and obstacles. Attach a Topographic Map: *(Please mark the proposed site on a topographic 7.5' quadrangle map and include with application. You can access them online at the USGS website or [www.topozone.com](http://www.topozone.com) website where mapscan can be accessed for free - downloading maps using topozone.com requires payment; however, you can print images for free. If you would like help with this please contact our office.)*

Will there be animals present on the tower site during the loan period? If so, are you willing to fence the tower area to assure that no grazing animals can reach the tower or support system?

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Items that you need to provide with your application:

- Pictures of your site are greatly appreciated and will assist us in reviewing your application. Sketches of your property that include compass directions, a proposed location for the anemometer tower, electrical interconnection location, location of trees or other structures that would influence the flow of the wind (indicate height of obstructions).

Show the requested site for tower install, if any. Indicate areas that, for whatever reason (cultural, legal, etc.) are excluded from consideration.

- A topographic map of the area marked with your site.
- If net metering is being considered, please also include locations and voltages of any nearby power lines and substations. Has the local utility agreed to provide transmission?
- If you are a homeowner, research the potential legal and environmental obstacles to installing a wind system. For example, some jurisdictions restrict the height of the structures permitted in residentially zoned areas, although variances are often obtainable.

I verify that I have read the loan program description and understand the terms associated with this application. In addition to the application, please review the **Anemometer Loan Agreement** applicants must enter into prior to tower installation if selected.

Will you have any foreseeable problems complying with any part of the included Anemometer Loan Agreement form?

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Signature and Date