Sac and Fox Tribe of the Mississippi in Iowa
Meskwaki Nation

Department of Energy
Tribal Energy Program Review 2010
Denver, Colorado

Wind Energy Resource Assessment on Tribal Land
Presented by: Donald Wanatee
October 26, 2010

Project Participants:
Technical POC: Thomas M. Gearing
Business POC: Lucas Smith (Grants/Contracts Officer)
Tribal Council Liaison: Donald Wanatee
RECAP -
Meskwaki Menu

Meskwaki Nation Special Notices
Click the green outlined boxes for more information.

Meskwaki Annual Powwow

Meskwaki Nation Times Current Issue
Tribal Center Events - Weeks: 1 2 3 4 5

Wind Energy Project and RFP info

Sac & Fox Tribe

Hello Friend, we are pleased to welcome you to the official website of the Sac and Fox Tribe of the Missouri in Iowa/Meskwaki. Our Tribe is governed by a seven member Tribal Council entrusted with the welfare of over 1,300 members. Our Settlement Lands include 7,000+ acres in two counties. Through self-determination we have made positive impacts for the people with accomplishments that include the Tribal Court, established in 2005 and Tribal Law Enforcement, established in 2006. Currently, we are undergoing revisions to our Tribe’s Constitution, which was originally created in 1934 as a part of the Indian Reorganization Act. Thanks to our Tribe’s gaming facility, we are able to continually improve and increase on our people’s quality of life.
2009 95th Annual Meskwaki Indian Powwow
August 6-7-8-9

Held on the Meskwaki Indian Settlement
Near Tama, Iowa

- Unique Ceremonial Dances
- Authentic Arts & Crafts
- Historical Preservation Exhibits
- Colorful Native Regalia
- Artisan Demonstrations
- Meskwaki Village Replica
- Food Vendors
- Field Day Events & Contests

Public Welcome!
We propose to erect an anemometer tower on a 2-acre section of land acquired in 1994 which is held in Trust.

The location is bounded on the north by Highway 30, and on the south by 305th Street. It would be erected on a local high point, a ridge of land that reaches north from the location of the Meskwaki Settlement School athletic fields.

A previous land use for the area had been pasture, but currently it is not in dedicated to any specific use. A more valuable use for the land would be for the assessment project. The Tribal Realty Officer has stated that there are no current plans to use the parcel for any other purpose.
Assessing the Feasibility of Renewable Energy Development and Energy Efficiency Deployment on Tribal Lands
Funding Opportunity Number: DE-PS36-09GO99024

Topic Area: Renewable Energy Feasibility Studies

Contact Information:

Technical POC
Thomas Gearing (Technical Principal Investigator)
349 Meskwaki Road
Tama, IA 52339
Assess Energy Needs

Meskwaki Settlement: Kilowatt Hours Used, 2007 - 2008
Meskwaki Nation – Sac & Fox Tribe of the Mississippi in Iowa
Request for Qualifications & Request for Proposals
Wind Resource Assessment

1. Introduction

1.1 Document Purpose
This document is an outline defining the needs of the Meskwaki Nation’s initiative in assessing the wind energy resource on Tribal Land with no reference to any specific vendor. The Meskwaki Nation is submitting this Request for Qualifications (RFQ) and Request for Proposal (RFP) to vendors/consultants. The responses to these requests will be used to select one or more candidate vendors for further evaluation.

1.2 Document Audience
The audience includes Tribal Council, Meskwaki Settlement School, Executive Management, Information Technology, Finance, and all identified stakeholders of the Meskwaki Nation as well as selected vendors.

2. Scope and Objectives

2.1 Scope of Work
The scope of work to be performed under this proposal shall include the securing of one anemometer tower with complete instrumentation at 3 levels and data logging and transmission. Contractor will provide for delivery of all equipment to the Tribe’s address in Tama, Iowa. Upon arrival of all necessary equipment, contractor will perform assembly and commissioning of the anemometer tower and data transmission equipment. During the one-year term of data collection, contractor shall provide for the receipt and storage of data at the contractor’s location. At year’s end, the contractor shall provide a meteorological analysis of the year’s data, producing a set of standard meteorological reports suitable for input to technical analysis for specific wind turbine models (technical analysis not to be provided under this proposal).

Please provide the methodology of your project implementation: How quickly can you deliver and install your product? What are the industry ratings of the components you have chosen? If you are aware of similar options for a particular subsystem, you may present both options with your assessment of the relative cost versus quality tradeoffs. Do you have resource maps and/or models that could suggest a more optimal placement of the tower? What type of software is used to track and process the collected information? Are intermediate results readily available if requested?
RFP Results

• 15 companies bid on our wind resource assessment project.
• 12 of the bids were fully qualified and within our budget expectations.
• The 3 best of the companies have been selected for a chance to present their proposals in person.
SITE ASSESSMENTS.

A renewable energy site assessment is the best and lowest risk option to find out if renewable energy is right for you. A certified wind or solar site assessor will meet with you at your home or business to discuss your objectives, evaluate your resource and identify several system options that would be best for your site. Within a few weeks, you'll receive a written report outlining:

- Current energy use and costs
- Wind or solar resource potential
- System design goals
- Wind and/or solar system options including performance and cost estimates
- Installation barriers
- Siting, zoning and permitting issues
- Utility interconnection issues
- Next steps

A Seventh Generation Energy site assessment will provide you with a comprehensive road map from which to evaluate the opportunities and challenges of a wind system at your site. Most importantly, we will quickly identify any fatal flaws that would stand in the way of your goals.
Wind Energy Site Assessment

Anemometry Specialists wind energy site assessment services can help save you money. The selection of a wind turbine site is crucial to the profitability of your wind project. The availability of wind, transmission lines, value of energy to be produced, cost of land acquisition, land use considerations, and environmental impact of construction and operations can have a major impact on your potential profits.

Securing the right site and fully exploiting its wind resource is critical to the long-term profitability of your project. If you secure an excellent site with sufficient grid capacity and fully exploit its wind resource, you will guarantee that your business will profit from the power you generate.

Typical site location services include:

- Site Visits
- Evaluation of Topography
- Proximity to Power Lines
- Transmission Grid Studies
- Land Use and Ownership
- Compilation of Existing Wind Data
- Environmental Studies and Restrictions
- Permitting Requirements

Our Services

Anemometry Specialists is a full service wind energy assessment company. Use the links below to find out more about our services and expertise.

- Wind Assessment
- Wind Energy Site Assessment
- Met Tower Installation
- Sodar Installation
- Wind Data Collection
- Wind Data Analysis
- Project Management & Consulting
- Tower Climb Installation
- Maintenance & Repair

Wind Power 2009

We would like to thank everyone that visited our booth during the WindPower 2009 Conference in Chicago. More than 23,000 people attended the show which
Energy Infrastructure

As global energy demand rises, resources must be expanded. WPCS supports the development and delivery of energy solutions.

World economies are growing, standards of living are improving and energy supplies are dwindling. It’s a scenario that has accelerated the search for new energy sources and better ways of delivery existing supplies. WPCS is contributing in both of these critical areas. WPCS designs and deploys alternative energy solutions in wind and solar power. Through a unique combination of scientific, geologic, engineering and construction expertise, we offer solutions in site design, solar installation, meteorological towers and wind turbine installation. In addition, we support energy companies as they maximize the efficiency of their energy supply infrastructure, by providing a range of services from pipeline trenching to the deployment of wireless solutions.

contact solutions specialist
Since Last Year ----

• How to continue the mission?
• Form Energy Leadership Team
• Invite best 3 Bidders (Contractors) -
  • 1) Site Visit/Tour
  • 2) Contractors make Their Best Pitches
• Selection Committee Picks Winner: WPCS
• P. I. goes to Tribal Council for Approval
• Legal Department polishes & vets Contract – Chairman & Vendor both sign.
Anemometer Tower Goes Up!
Jin-Pole Technique, No Crane Needed
Current Status:

• Downloading from email every morning
• 1) 14k bytes file of 24 hours data – midnight to midnight
• 2) 5k bytes file of last 6 hours data – from midnight to 6:00 AM
• Run NRG Symphonie software daily.
• Read Data and view wind speed graphs
• Load the 24 hour file to site database.
2 Email Files Every Day
NRG – Symphonie Data Retriever
Previous day – 24 Hours Wind Speeds

| Averages | 10/02/2010 00:00:00 | 10/02/2010 01:00:00 | 10/02/2010 02:00:00 | 10/02/2010 03:00:00 | 10/02/2010 04:00:00 | 10/02/2010 05:00:00 | 10/02/2010 06:00:00 | 10/02/2010 07:00:00 | 10/02/2010 08:00:00 | 10/02/2010 09:00:00 | 10/02/2010 10:00:00 | 10/02/2010 11:00:00 | 10/02/2010 12:00:00 | 10/02/2010 13:00:00 | 10/02/2010 14:00:00 | 10/02/2010 15:00:00 | 10/02/2010 16:00:00 | 10/02/2010 17:00:00 | 10/02/2010 18:00:00 | 10/02/2010 19:00:00 | 10/02/2010 20:00:00 | 10/02/2010 21:00:00 | 10/02/2010 22:00:00 | 10/02/2010 23:00:00 |
|----------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 1 - NRG #40 Anem. m/s | 5.6 | 5.7 | 7.7 | 6.8 | 7.0 | 7.0 | 6.9 | 7.1 | 7.3 | 7.3 | 6.3 | 6.0 | 5.5 | 6.0 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 | 5.6 |
| 2 - NRG #40 Anem. m/s | 5.1 | 5.2 | 7.2 | 6.0 | 6.5 | 6.5 | 6.4 | 6.6 | 6.6 | 6.6 | 5.9 | 5.7 | 5.7 | 5.7 | 5.3 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| 3 - NRG #40 Anem. m/s | 5.3 | 6.3 | 7.3 | 6.1 | 6.7 | 6.5 | 6.4 | 6.7 | 7.1 | 6.0 | 6.0 | 5.8 | 5.6 | 5.1 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 |
| 4 - SCM Installed | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 - No SCM Installed | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 - No SCM Installed | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 - #201P Wind Vane | 13 | 24 | 23 | 20 | 21 | 22 | 20 | 18 | 16 | 17 | 15 | 14 | 13 | 10 | 11 | 11 | 9 | 8 | 5 | 7 | 5 | 7 |
| 8 - #201P Wind Vane | 14 | 22 | 21 | 17 | 15 | 14 | 17 | 14 | 13 | 12 | 10 | 9 | 8 | 5 | 5 | 5 | 3 | 2 | 2 | 1 | 1 | 1 |
| 9 - NRG #410 Temp C | 11.6 | 11.8 | 11.8 | 11.8 | 11.6 | 11.3 | 11.1 | 10.5 | 10.6 | 10.9 | 9.7 | 9.7 | 9.5 | 9.1 | 8.9 | | | | | | | |
| 10 - California | 13.5 | 13.6 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | | | | | | | |
| 11 - No SCM Installed | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 - No SCM Installed | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 - NRG #40 Anem. m/s | 4.9 | 5.9 | 6.8 | 5.7 | 6.2 | 6.2 | 6.0 | 6.4 | 6.8 | 6.5 | 5.6 | 5.4 | 4.9 | 5.4 | | | | | | | | |
| 14 - NRG #40 Anem. m/s | 4.7 | 6.0 | 7.1 | 6.0 | 6.2 | 6.0 | 5.8 | 6.3 | 6.8 | 6.6 | 5.9 | 5.6 | 5.3 | 4.8 | 5.4 | | | | | | | |
| 15 - NRG #40 Anem. m/s | 4.3 | 5.6 | 6.5 | 5.5 | 5.6 | 5.6 | 5.4 | 5.8 | 6.2 | 5.9 | 5.2 | 5.1 | 4.9 | 5.4 | 4.5 | 4.9 | | | | | | | |
Today – Midnight to 6:00 AM
Database Menu: Import & Report
Select Frequency Distribution Report
Reports – Frequency Distribution

Site Information:
- Project: Meskwaki Settlement Wind Study
- Location: Tama, Iowa
- Elevation: 302 m

Sensor on channel 1:
- NRG #40 Anem. m/s
- Height: 58.5 m
- Serial #: SN151228

September 2010
Frequency Distribution Ch 1
SITE 1029
Meskwaki Settlement

Frequency Distribution

<table>
<thead>
<tr>
<th>Wind Speed in m/s</th>
<th>Relative Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
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<td>15</td>
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<td>20</td>
<td>16</td>
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<td>18</td>
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<tr>
<td>30</td>
<td>20</td>
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<td>35</td>
<td>15</td>
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<tr>
<td>40</td>
<td>10</td>
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<tr>
<td>45</td>
<td>6</td>
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<tr>
<td>50</td>
<td>4</td>
</tr>
<tr>
<td>55</td>
<td>2</td>
</tr>
</tbody>
</table>

Generated Tuesday, October 05, 2010
Total 10-minute intervals: 4330 - Intervals used in calculations: 4330 - Percent data used: 100
NRG Systems SDR Version 6.95
Reports – Wind Speeds

Site Information:
- Project: Meskwaki Settlement Wind Study
- Location: Tama, Iowa
- Elevation: 302 m

Sensor on channel 1:
- NRG #40 Anem. m/s
- Height: 58.5 m
- Serial #: SN151228

September 2010
Hourly Averages Graph Ch 1
SITE 1029
Meskwaki Settlement

Average Hourly Values

Average Value: 6.0

Generated Tuesday, October 05, 2010
Total 10-minute intervals: 4320
Intervals used in calculations: 4370
Percent data used: 100
NRG Systems SDSR Version 8.05
Reports – Wind Rose

September 2010
Wind Rose Ch 1, 7
SITE 1029
Meskwaki Settlement

Site Information:
Project: Meskwaki Settlement Wind
Location: Tama, Iowa
Elevation: 302 m

Anemometer on channel 1:
NRG #40 Anem. m/s
Height: 58.5 m
Serial #: SN151228

Vane on channel 7:
#200P Wind Vane
Height: 52 m
Serial #: SN:

Outer Numbers are Average TIs for speeds greater than 4.5 m/s
Inner Circle = 0%
Outer Circle = 20%

- Black: Percent of Total Wind Energy
- Gray: Percent of Total Time
Still to Do ---

• Quarterly Wind Data Analyses
• Environmental Assessment
• Archaeological Assessment
• Community Outreach
• Annual Wind Data Analyses
• Technical Analysis – Turbine Models
• Business Plan for first Wind Turbine
## Project Timeline

<table>
<thead>
<tr>
<th>Event</th>
<th>Scheduled Completion</th>
<th>Actual Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Award signed by Tribal Energy Program Budget Office</td>
<td>5/28/2010</td>
<td></td>
</tr>
<tr>
<td>Identify internal team members and assign roles and responsibilities</td>
<td>5</td>
<td>6/30/2010</td>
</tr>
<tr>
<td>Inspect site for anemometer tower to be erected</td>
<td>6</td>
<td>10/1/2009</td>
</tr>
<tr>
<td>Develop outside consulting firms qualification</td>
<td>7</td>
<td>3/1/2009</td>
</tr>
<tr>
<td>Obtain necessary permits for tower</td>
<td>14</td>
<td>4/8/2009</td>
</tr>
<tr>
<td>Prepare Bid and Proposal Package</td>
<td>15</td>
<td>8/15/2009</td>
</tr>
<tr>
<td>Conduct public Bid and Proposals (B&amp;P) solicitations along with focused B&amp;P solicitation</td>
<td>30</td>
<td>9/1/2009</td>
</tr>
<tr>
<td>Receive Solicitation Results</td>
<td>35</td>
<td>9/9/2009</td>
</tr>
<tr>
<td>Conduct Bidders Evaluation</td>
<td>40</td>
<td>8/4/2010</td>
</tr>
<tr>
<td>Prepare Award Recommendations</td>
<td>42</td>
<td>8/4/2010</td>
</tr>
<tr>
<td>Obtain Award Approvals from Meskwaki Executive Management and Council</td>
<td>45</td>
<td>8/6/2010</td>
</tr>
<tr>
<td>Award Anemometer Tower &amp; Consulting Contract</td>
<td>48</td>
<td>8/6/2010</td>
</tr>
<tr>
<td>Complete signing process for contract</td>
<td>48</td>
<td>8/23/2010</td>
</tr>
<tr>
<td>Prepare tribal construction crews to take training on anemometer tower assembly and erection</td>
<td>55</td>
<td>n/a</td>
</tr>
<tr>
<td>Oversee arrival of equipment components and secure all items</td>
<td>80</td>
<td>8/25/2010</td>
</tr>
<tr>
<td>Manage participation of tribal crew with consultant’s crew for the assembly and erection of the assessment tower and attached equipment</td>
<td>83</td>
<td>n/a</td>
</tr>
<tr>
<td>Verify proper measurement, recording and transmission of data</td>
<td>86</td>
<td>8/25/2010</td>
</tr>
<tr>
<td>Verify proper functioning of receipt of data, signoff on commissioning tower</td>
<td>89</td>
<td>9/1/2010</td>
</tr>
<tr>
<td>Establish regular schedule of equipment checks and perform equipment checks during project year</td>
<td>90</td>
<td>9/1/2010</td>
</tr>
<tr>
<td>Plan for actions necessary for repair/replacement of defective equipment</td>
<td>90</td>
<td>9/1/2010</td>
</tr>
<tr>
<td>Natural Resources solicits contractor for Environmental Assessment</td>
<td>92</td>
<td></td>
</tr>
<tr>
<td>Perform more extensive Community Load Assessment</td>
<td>122</td>
<td></td>
</tr>
<tr>
<td>Create short-list of available turbines &amp; obtain power curve data</td>
<td>365</td>
<td></td>
</tr>
<tr>
<td>Sign-off for 12 months correctly acquired data &amp; initiate meteorological analysis of data</td>
<td>455</td>
<td></td>
</tr>
<tr>
<td>Transmission discussion resulting in a formal Connection Plan</td>
<td>455</td>
<td></td>
</tr>
<tr>
<td>Sign-off on meteorological analysis and initiate technical/engineering analysis with turbine short list</td>
<td>486</td>
<td></td>
</tr>
<tr>
<td>Select optimum turbine choice</td>
<td>486</td>
<td></td>
</tr>
<tr>
<td>Organize information, submit to contractor to create business plan</td>
<td>486</td>
<td></td>
</tr>
<tr>
<td>Assemble business plan &amp; all assessment reports</td>
<td>516</td>
<td></td>
</tr>
<tr>
<td>Produce proposal for wind turbine project</td>
<td>547</td>
<td></td>
</tr>
</tbody>
</table>

* Days are defined as routine and customary work days (after Grant Award date).

n/a = tribal training postponed based on recommendation from contractor.
Thank You!

• Questions?