Spirit Lake Tribe

1.5 MW Community Wind Turbine Project

Presented by
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Jim Yockey – Baker Tilly Virchow Krause, LLP

DOE Annual Program Review
December 2018
Presentation Outline

- Background of Spirit Lake Tribe
- Project Overview & Location
- Progress to-date
- Project Participants
- Next steps
- Questions
Background

• Located in east-central North Dakota
• Federally Recognized - Treaty of 1867 between US Government and Sisseton Wahpeton Sioux Bands
• Tribal Leadership consists of Chairperson, Secretary-Treasurer, and Four District Representatives (one District Representatives voted as Vice Chair)
  • Crow Hill, Fort Totten, Mission and Woodlake Districts
• 245,000 acres (383 square miles)
  • 93,000 acres – Tribally owned, allotted trust, and government
  • 152,000 acres – Fee Land
• Enrollment
  • 7,256 members but only 2,069 reside within the boundaries
Map of Spirit Lake Reservation
Background (continued)

- Changed IHS Clinic to Spirit Lake Health Center – June 1, 2016
  - Control of contract and operations – Self Governance
  - Still receive federal dollars
- First Net Zero School on Tribal Land – December 13, 2017
- Previous efforts with Wind Energy
  - Micon 108 Wind Turbine
  - Installed in 1997-98, lasted about 10 years
  - Used from Palm Springs
- Early 2000’s Spirit Lake Tribe proposed a 49.5 MW Wind Farm Project
Net Zero School

- Geothermal Heating and Cooling System
- Solar Panels
- Daylighting Tubes
- LED Lighting
- Insulated walls and roof
- Educational displays

What does it mean to be net zero? A net zero building is an energy efficient building that produces more energy than it uses.
Tribal Entities

- **Sioux Manufacturing Corporation – 250,000 sq ft**
  - Opened doors in 1974 as a joint venture with Brunswick Corporation
  - DoD funded contracts through Small Business Administrations 8(a) program and included manufacture of camouflage systems for the U.S. Army and other DoD elements
  - 1989, Spirit Lake Tribe purchased remaining share from Brunswick Corp and gained full ownership
  - Currently manufactures composite armor made from Kevlar, S-2 Glass, Spectra Shield and E-Glass
Tribal Entities (continued)

Spirit Lake Housing Corporation – The Spirit Lake Housing corporation will provide low income, quality housing in a safe and healthy environment to the people of the Mni Wkan Oyate.

CCCC provides opportunities that lead to student independence and self-sufficiency through academic achievement and continuation of the Spirit Lake Dakota language and culture.

The Mission of the Four Winds Community School is to produce learners who excel academically, physically, spiritually, and socially by expanding curriculum and activities, increasing community involvement and integrating culture in the school environment.
Tribal Entities (continued)

- Spirit Lake Casino and Resort
  - June 1, 1996
  - 49,000 sq ft
  - $7 million cost
  - 35 new jobs
Project Overview

- Project will address the energy cost on the Spirit Lake Reservation
- Currently served by three different power companies
  1. Ottertail Power Company
  2. Northern Plains Electric Co-op
  3. Nodak Electric Co-op
- Project goal is to reduce the electrical energy use of Tribal and Residential buildings within the boundaries of Spirit Lake Nation
- Small Scale and Large Scale Wind Turbine Project
- Energy Analysis and Organizational Assessment
- Energy and Mineral Development Program (EMDP) Grants
- Tribal Energy Development Capacity (TEDC) Grants
Project Model: Energy Project development in context of TUA

- $300K LIHEAP
- ~$345k avoided energy costs
- Large Wind Project
- Lease and Dev fee $150K
- $235k WAPA Credit

DG Wind Project

Tribal members
Project Location

- ND has the best wind resource in US but only 16% of its electricity generation is from wind
- Fort Totten, MD: Estimated wind speed = 8.2 m/s
  - Good wind resource for an economically feasible project
- Capacity factor: 44-48%
- Likely Vinsys 1.5 MW Turbine
Project Pro-Forma

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Power Output (kWh/year)</td>
<td>5,501,664</td>
</tr>
<tr>
<td>Average Cost of Electricity ($/kWh)</td>
<td>$0.12</td>
</tr>
<tr>
<td>Nominal Electricity Escalation Rate (%/year)</td>
<td>2%</td>
</tr>
<tr>
<td>Analysis Period (Years)</td>
<td>26</td>
</tr>
<tr>
<td>Total Installed Cost / Lease Initial Cost</td>
<td>$4,500,000</td>
</tr>
<tr>
<td>Payback Period (SPB)</td>
<td>7</td>
</tr>
<tr>
<td>Rate of Return (IRR)</td>
<td>15%</td>
</tr>
<tr>
<td>Net Present Value (NPV)</td>
<td>$9,469,808</td>
</tr>
</tbody>
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Nominal Dollar Cash Flow

- Cumulative Net Cash-Flow
- Cash-Flow
Key strategic element – control of interconnecting means

- Two substations located on trust lands
  - Otter Tail Power Company
  - Central Power Electric Co-op
**Spirit Lake Tribal Utility Roadmap**

This is a living document, and should be updated quarterly. October 2017

<table>
<thead>
<tr>
<th>Initiatives</th>
<th>Short-term &lt;12 months</th>
<th>Medium-term 2-3 years</th>
<th>Long-term 4 years +</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>Q1 Q2 Q3 Q4</td>
<td>Q1 Q2 Q3 Q4</td>
<td>Q1 Q2 Q3 Q4</td>
</tr>
<tr>
<td>Organizational</td>
<td>Finalize Tribal Government Org Chart w/Placeholder for Future TUA</td>
<td>Establish baseline and advanced GIS map utilization capacity (R. Brown)</td>
<td>Hire TUA GM and Clerk</td>
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<td>Establish formal TUA charter</td>
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<td></td>
<td>Establish System for aggregation and distribution/utilization of LIHEAP and/or WAPA Credits</td>
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<td></td>
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<tr>
<td>Legal &amp; Regulatory</td>
<td>Explore implementation of the Hearth Act as it relates to implementation of energy and other projects on trust land</td>
<td>Implement Hearth Act Leasing Regulations</td>
<td>Determine leverage with three utilities (OTP, NoDak, NP) and execute strategy</td>
</tr>
<tr>
<td></td>
<td>Confirm wind energy project site control and refresh appropriate documents</td>
<td>Review GIS mapped energy assets relative to fee/trust land, ownership, ROW issues</td>
<td>Explore other agreements/partnership opportunities for large scale development revenues based on leverage and asset mapping</td>
</tr>
<tr>
<td></td>
<td>Meet with Otter Tail Power, discuss wind projects and prior legal/regulatory history on reservation</td>
<td>Continue dialogue with Otter Tail Power</td>
<td>Explore opportunities, if any, for acquisition of distribution assets</td>
</tr>
<tr>
<td>Energy Infrastructure</td>
<td>Development and implementation of small (1 turbine) wind project</td>
<td>Explore and implement large scale wind project (20 MW) with project partner</td>
<td>Additional large scale wind projects within reservation boundaries</td>
</tr>
<tr>
<td></td>
<td>Develop energy efficiency program for tribal member housing to offset winter heating bills</td>
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*Indicates a new hire*
Participants

- Ryan Brown, Project Manager, Spirit Lake Tribal Planning Department
- Baker Tilly Virchow Krause, LLP
- WES Engineering
- Spirit Lake Tribal Council
- Department of Energy, Office of Indian Energy and Economic Development
Next Steps

• Spirit Lake Tribe and Baker Tilly will work on Establishing Tribal Utility Authority (TUA)
• Completing Environmental Assessment on 1.5 MW Wind Turbine Project site
• Provide Tribal Council with quarterly update in January/February
• Legal and Regulatory assessment
Questions???

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Happy Holidays
Safe Travels Home