

# Spirit Lake Tribe

## 1.5 MW Community Wind Turbine Project

Presented by

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DOE Annual Program Review

December 2018



# Presentation Outline



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



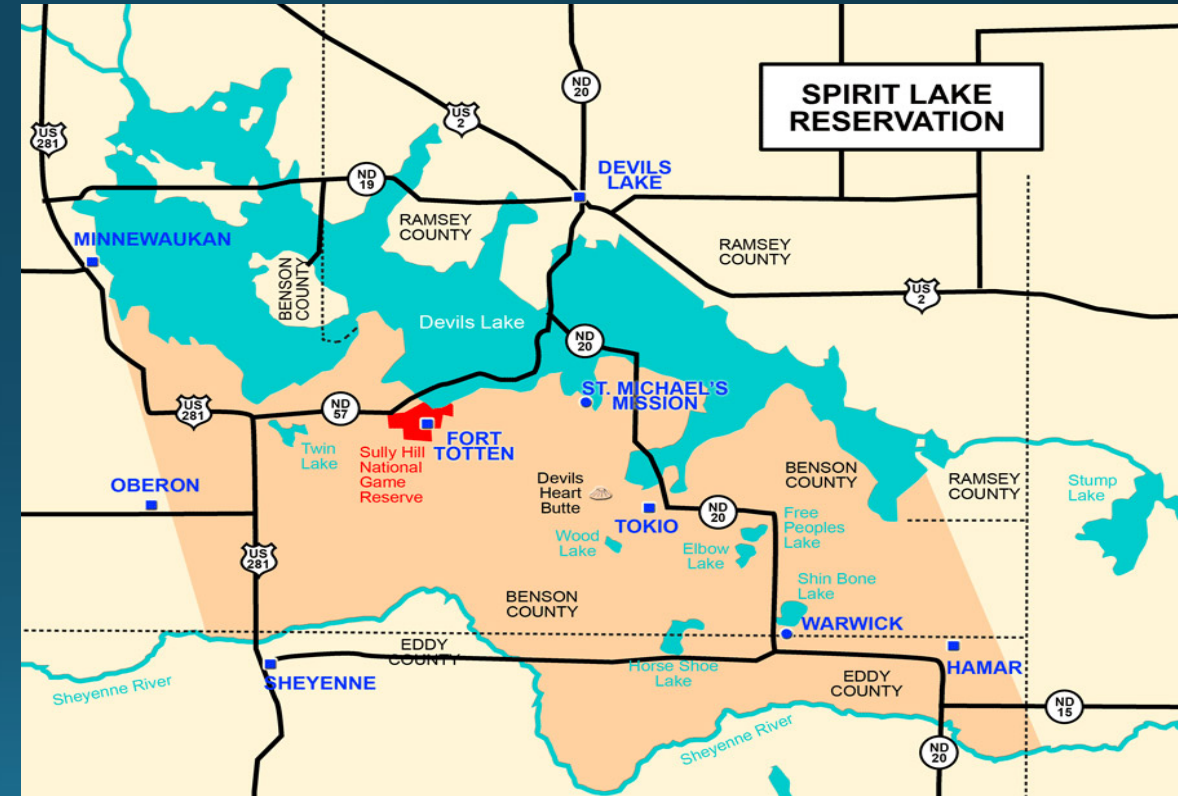
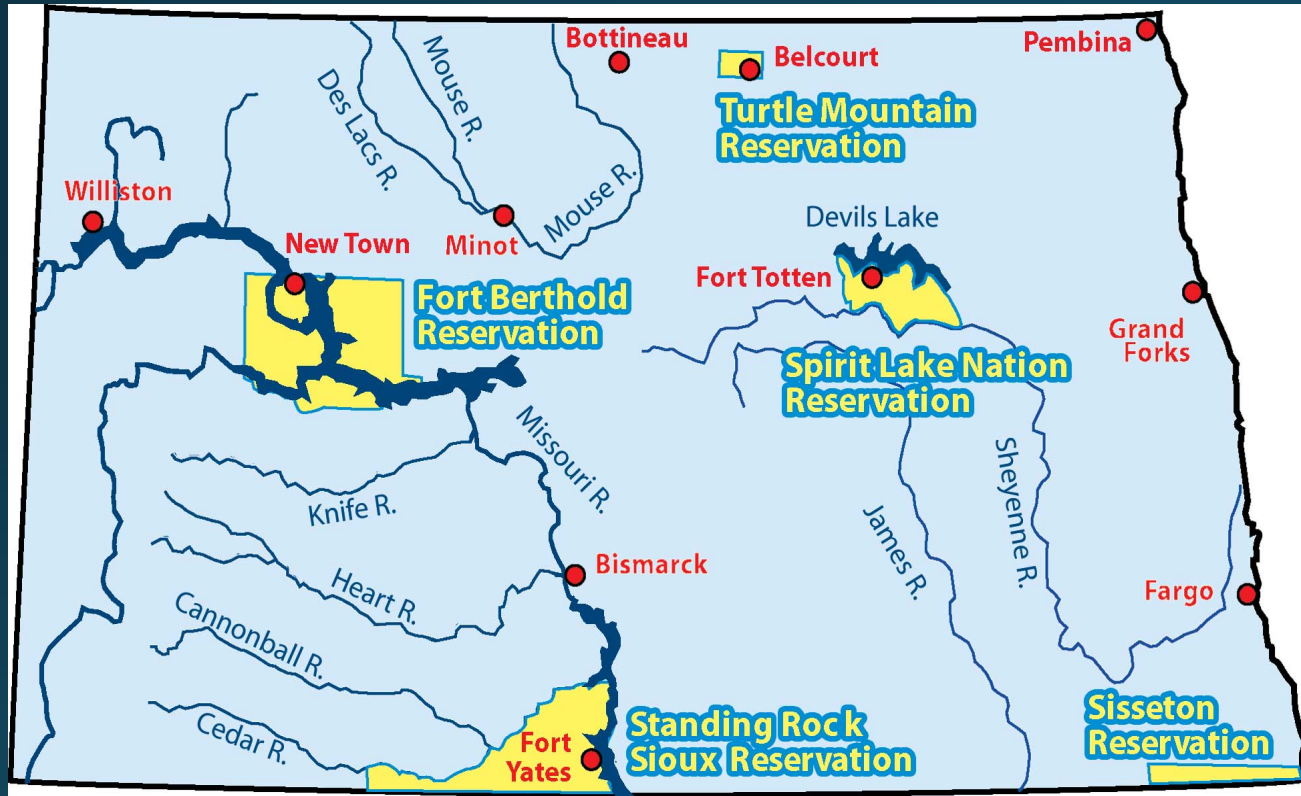
# Background



- 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 Representative 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)

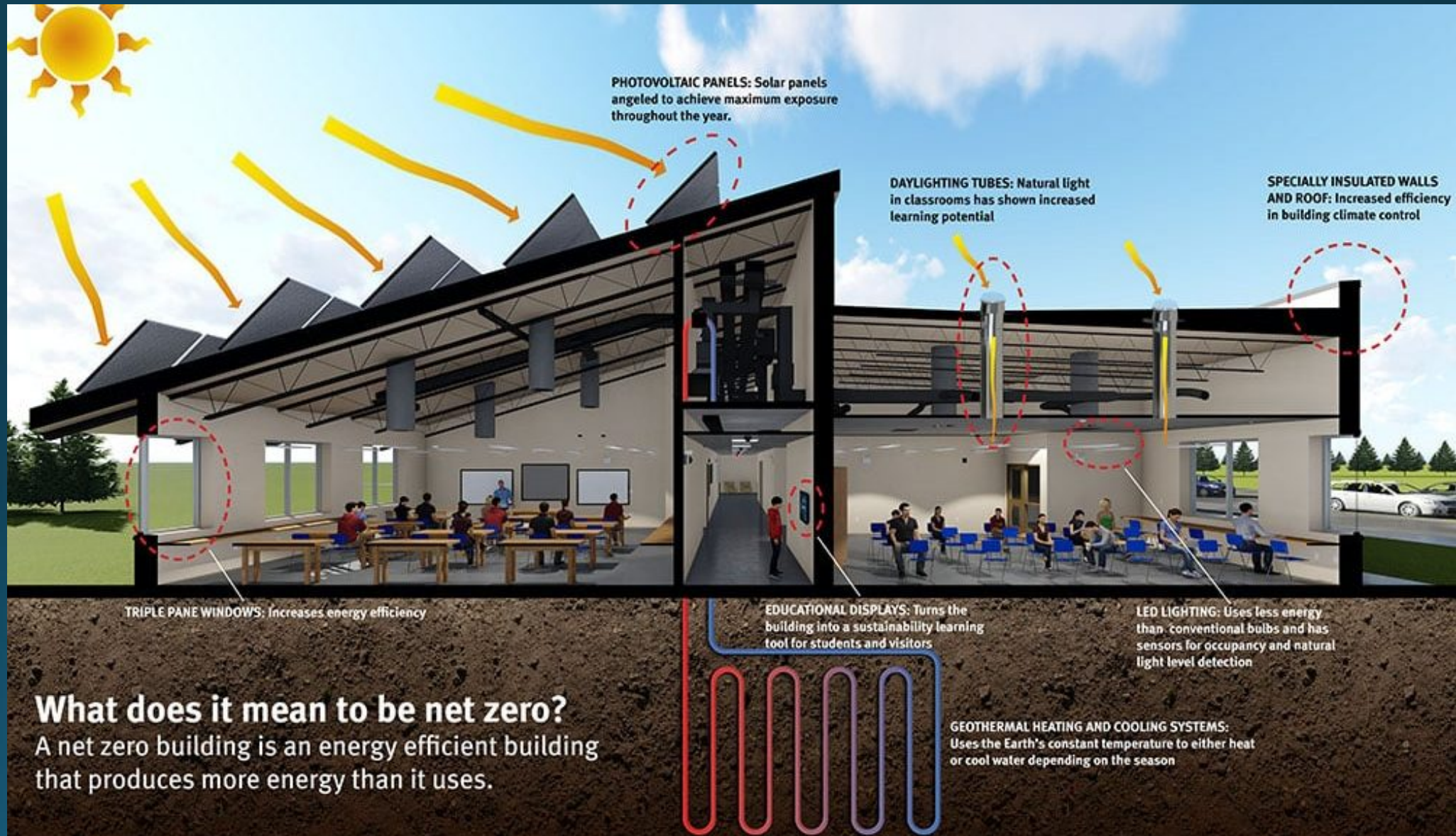


- Changed IHS Clinic to Spirit Lake Health Center – June 1, 2016
  - Control of contract and operations – Self Governance
  - Still receive federal dollars
- First Net Zero School on Tribal Land – December 13, 2017
- Previous efforts with Wind Energy
  - Micon 108 Wind Turbine
  - Installed in 1997-98, 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



# 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

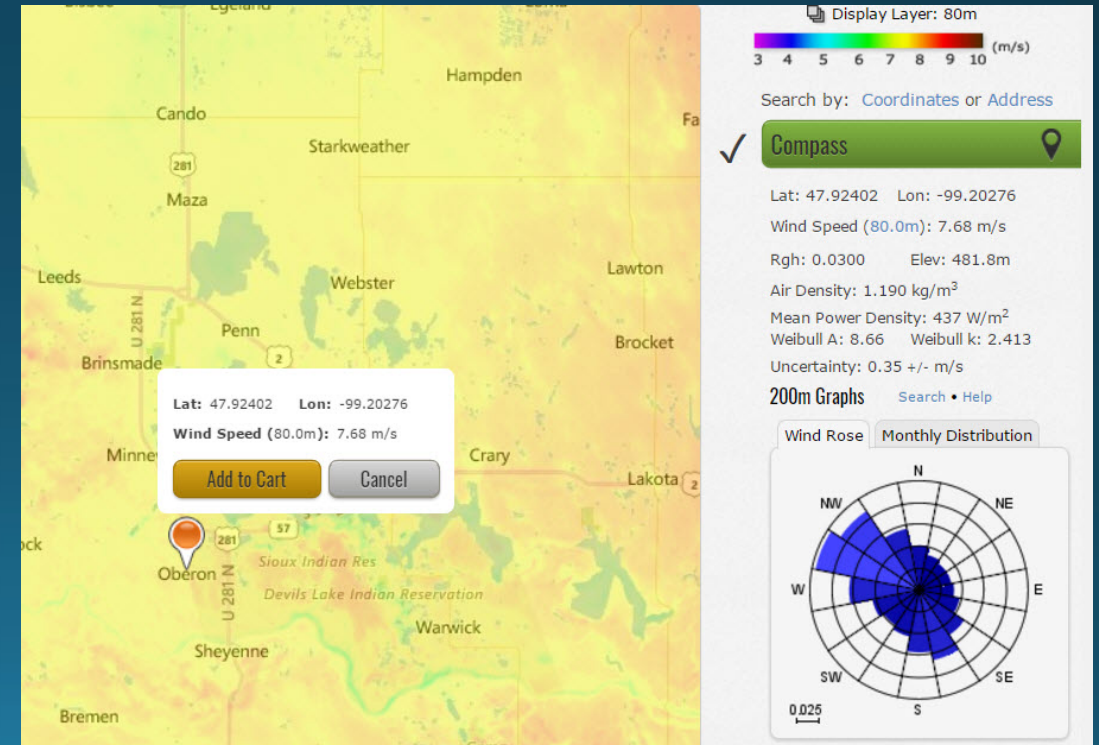
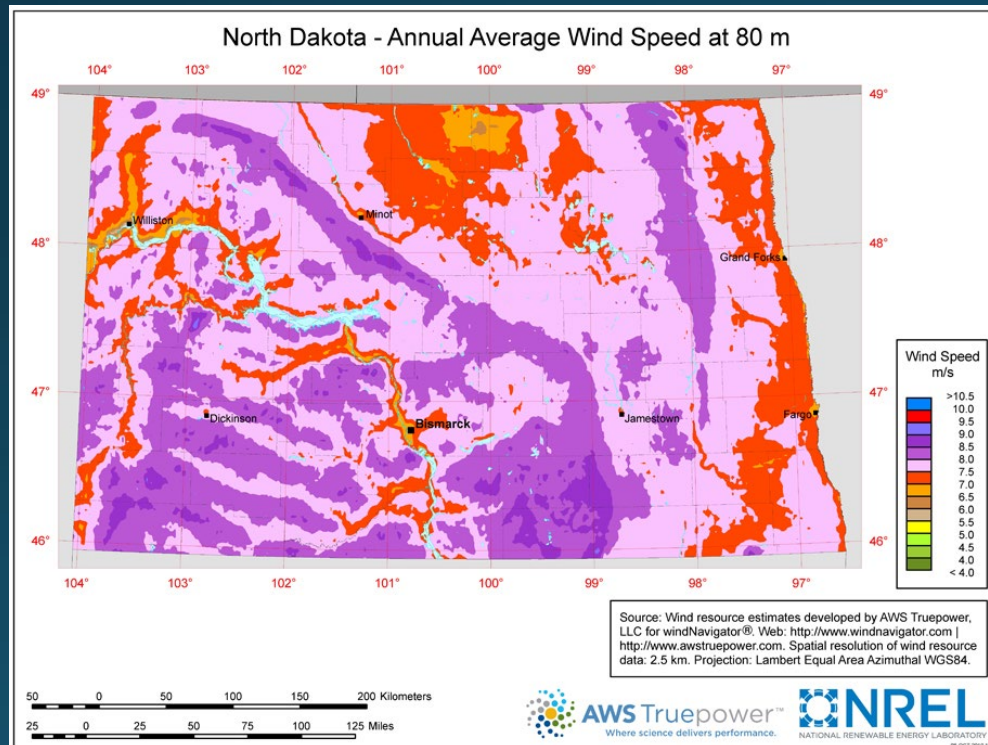
- Project will address the energy cost on the Spirit Lake Reservation
- Currently served by three different power companies
  1. Ottetail Power Company
  2. Northern Plains Electric Co-op
  3. Nodak Electric Co-op
- Project goal is to reduce the electrical energy use of Tribal and Residential buildings 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



# Project Location

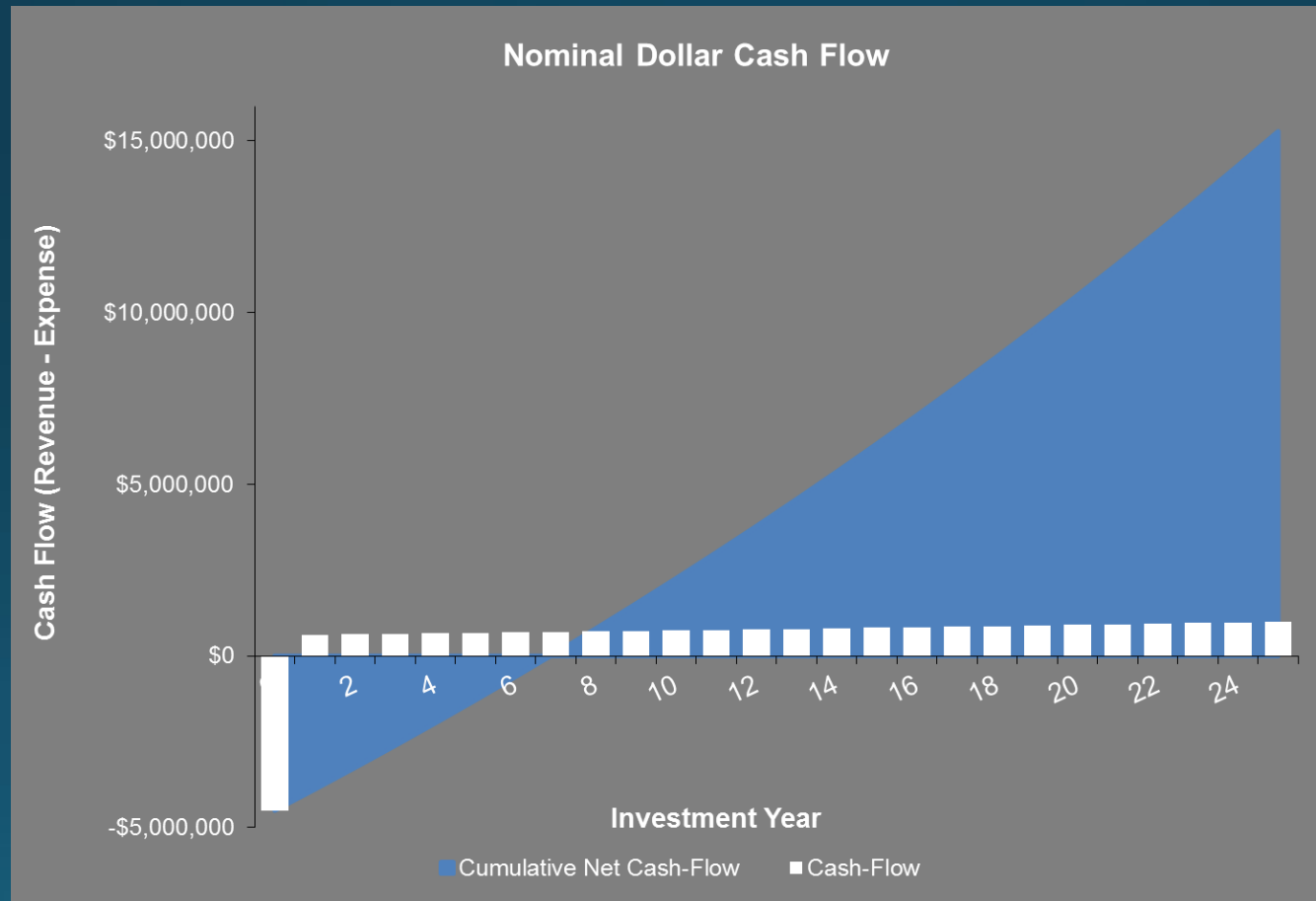
- ND has the best wind resource in US but only 16% of its electricity generation is from wind
- Fort Totten, ND: Estimated wind speed = 8.2 m/s
  - Good wind resource for an economically feasible project
- Capacity factor: 44-48%
- Likely Vinsys 1.5 MW Turbine



# Project Pro-Forma

|  |              |
|--|--------------|
| Power Output (kWh/year)                      | 5,501,664    |
| Average Cost of Electricity (\$/kWh)         | \$ 0.12      |
| Nominal Electricity Escalation Rate (%/year) | 2%           |
| Analysis Period (Years)                      | 25           |
| Total Installed Cost / Lease Initial Cost    | \$ 4,500,000 |

|                         |             |
|-------------------------|-------------|
| Payback Period (SPB)    | 7           |
| Rate of Return (IRR)    | 15%         |
| Net Present Value (NPV) | \$9,469,808 |



# Key strategic element – control of interconnecting means

- Two substations located on trust lands
  - Otter Tail Power Company
  - Central Power Electric Co-op



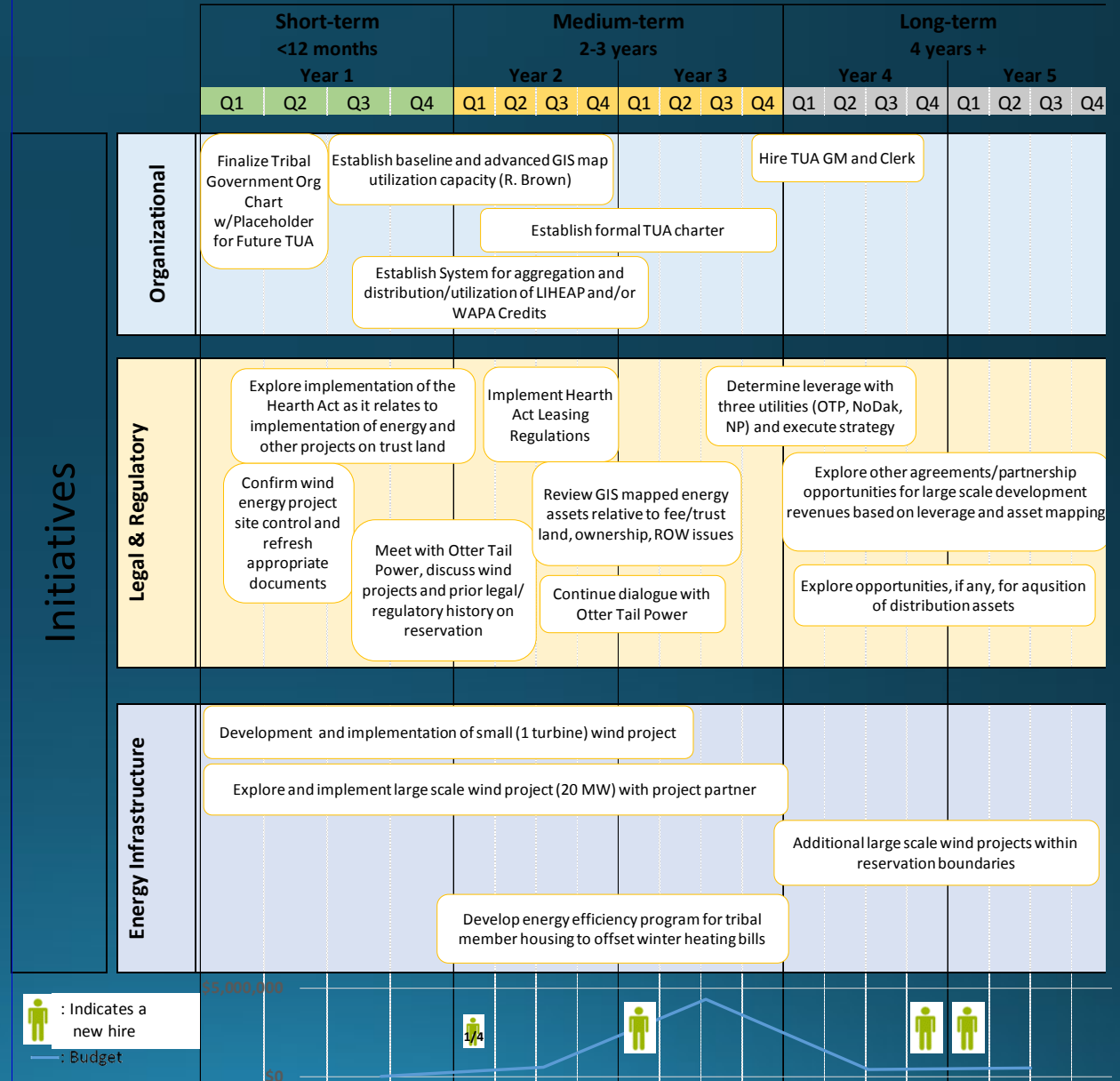
# SLT Roadmap

## Spirit Lake Tribal Utility Roadmap



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

October 2017



# Participants

- Ryan Brown, Project Manger, 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