SPIRIT LAKE TRIBE
1.5 MW COMMUNITY WIND ENERGY PROJECT

Presented by:

Ryan Brown

Director – Tribal Planning & Grants

Spirit Lake Tribe

DOE Annual Program Review

November 2023

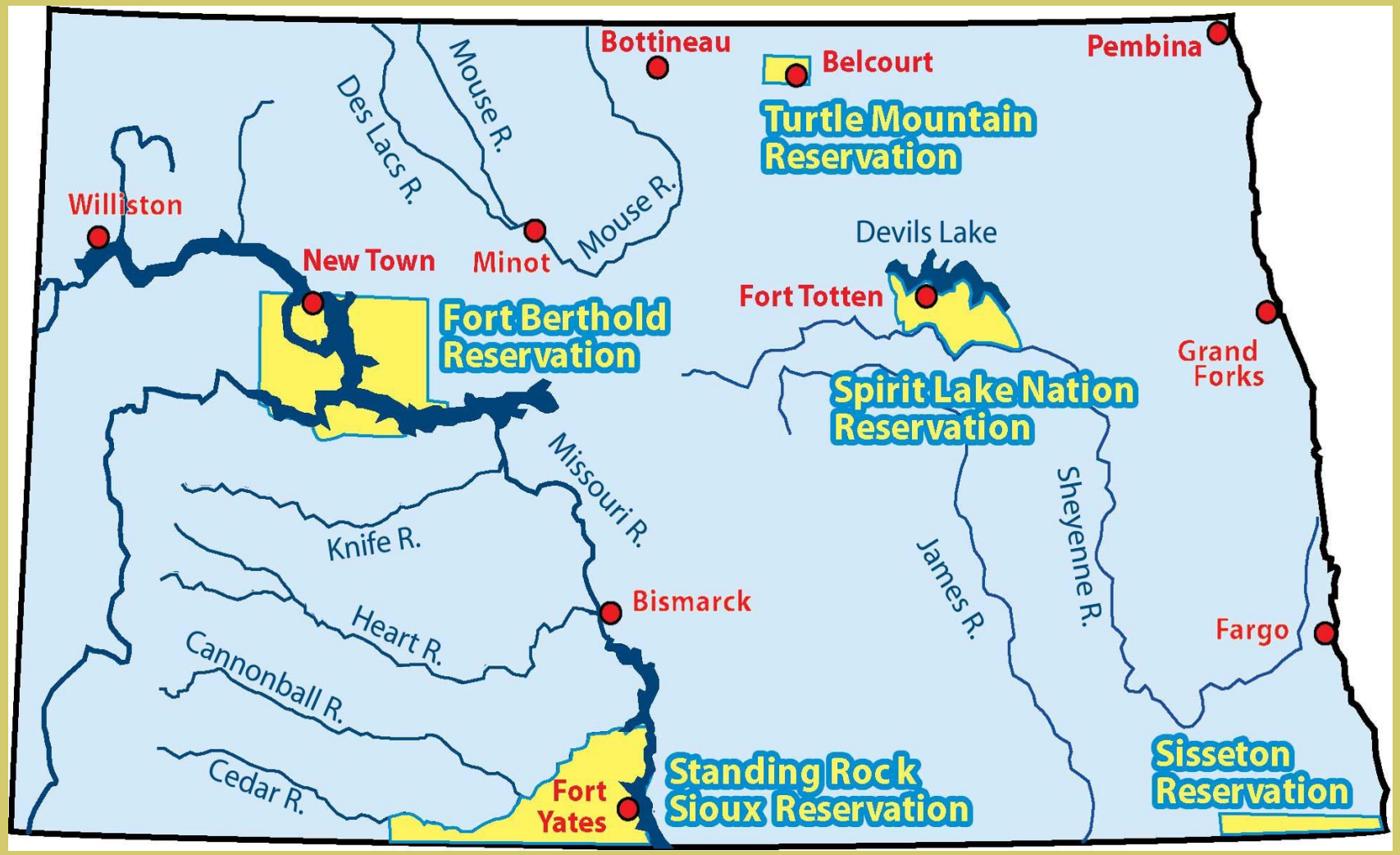
PRESENTATION OUTLINE

- Background of Spirit LakeTribe
- Project Overview & Location
- Project Costs
- Progress to-date
- Project Hurdles
- Participants
- Next steps

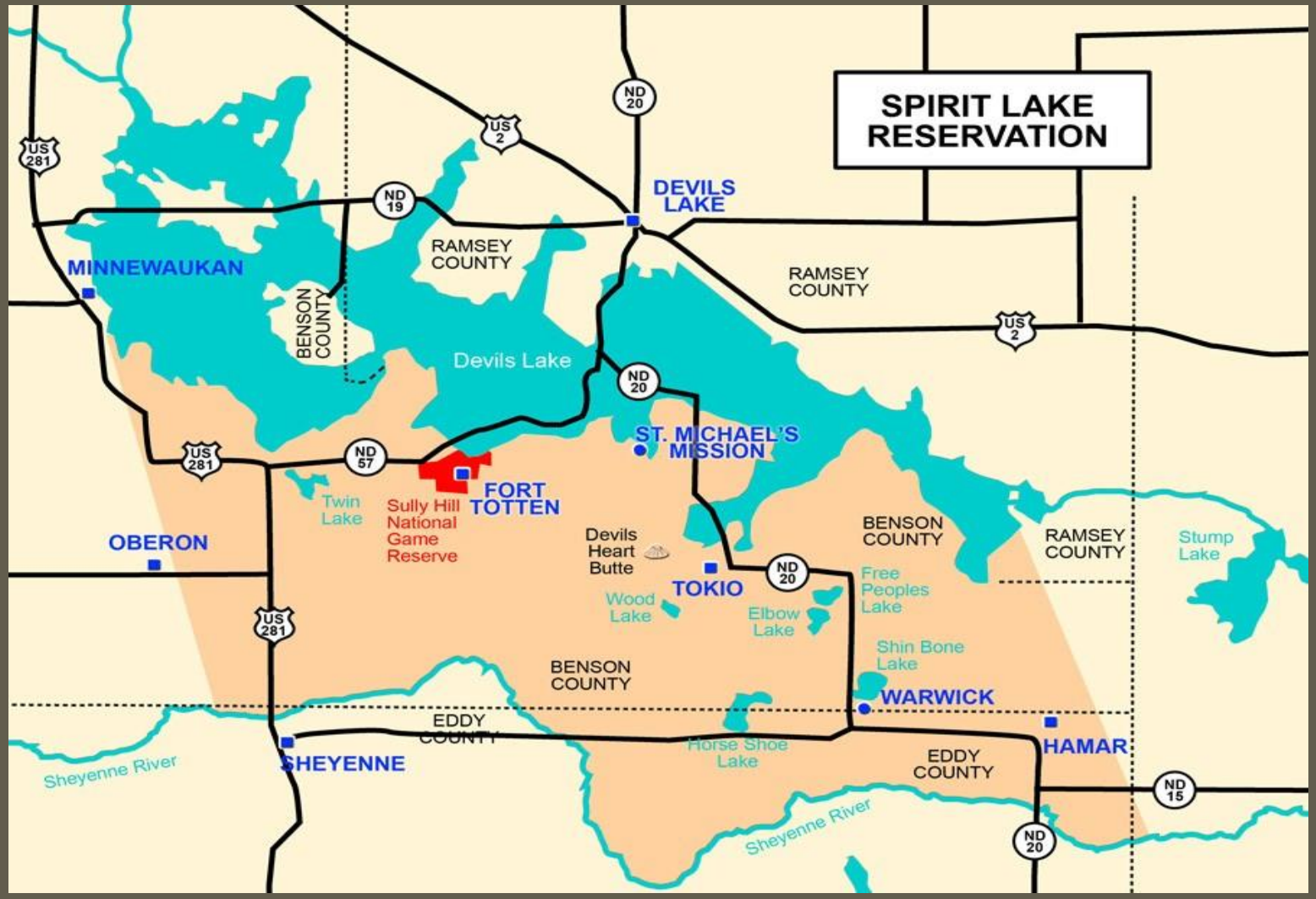
BACKGROUND

- 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)
  - 38% or 93,000 acres – Tribally owned, allotted trust, and gov
  - 62% or 152,000 acres – Fee Land
- Enrollment
  - 7,577 members but only
  - 3,674 reside within the boundaries

MAP OF SPIRIT LAKE RESERVATION



MAP OF SPIRIT LAKE RESERVATION

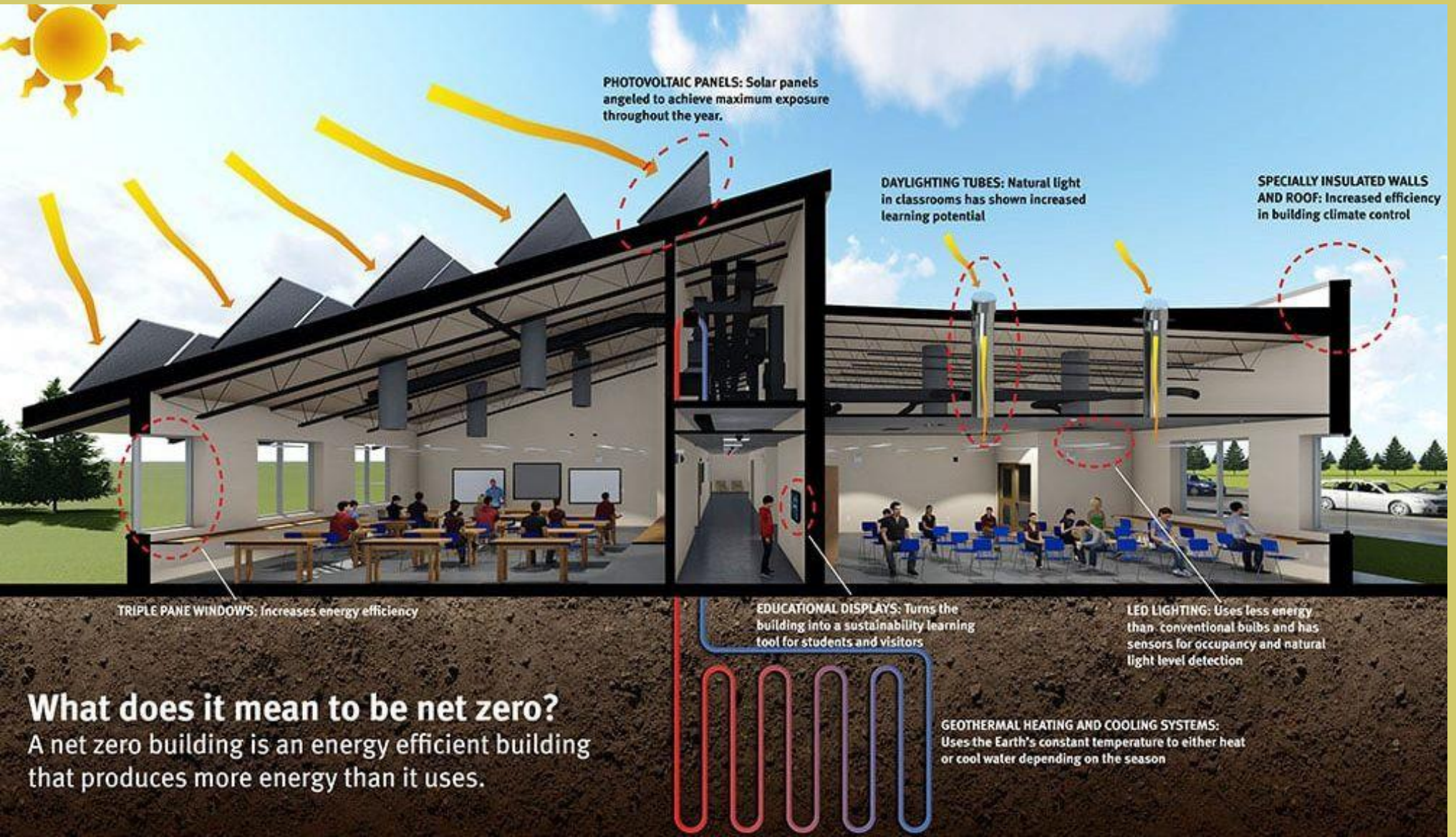


BACKGROUND (CONTINUED)

- 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
- Wind Feasibility Studies

NET ZERO SCHOOL

FIRST NET ZERO SCHOOL ON TRIBAL LANDS
DECEMBER 13, 2017



-Geothermal Heating and Cooling System

- Solar Panels
- DaylightingTubes
- LED Lighting

-High-efficiency water-to-air heat pumps

-Insulated walls and roof

-Triple pane windows

-Educational displays

NET ZERO SCHOOL

PROJECT OVERVIEW

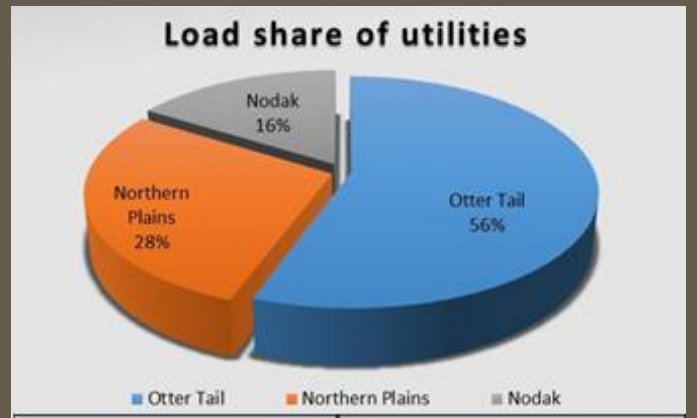
* Project will address the energy cost on the Spirit Lake Reservation
* Currently served by three different power companies
    1. Ottertail Power Company
    2. Northern Plains Electric Co-op
    3. Nodak Electric Co-op

*Project goal is to reduce the electrical energy use of Tribal and Residential buildings within the boundaries of the Spirit Lake Reservation

* Small Scale and Large Scale Wind Turbine Project
* Energy Analysis and Organizational Assessment
* Prior Tribal Utility Development frames this project

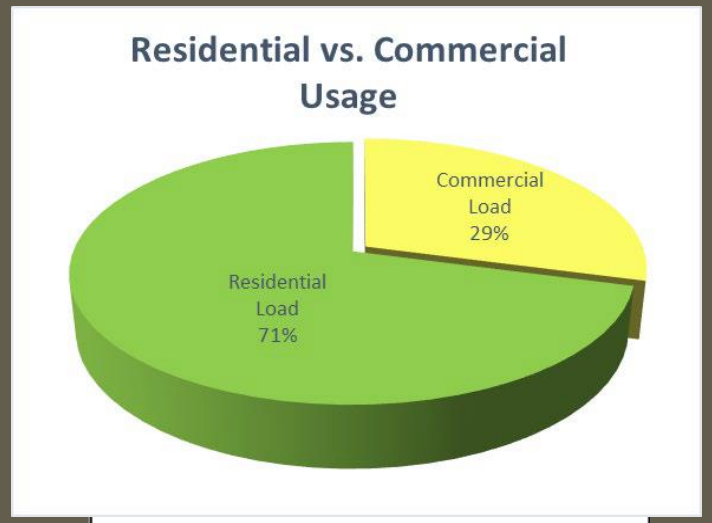
ENERGY ANALYSIS - USAGE

- The tribe is served by 3 utilities
  - Otter Tail Power Company
  - Northern Plains Electric Co-op
  - Nodak Electric Co-op



Utility	Total Usage (kWhs)
Otter Tail	15,105,886
Northern Plains	6,032,280
Nodak	3,263,172
Total	**24,401,338**

** Missing some large loads that are on the reservation*



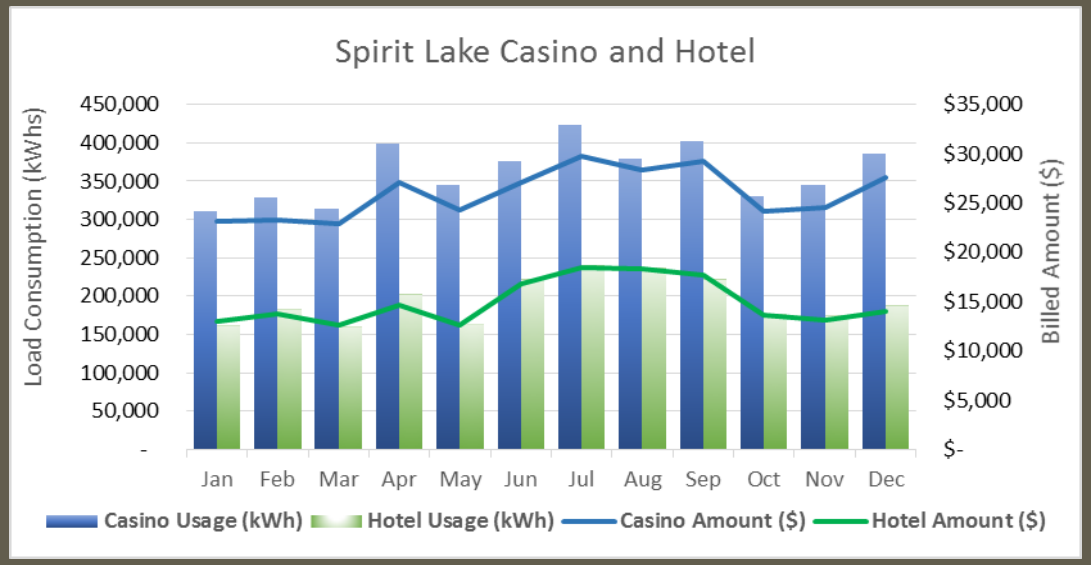
Missing Loads
Dakota Tribal Industries
Spirit Lake Fire Department
BIA Correctional Facilities
Warwick Public School
Oberon Grain Elevator
Fort Totten Historical Site
Oberon School
Sully's Hill National Game Preserve
Spirit Lake Roads Department
Other smaller loads

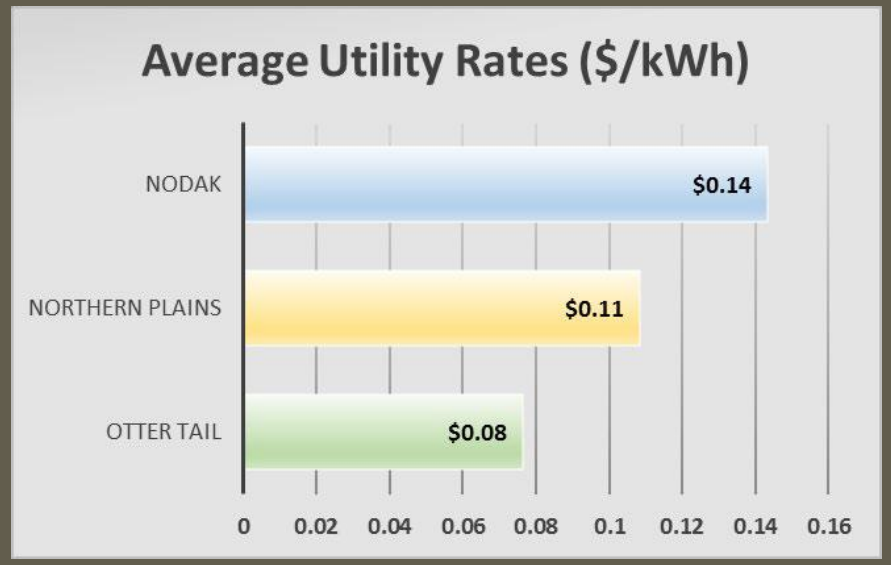
ENERGY ANALYSIS – COST OF SERVICE

Residential is the largest load followed by Casino and Hotel

- Estimated Electric Load: 24,401 MWh/year
- Total annual electricity spend: $2.27MM
- Includes Gen,Trans,Distribution

Utility	Esimated Cost of Service
Otter Tail	$1,154,068.96
Northern Plains	$663,550.80
Nodak	$456,844.08
Total	**$2,274,463.84**





KEY STRATEGIC ELEMENT – CONTROL OF INTERCONNECTING MEANS

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

PROJECT MODEL: ENERGY PROJECT DEVELOPMENT IN CONTEXT OF TUA

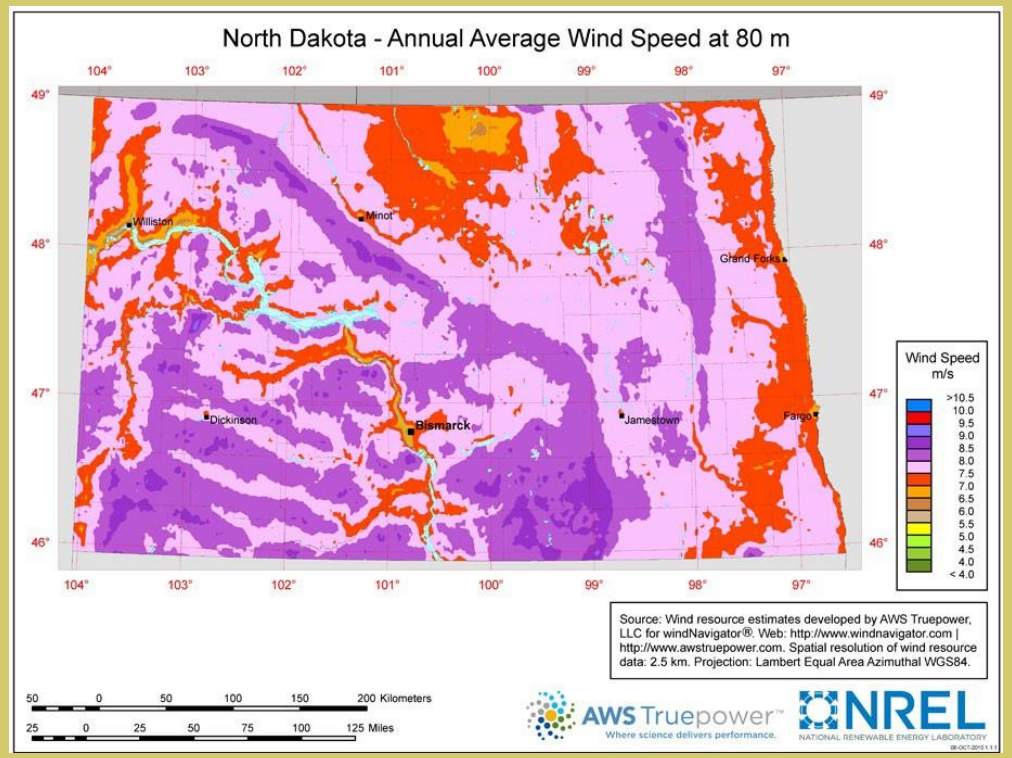
TYPE OF WIND TURBINE

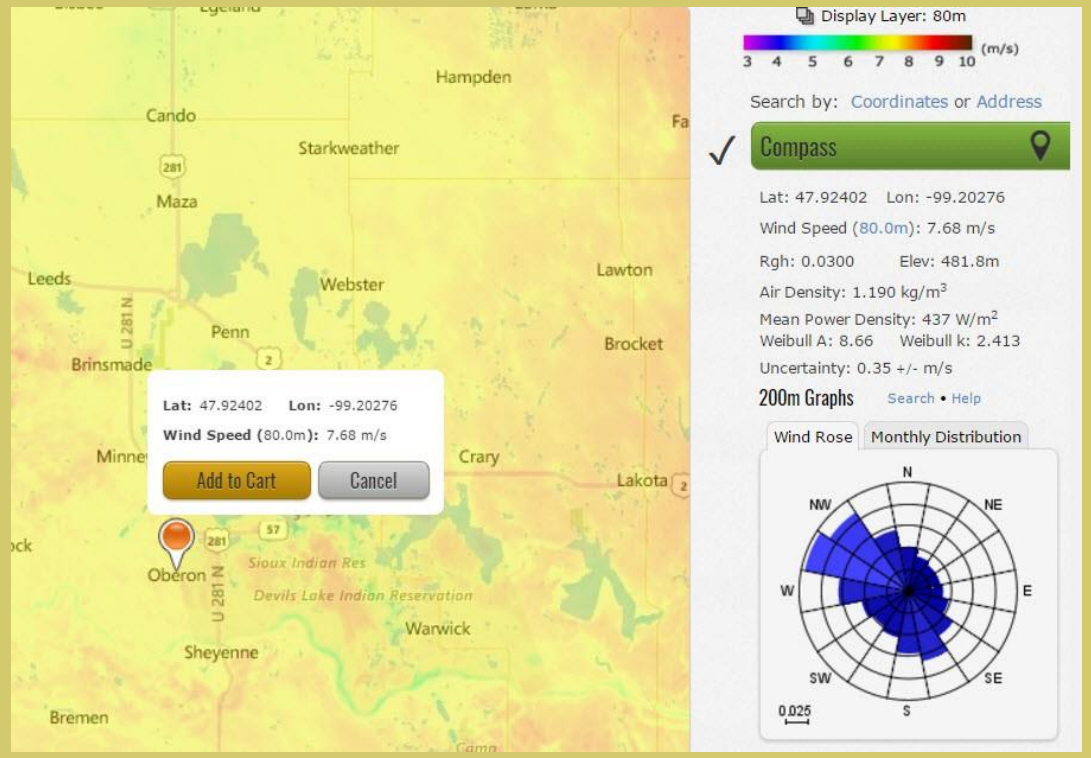
Product Benefits

- Dispensing with gearbox results in lower repair and maintenance costs
- Air cooling system used for the generator and VENSYS frequency converter saves on additional components, cooling agents and maintenance work
- Blade pitch system with a toothed belt drive is lubrication-free, resistant to wear and requires little maintenance

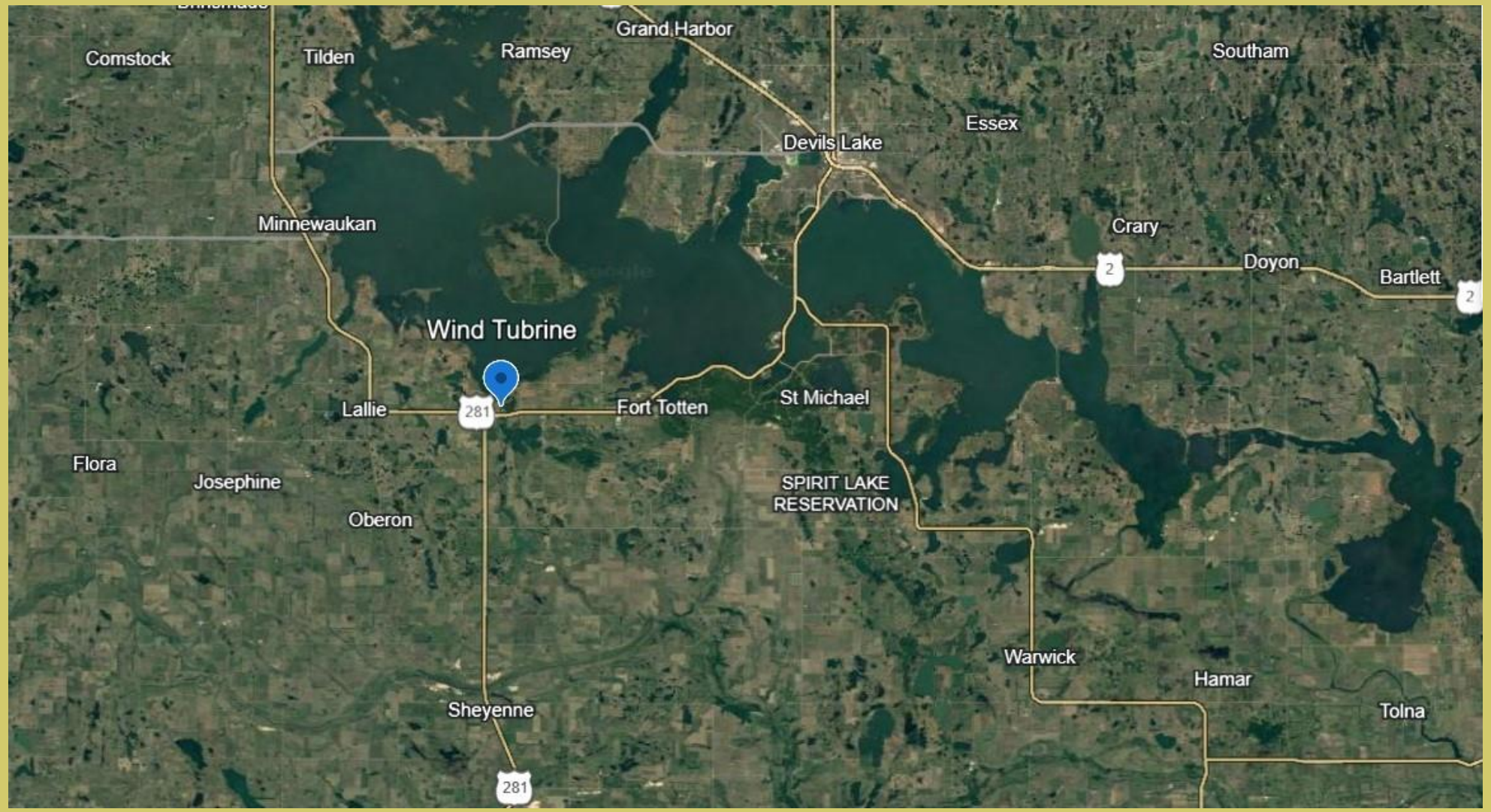
PROJECT LOCATION

- 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%



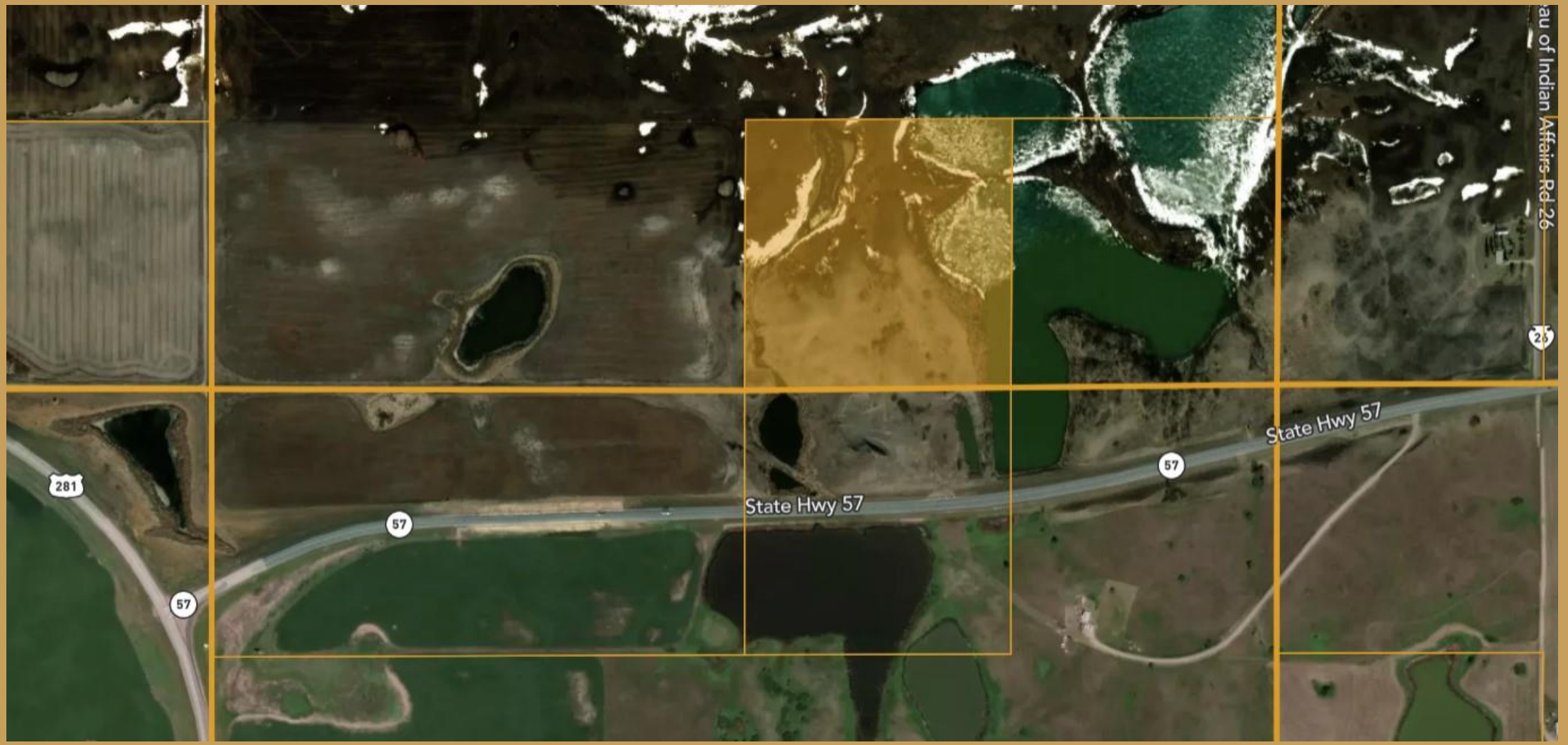


PROJECT LOCATION (CONTD)



PROJECT LOCATION (CONTD)

- 100% Tribally Owned – T3074



PROJECT COSTS

- Total Project Cost = $5,003,128

Funding Source	Amount
Department of Energy – 2018 Grant Funds	$1,000,000
• 2018 Grant Cost Share Requirement (Tribal EDF)	$500,000
Department of Energy – Cost Share Reduction	$750,000
State and Local Fiscal Recovery Funds	$1,918,721
Local Assistance and Tribal Consistency Fund	$834,407
TOTAL	**$5,003,128**

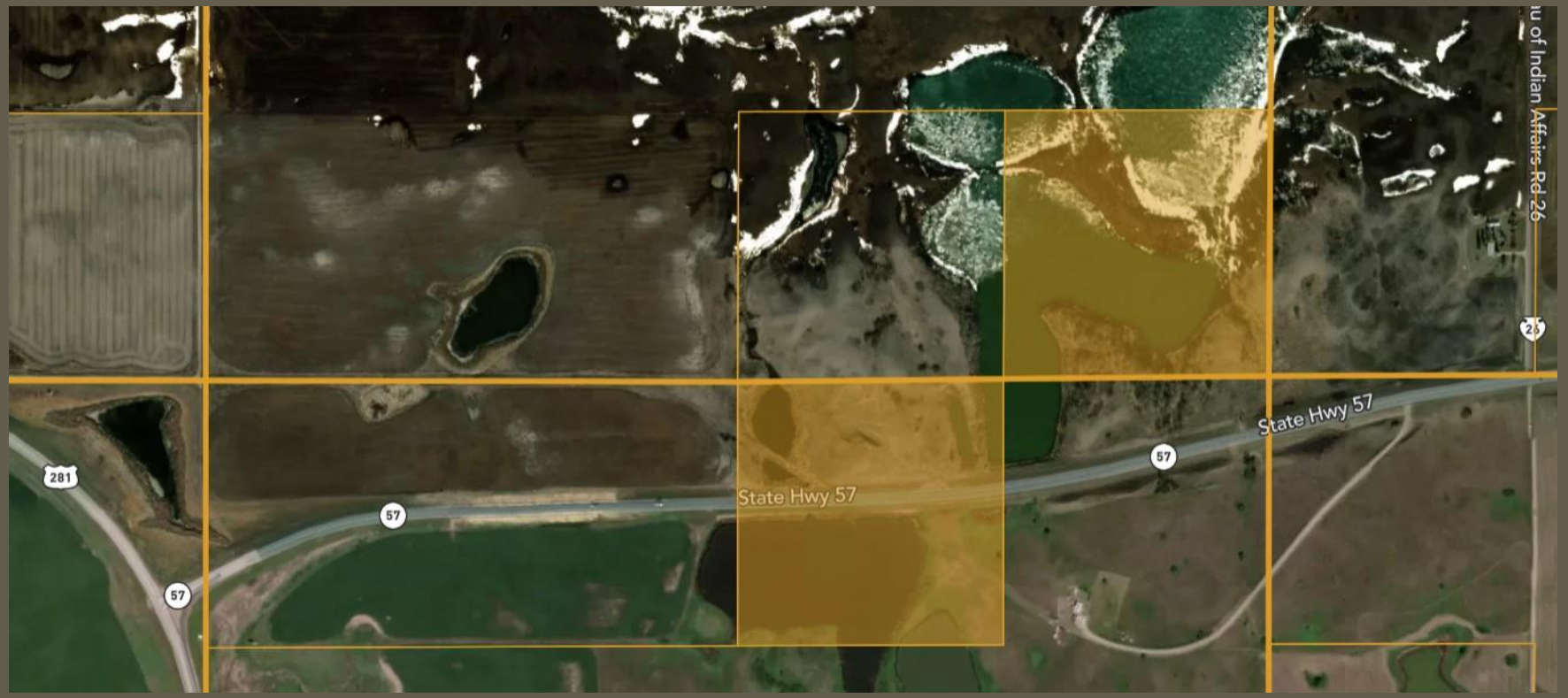
PROJECT PROGRESS

Progress Timeline:

- Grant Award/Agreement May 1, 2019
- Signed Grant Agreement by TC in Sept 2019
- Environmental Assessment completed – July 2020
- Gathered and reviewed ROW data on local substations – October 2020
- Signed new WAPA contracts – December 2020
- Final Environmental Assessment Feedback – Nov 2021
  - Additional Endangered Species Study Identified
- Begin ROW/Easement Request with Adjacent Landowner – Summer 2022
- TSA Agreement – Drafts/Final Adjustments Begin 2023
- EPC Agreement – Drafts/Final Adjustments Begin 2023
- Tribal Council Secures/Allocates Full Funding – 2023
- Interconnection Agreements signed with Ottertail – July 2023
- Interconnection Agreements signed with Northern Plains – Nov 2023
- Submit Final Spending Plan to DOE – Nov 2023

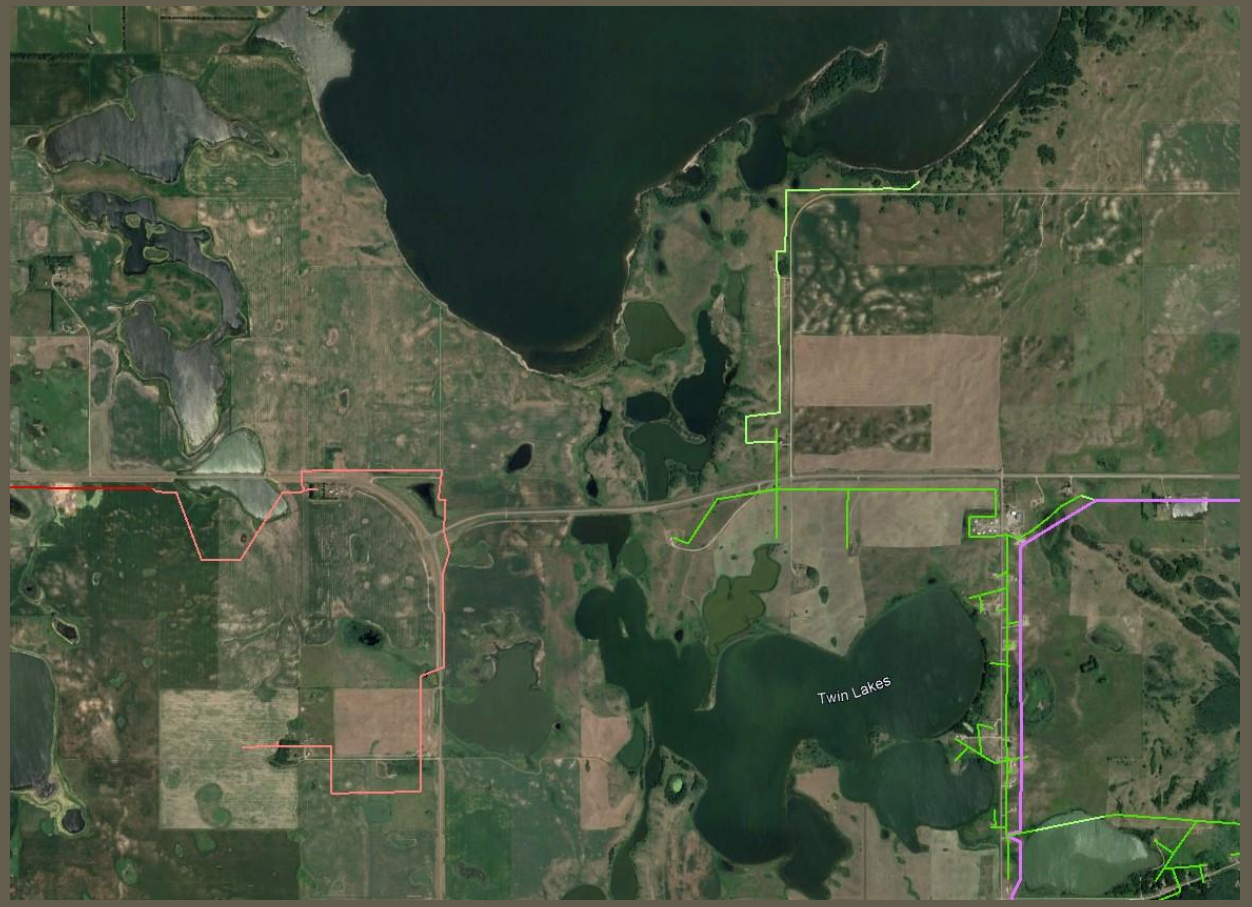
PROJECT HURDLES - LANDOWNER

- Easement request to adjacent landowner (non enrolled member)
  - Request for service road to access project site
  - Denied Easement with intentions to sell instead

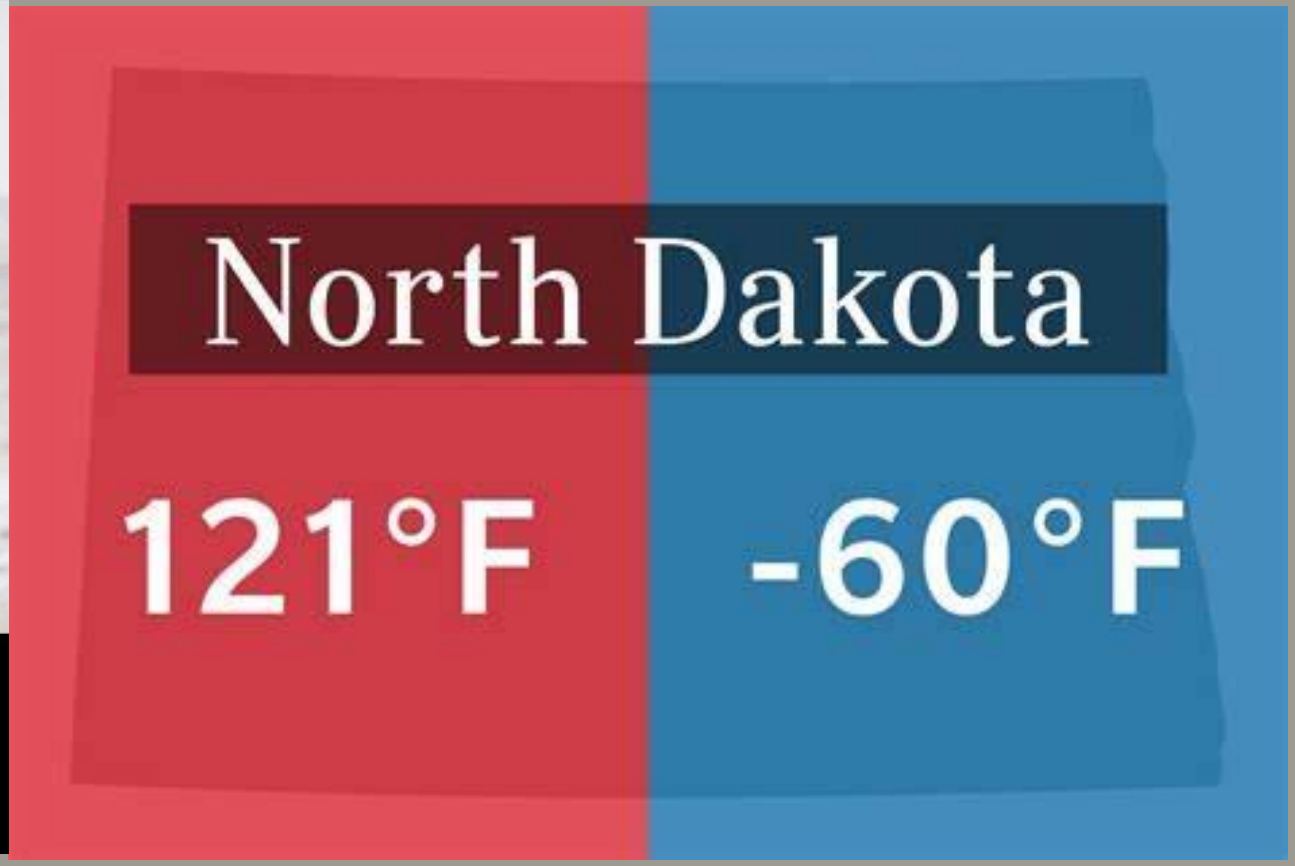


PROJECT HURDLES - INTERCONNECTION

- Initially filing Interconnection with Ottertail Power Company
  - Find out distribution lines are now high voltage lines and also controlled by Ottertail Power/MISO (46 kV)
- Filed Interconnection Application with Norther Plains Co-op
  - Lower voltage lines (12.5 kV)



PROJECT HURDLES - CLIMATE



PROJECT HURDLES – NEPA/Environmental

Northern Long-Eared Bat

Dakota Skipper Butterfly

PARTICIPANTS

- Ryan Brown, Director – Tribal Planning & Grants, Spirit Lake Tribe
- Baker Tilly US, LLP
- WES Engineering
- Spirit Lake Tribal Council
- Department of Energy, Office of Indian Energy

NEXT STEPS

- Establish Tribal Utility Authority (TUA) – FY2024
- Finalize Land Purchase from Adjacent Landowner – Dec 2023
- Finalize TSA and EPC Agreements – Dec 2023
- Finalize next steps for NEPA/Environmental Determinations – March 2024?
- Complete "Pre-Construction" Phase – March 2024
- Prepare for ground break in Summer of 2024

QUESTIONS??

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