



Ishkonige Nawadide Solar Project

BAD RIVER BAND OF LAKE SUPERIOR TRIBE OF CHIPPEWA INDIANS

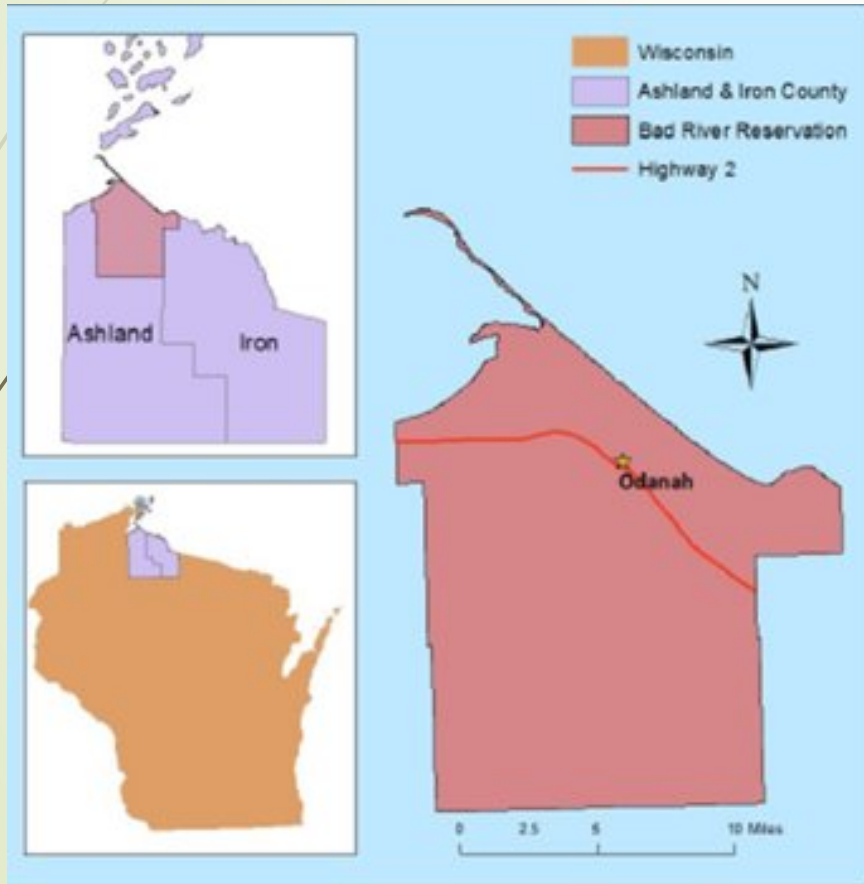
2021 Tribal Energy Webinar Series: Microgrids for Resilient Electricity Systems

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Bad River Band of Lake Superior Tribe of Chippewa Indians



- Located on a 125,000+ acre reservation in Northern Wisconsin on the south shore of Lake Superior
- Territory ceded by the tribe to the U.S. government includes the upper one third of what is now the State of Wisconsin.
- Has over 7,000 members, the majority living off the reservation, about 2,000 live on/near the reservation.

Overview

- **Ishkonige Nawadide**
 - Objectives
 - Timeline
 - Project Details
 - Planning & Development
 - Execution of Project
 - Challenges
 - Next Steps
- Questions





Ishkonige Nawadide Objectives

- ▶ The Bad River Tribe was awarded a USDOE Grant in 2019 for the Ishkonige Nawadide (It Catches Fire) Solar Microgrid Project.
 - ▶ Over 2.2 Million Dollar Project
 - ▶ 1.8 Million USDOE Contribution
 - ▶ Remainder funded through investor and developer
- ▶ **Focused on resiliency after the 2016 Flood and while experiencing electrical outages at crucial facilities, such as the Health & Wellness Center, the Tribe's community Clinic.**
- ▶ Tribe is installing over 500 kW of solar with over 1000 kWh of battery storage at three tribal facilities located in the Odanah Community:
 - ▶ The Chief Blackbird Administration Building
 - ▶ Wastewater Treatment Plant (WWTP)
 - ▶ Health & Wellness Center (H&WC)
- ▶ Systems at the H&WC and the WWTP will offset facility electrical loads and offer assisted level of resiliency if power goes out that can last projected days if not weeks.

2016 Flood

- ▶ Health & Wellness Center and Elderly Building lost all power and gas for 3-days
- ▶ Medical and Emergency supplies were limited



Old Odanah

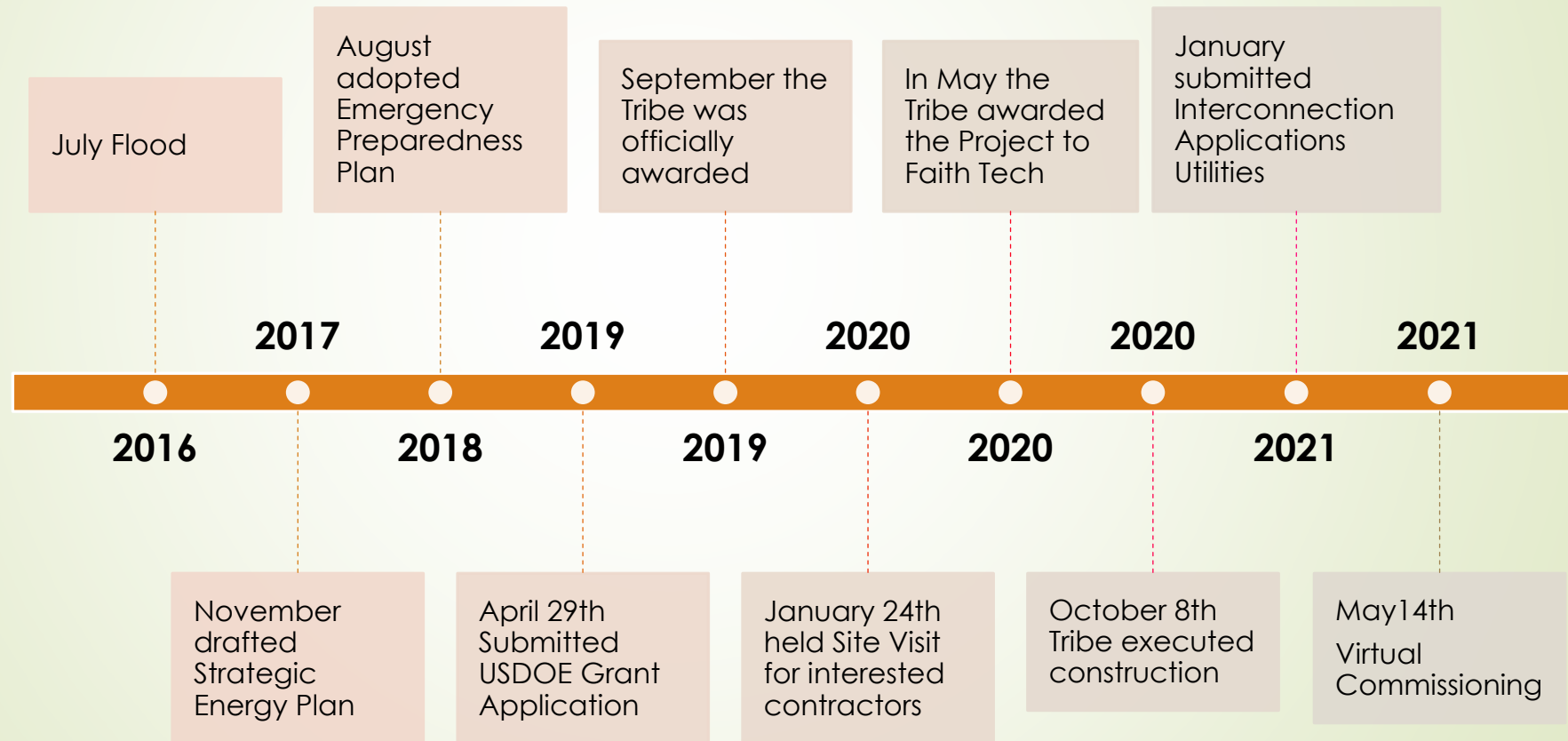


US Hwy 2 and Fish Ponds





Project Timeline



Project Details



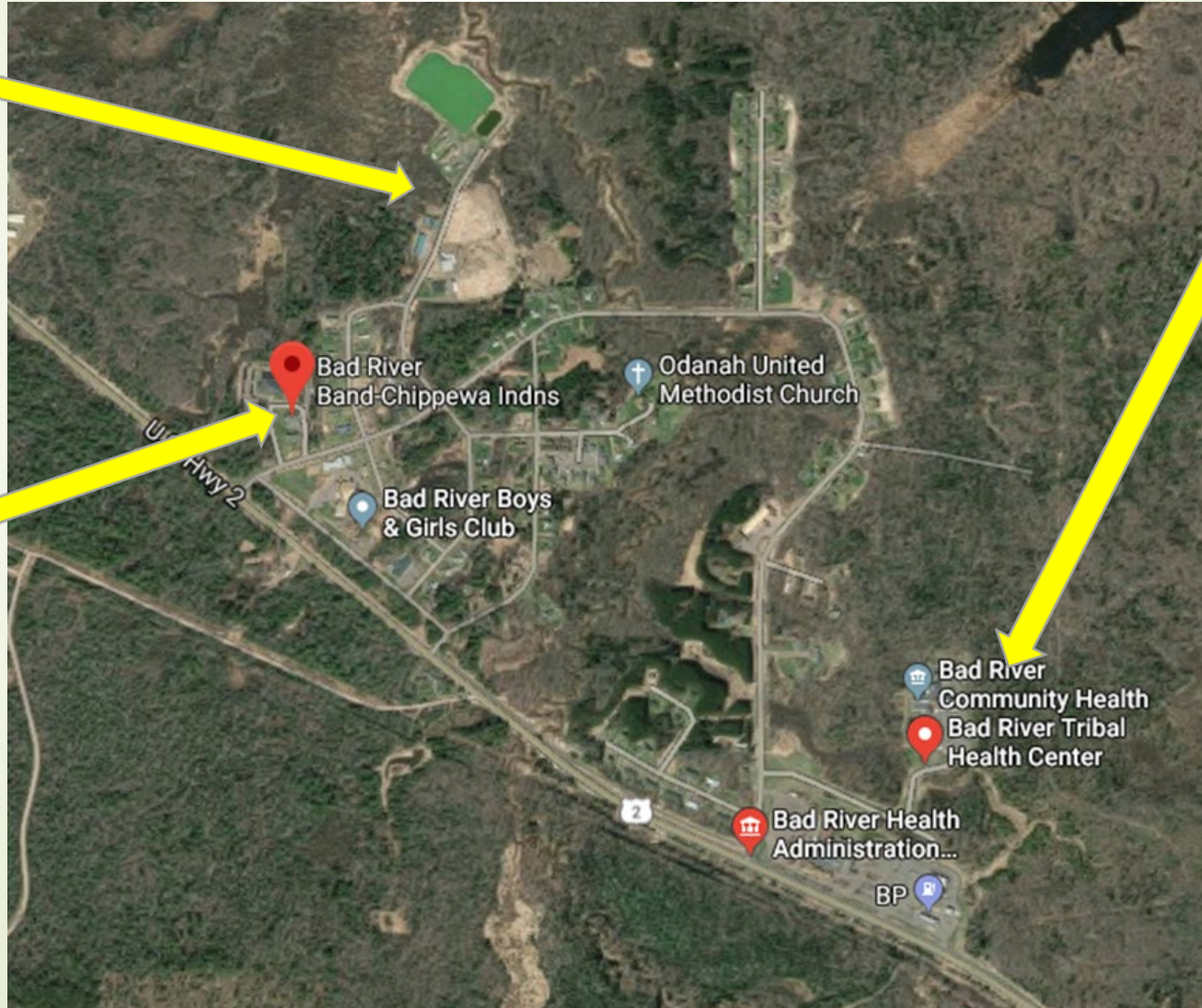
Odanah Community



Waste Water
Treatment Plant

Administration

Health &
Wellness
Center



Administration

- ▶ 24kW DC Solar panel generation – Rooftop installation
- ▶ 20.4kW AC Inverter
- ▶ Battery Storage 10kW, 22kWh
- ▶ Pushes excess energy back to building
- ▶ Grid forming capabilities in the event of a utility outage
- ▶ Batteries charge on excess solar



Admin Pics

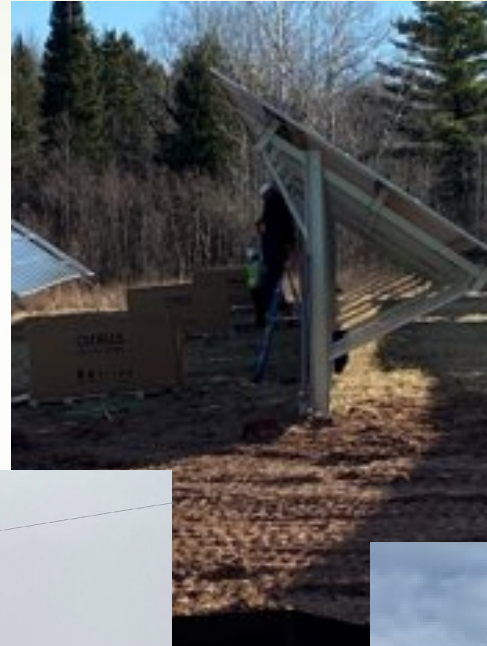


Wastewater Treatment Plant

- ▶ 200kW DC Solar panel generation – Ground mount installation
- ▶ 250kW AC Inverter
- ▶ Battery Storage 200kW, 426kWh
- ▶ Pushes excess energy back to the building/grid
- ▶ Does not form a grid in the event of a utility outage
- ▶ Batteries charge on excess solar



WWTP Pics



WWTP Pics



Health & Wellness Center

- 301kW DC Solar panel generation – Ground mount installation
- 250kW AC Inverter
- Battery Storage 200kW, 568kWh
- Pushes excess energy back to the building/grid
- Grid forming capabilities in the event of a utility outage
- Batteries charge on excess solar





H&WC Pics



Battery Pictures



Ishkonige Nawadide Planning & Development



- ▶ The Ishkonige Nawadide Project was guided with both Strategic Energy Planning done in 2012 and 2017.
- ▶ The Tribe used the newly adopted 2018 Emergency Preparedness Plan (EPP) to identify critical infrastructure that was affected by power outages and the 2016 Flood.
- ▶ Several buildings and scenarios were identified for possible solar projects
 - ▶ Many other buildings but were not in great condition
 - ▶ Looked at some Housing Authority Homes and Buildings
- ▶ The 2018 EPP identify the Health & Wellness Center, Wastewater Treatment Plant, and the Chief Blackbird Administration Building as critical infrastructure.

Ishkonige Nawadide

Execution of Project



- ▶ Request For Proposals were concluded in May of 2020 and awarded Faith Technologies/ Entech
- ▶ Began Construction in October of 2020
 - ▶ Anticipated Commissioning in April of 2021
 - ▶ Interconnection Agreement and PPA process
- ▶ Tribe does not own infrastructure for the first 6 years, but will take over at the six to seven-year mark from commissioned

Ishkonige Nawadide Challenges



- ▶ COVID-19
 - ▶ Tribe issued *Declaration of Public Health Emergency with Respects to the 2020 COVID-19 Pandemic* in March of 2020 along with Safer at Home orders once COVID began to hit the community in June
 - ▶ Made meetings difficult
 - ▶ Decision making by leadership
 - ▶ Utility Task Force Meetings
 - ▶ Overall Team Meetings
 - ▶ Virtual Meetings have created a great level of communication
 - ▶ Construction
 - ▶ Limited building access and extra precautions
 - ▶ Contractors coming from out of town
 - ▶ Required all contractors to have strict COVID-19 policies

Ishkonige Nawadide Challenges



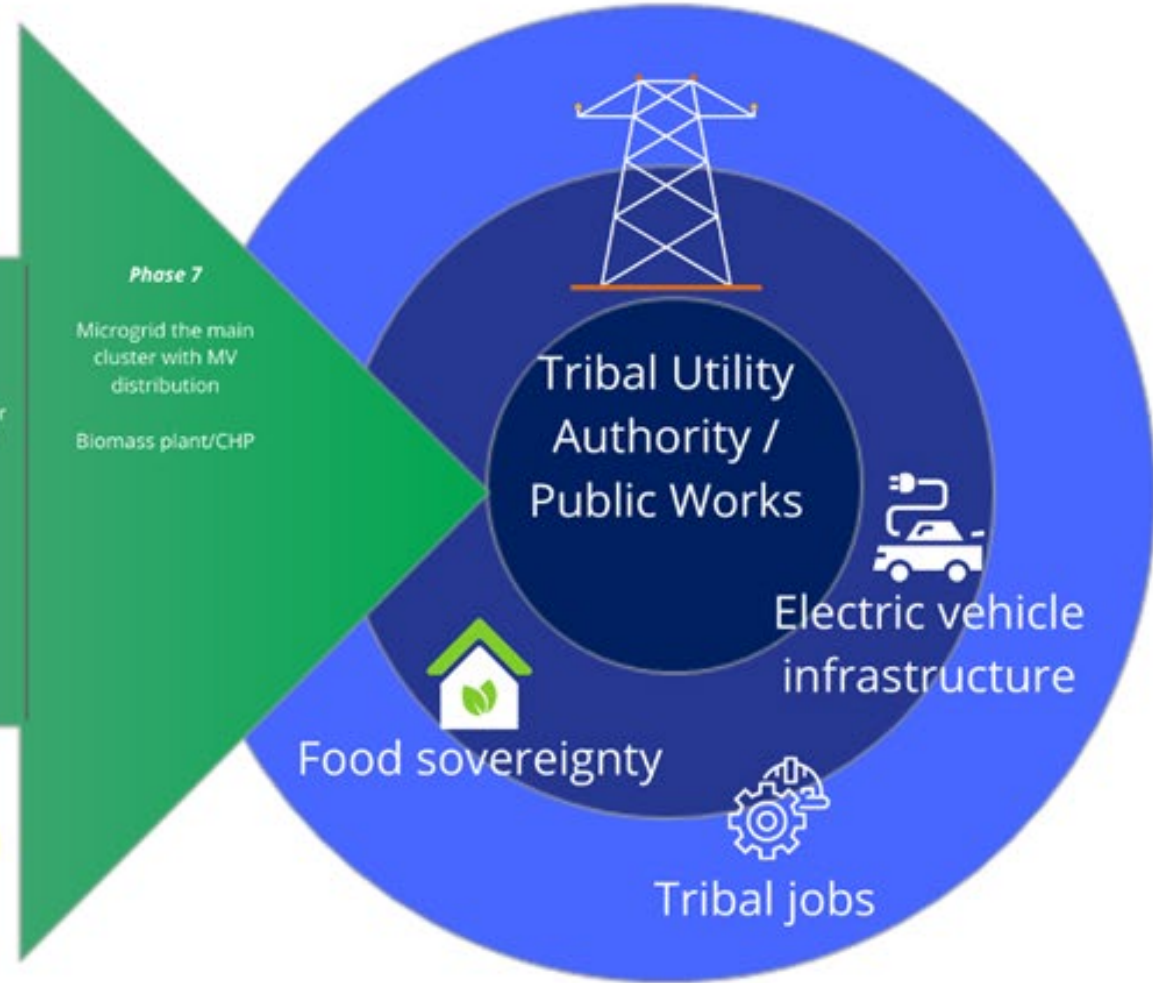
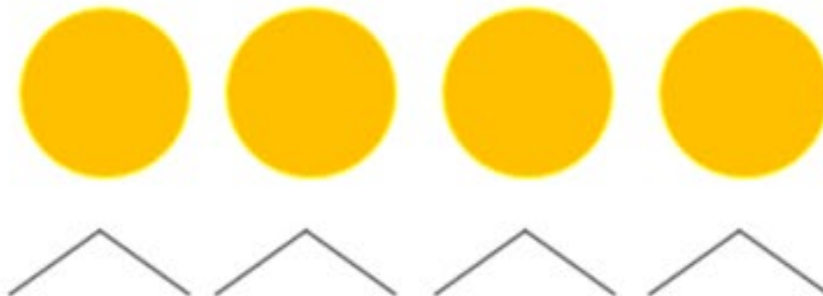
- ▶ Community Acceptance
 - ▶ Replacing land with solar or any infrastructure is not always accepted by elders and environmentalists.
 - ▶ “ I don't know how I'll feel about it until I see the panels.... The trees were nice.”
Community Elder



Bad River Band

Phased Energy Plan

Phase 1	Phase 2	Phase 3	Phase 4	Phase 6	Phase 7
Solar+Storage at Administration Building	Microgrid: Health and Wellness Center	1MW Community Solar	Solar+Storage at New Elderly Housing (planned construction)	Solar+Storage at Community Center (planned construction)	Microgrid the main cluster with MV distribution
Health and Wellness Center	Head Start Bldg	Solar+Storage at: Housing Authority	Phase 5		Biomass plant/CHP
Waste Water Treatment Plant	Elderly Bldg	Hatchery	Solar+Storage at Casino		
2020	2021	Pump House Elderly Housing	Moccasin Trail		



Ishkonige Nawadide

Next Steps



- ▶ Execute Long-term Phased Energy Plan
 - ▶ Phase 2 USDOE Application Submittal in February of 2021.
 - ▶ **Phase 2 directly ties in the new Head Start and existing Elderly Building into the Health & Wellness Center's existing Solar Microgrid.**



Ishkonige Nawadide

Next Steps

Training and Workforce Development

- ▶ Tribal staff knowledgeable about how systems operate and what to do when there are technical issues
 - ▶ Working with existing Facility Staff
 - ▶ Siaki, Tony, and Marcus
 - ▶ High level training is being considered for Tribal Electricians into the Faith Tech “Itian” Program
- ▶ Facility Managers will need to identify staff to work with Faith Technology Staff or (Itians) in order to develop skills to understand the microgrids.

Ishkonige Nawadide Partners



- Bad River Tribe Utility Task Force Team



- Cheq Bay Renewables



- Madison Solar Consulting

Madison Solar Consulting

- muGrid Analytics



- Faith Technologies





Chi Miigwech!
Thank You!

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