



Tribal -State Collaboration on Sustainability and Solar Development: *A Case Study of the Leech Lake Band of Ojibwe*



Timeline



2003

2006

2007

2014

2017

2018

2021

Wind Feasibility

Green
Team

Solar Furnaces

Greenstep Tribal Nation
Step One

Community Solar
Solar Furnaces Training

GESP
Solar Master Plan
EV Chargers
Greenstep Tribal Nation
Step Two

Population Vulnerability and Climate Adaptation Plan

Solar Ready Construction
Approaching Net Zero Building Guide
Electric Vehicle Guide



Wind Feasibility Study

In 2013, Leech Lake began a five-year wind feasibility study to assess the suitability of wind power on the Reservation. The study was performed at both 20- and 50-meters using towers located at Tribe's air site in Boy River as well as Northern Lights Casino.

The study found that the best location for a windmill would be the Bug O Nay Ge Shig Tribal K-12 school.

Green Team

Sustainability has always been a way of life for the Ojibwe people. So we won't call this the beginning of the story. But the catalyst for where we are with our sustainability work today was the formation of the Green Team in 2006.

The formation of this interdisciplinary team meant that sustainability projects wouldn't have to happen in isolated silos, but would instead be collaborative ventures bringing together many different parts of the government.

The importance of this step can't be overstated. It created buy-in for people at multiple levels of the Tribal government - they felt like they had a stake in the success of these projects. And because of the diversity of the team, it meant that our projects were a lot *better*, too.

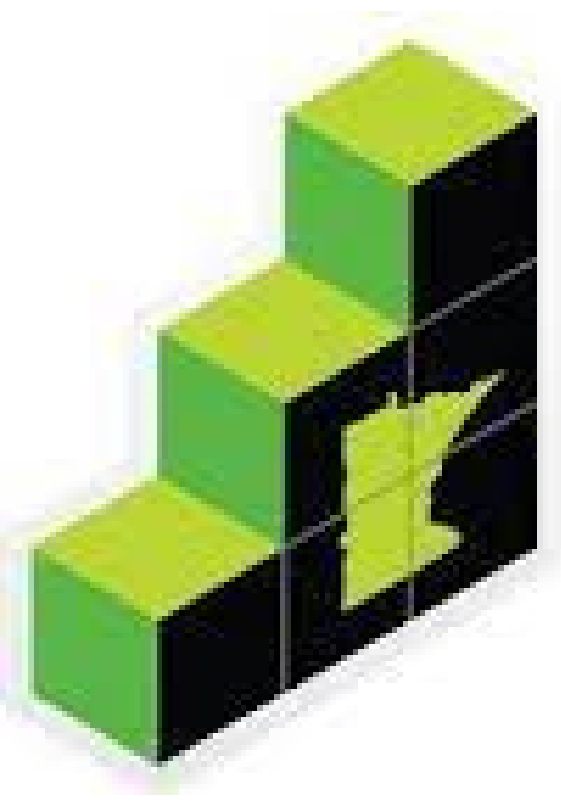


Solar Furnaces

In 2007, around the time the wind feasibility study was wrapping up, the Band installed its first solar furnaces on Tribal homes in the Prescott Community. A few years later, 8 more furnaces were installed and LLBO Environmental partnered with Leech Lake Tribal College and Honor the Earth to educate and train local women for careers in solar-including the installation of solar furnaces.

Today there are twenty-three solar furnaces on the Reservation-most on residential homes. The units save up to \$1,100 in heating costs per year.

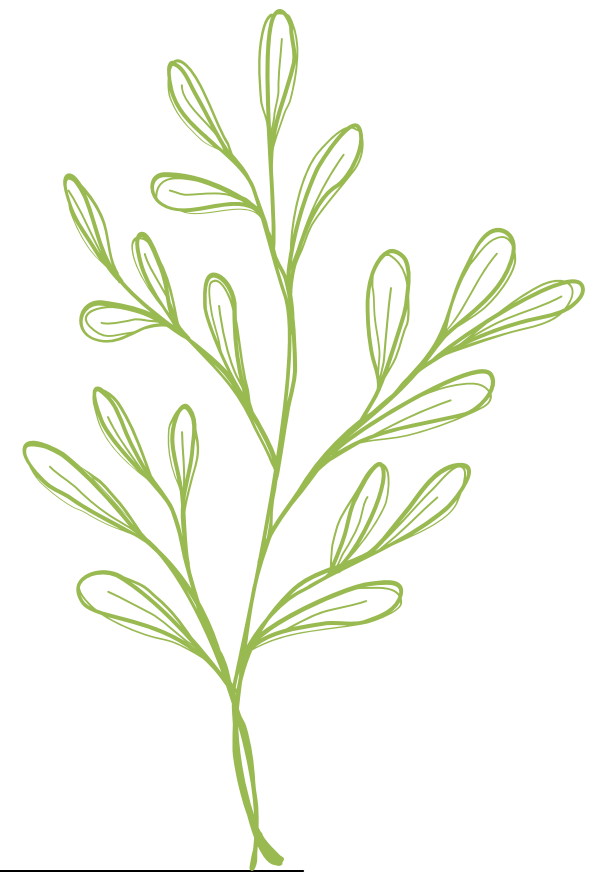




Minnesota GreenStep Tribal Nations

In 2014, Leech Lake became the first Tribal Nation to join the Greenstep Cities program-now called GreenStep Cities and Tribal Nations.

Today, the Band has achieved Step 5 -the highest recognition available to the program.



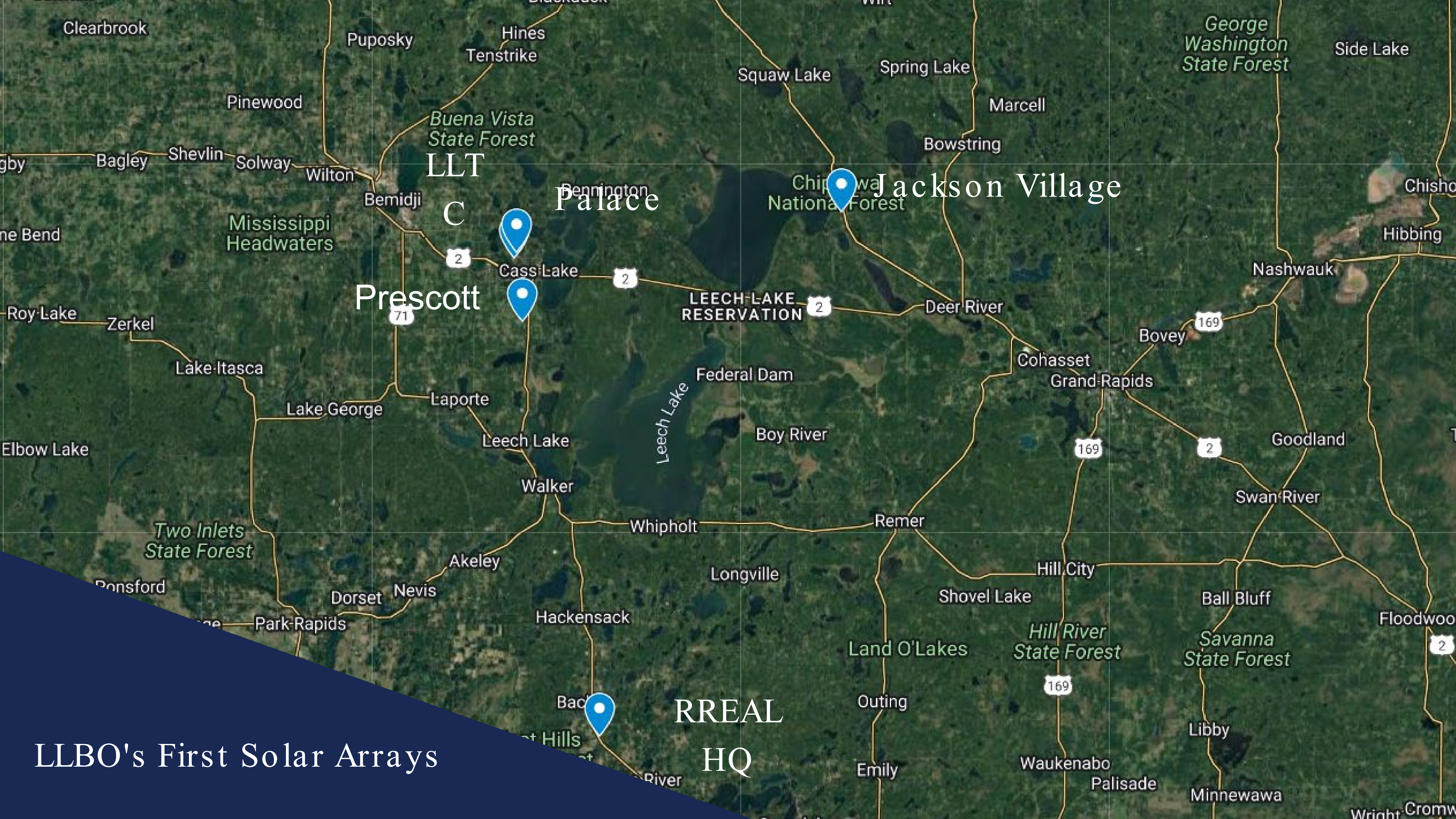
Community Solar

In 2017, the Band secured funding for a Community Solar Garden that would be the first of its kind in the nation. The power generated by the arrays would be sold to the grid and the money would be used to subsidize the heating bills of low-income families in the winter.

The project also included a workforce component that provided LLTC students with on-the-job training in solar installation.

In the years since the installation of the arrays, the botany team has worked to install pollinator gardens around the arrays.





LLT

Palace

Jackson Village

Prescott

LEECH LAKE RESERVATION

RREAL HQ

LLBO's First Solar Arrays

Guaranteed Energy Savings Plan (GESp)

Beginning in 2018, the Band installed new energy control measures in 22 Tribally owned buildings across the reservation. This \$4.2 million project was a part of the Guaranteed Energy Savings Program (GESp), an executive order signed by Governor Dayton in 2011 to help state agencies and local governments upgrade infrastructure.

1 MECHANICAL
SYSTEMS UPGRADES

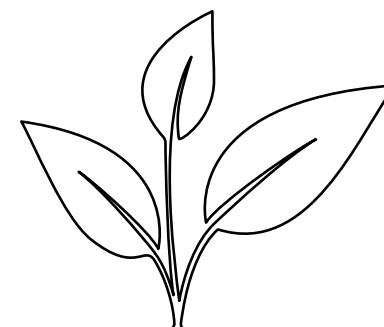
2 CONTROL SYSTEMS
UPGRADES

3 LED LIGHTING
UPGRADES

4 WATER
CONSERVATION

5 UTILITY RELATED
MEASURES

5 SOLAR PV



GESP (Continued)

The conservation measures that were introduced were originally predicted to pay themselves off within 14.2 years and save the tribe \$207,000 per year in energy payments. However, they worked better than expected and the current payoff estimate is around 12 years.

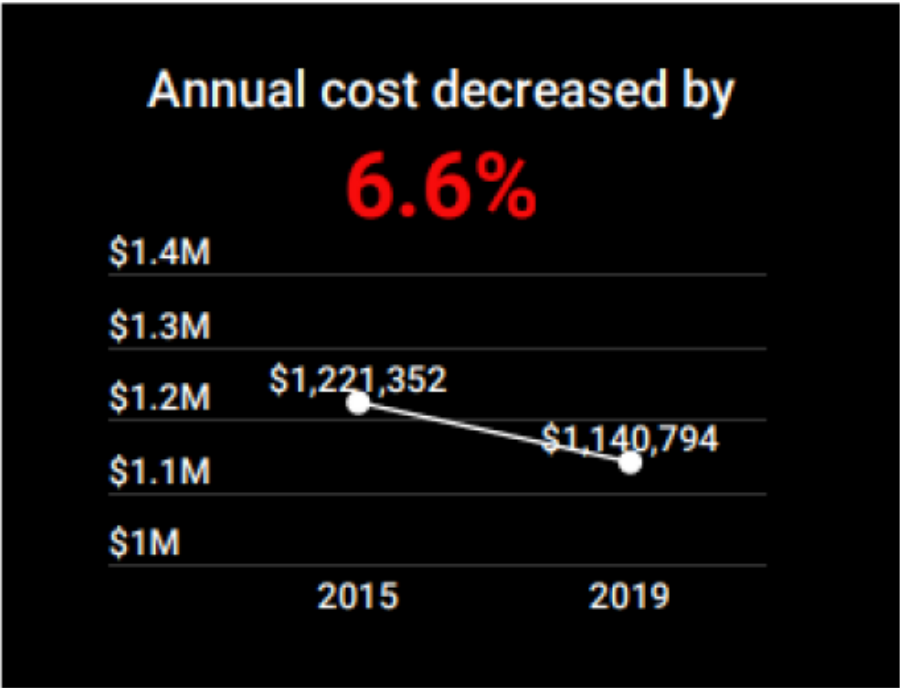
Buildings Retrofitted through the GESP Program:

- Northern Lights Casino
- Palace Hotel
- White Oak Casino
- Facility Center
- Early Childhood
- DRM Fisheries
- Che We Kaegon
- Bena Community Center
- Sugar Point Community Center
- Housing Authority
- Food Distribution

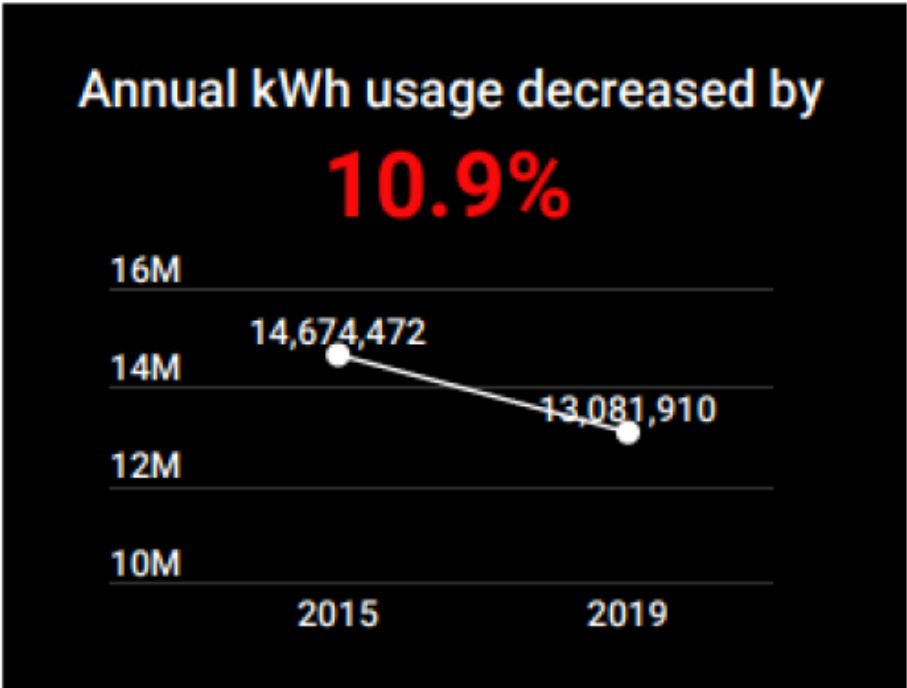
- Roads and Construction
- Garage
- Ball Club Multipurpose
- Fleet Management
- Onigum Headstart
- Public Works
- Inger Headstart/Clinic
- Vet's Memorial
- Inger Community Center
- DQ Buiding
- Ball Club Headstart
- Fitness Center

GESP Impacts:

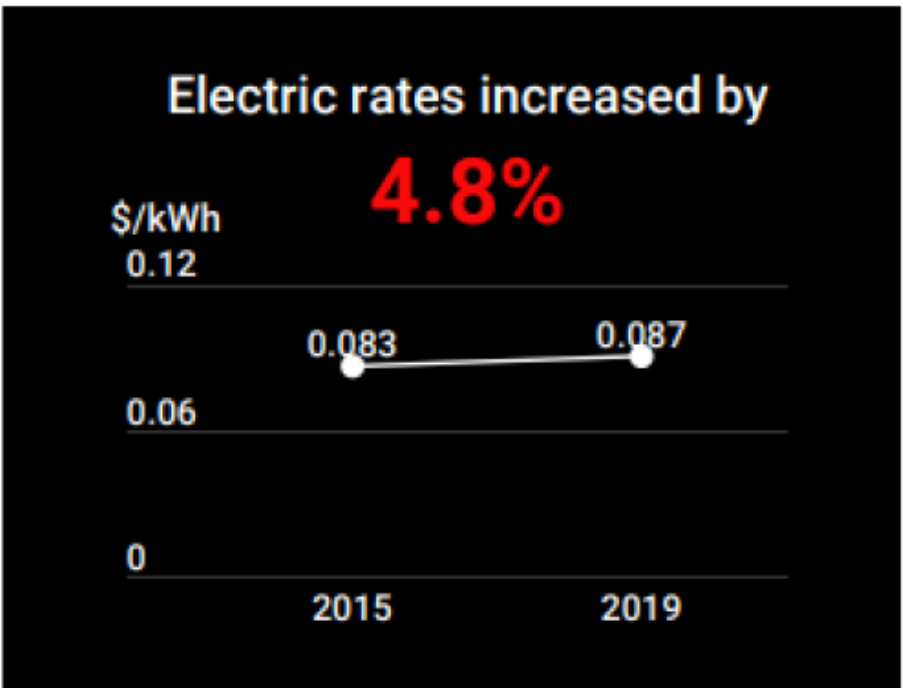
- CO2 Reduction: 3.6 million lbs
- SO2 Reduction: 2,969 lbs
- NO2 Reduction: 2,871 lbs



\$



kWh



\$/kWh

Policy Guidance- Part One

Solar Master Plan

In 2018 the Band partnered with PaleBlueDot LLC through a CERTs Seed Grant to develop the Solar Master Plan-a document that assesses the solar suitability of all Tribally owned facilities on the Reservation

Population Vulnerability Assessment and Climate Adaptation Framework

The Band also completed an assessment of vulnerable populations and the dangers facing Leech Lake due to climate change. This project was a partnership with the MPCA and PaleBlueDot LLC.



EV Chargers

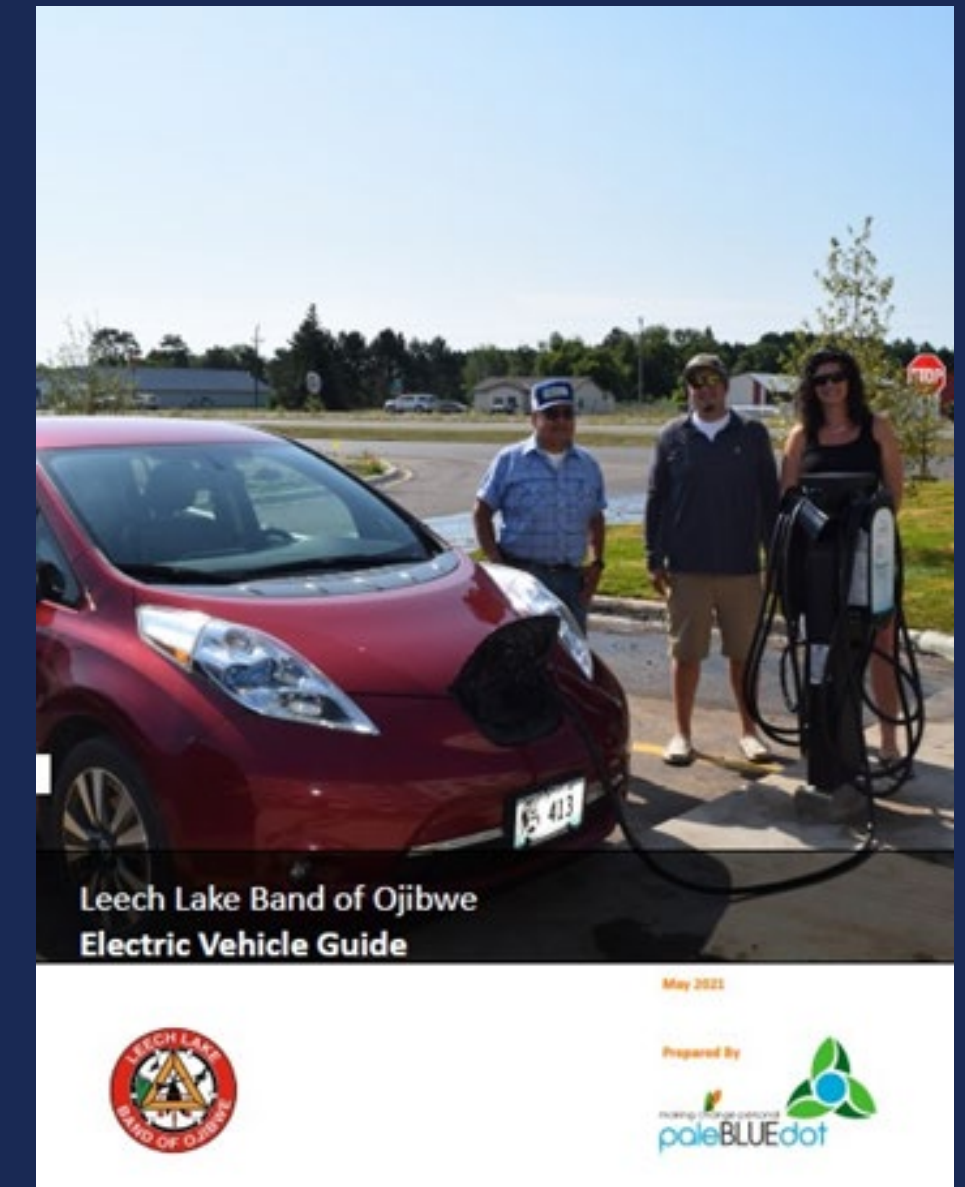
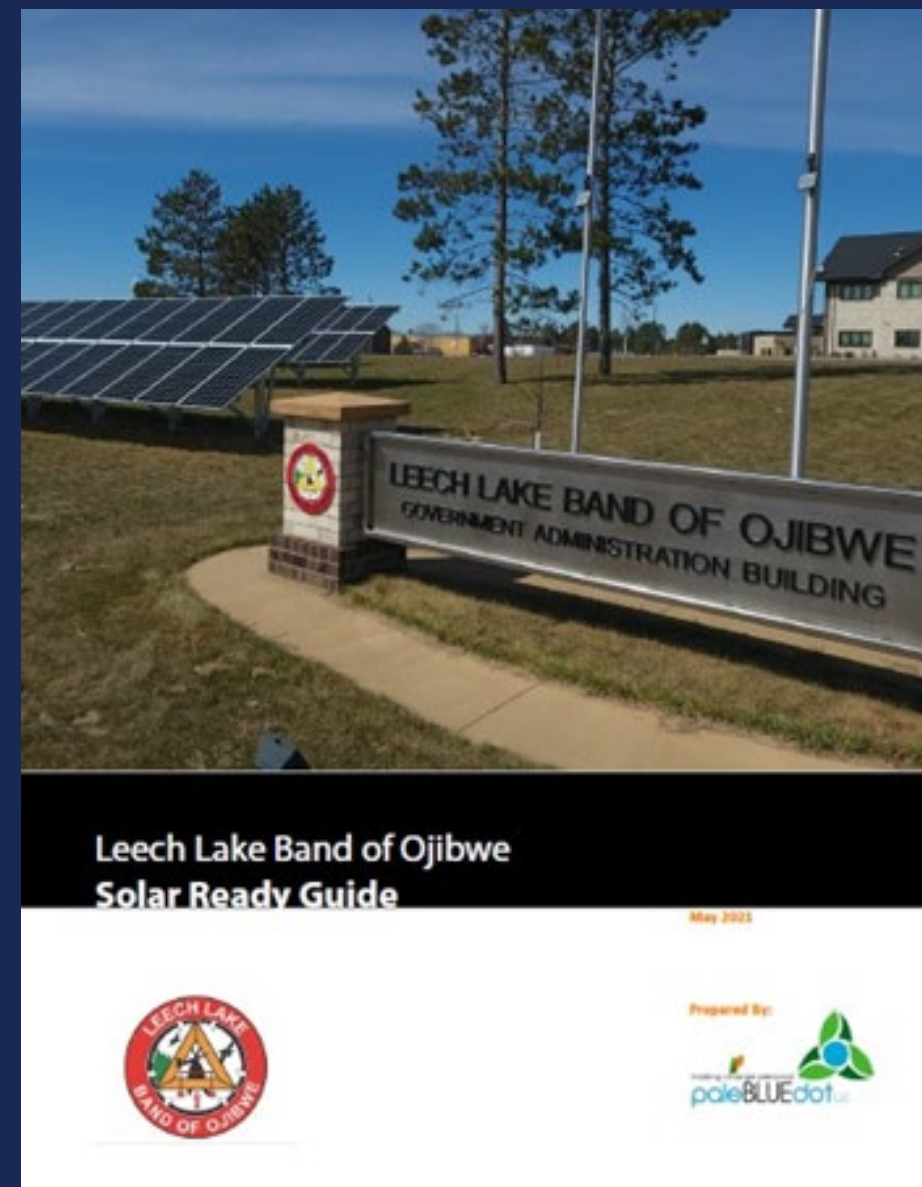
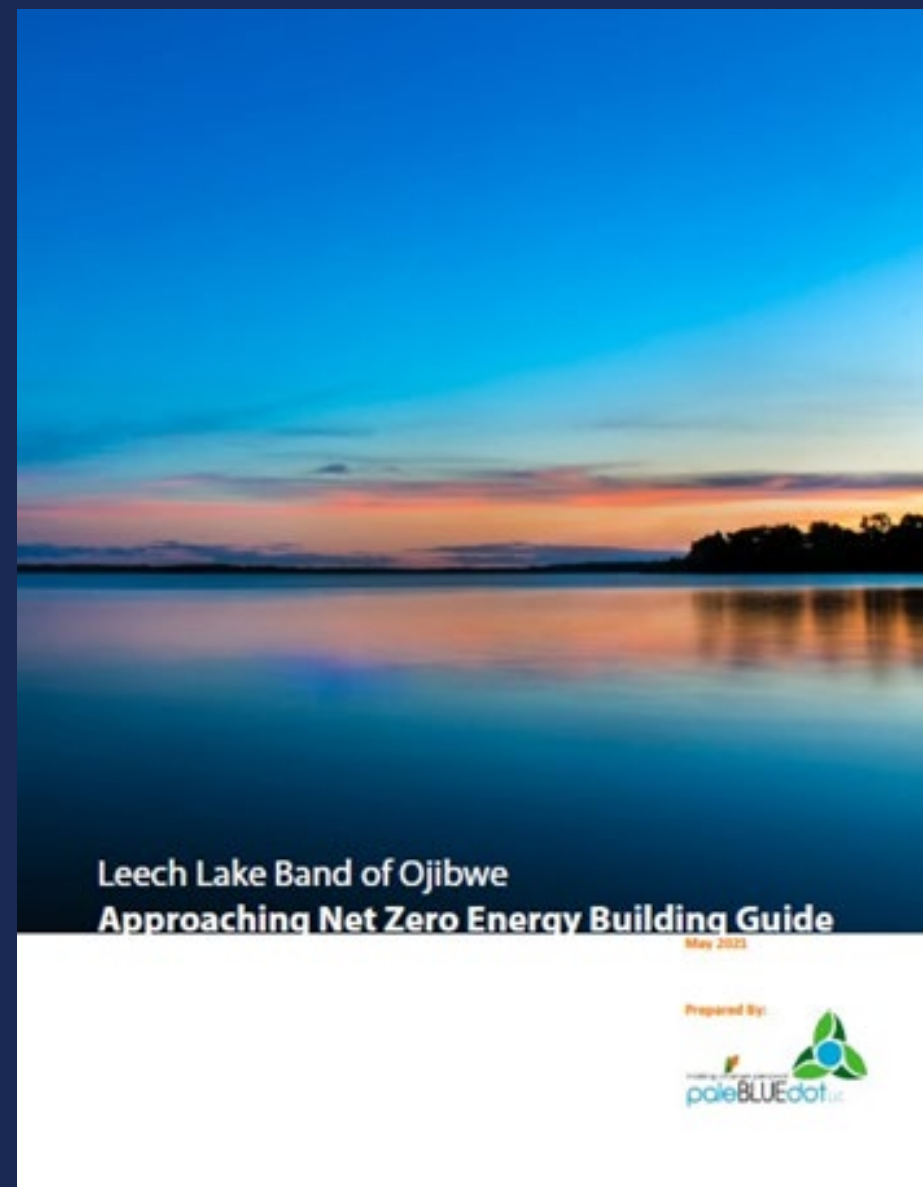
Also in 2018 (it was a busy year), the Band installed its first EV chargers- located at Cedar Lakes, Northern Lights, and White Oak Casinos.

Five of the chargers are Level 2 Chargers, and are free of cost to Band Members.

Policy Guidance - Part Two

In 2021, with the help of CERTs, we created three new policy documents meant to guide new construction projects on the Reservation in a more sustainable direction.

We also conducted a Propane and Natural Gas Study, aimed at providing us with more information on our energy landscape.





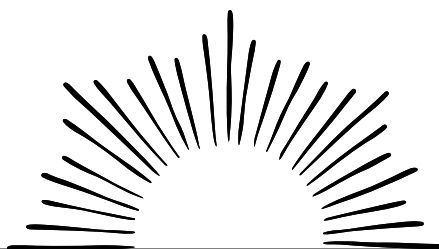
Sustainability Coordinator

In 2022 the Band hired a Sustainability Coordinator to work on their green initiatives full time. That's me!

Phase Two Solar PV Arrays

This year the Band is beginning the second phase of solar PV deployment on the Reservation.

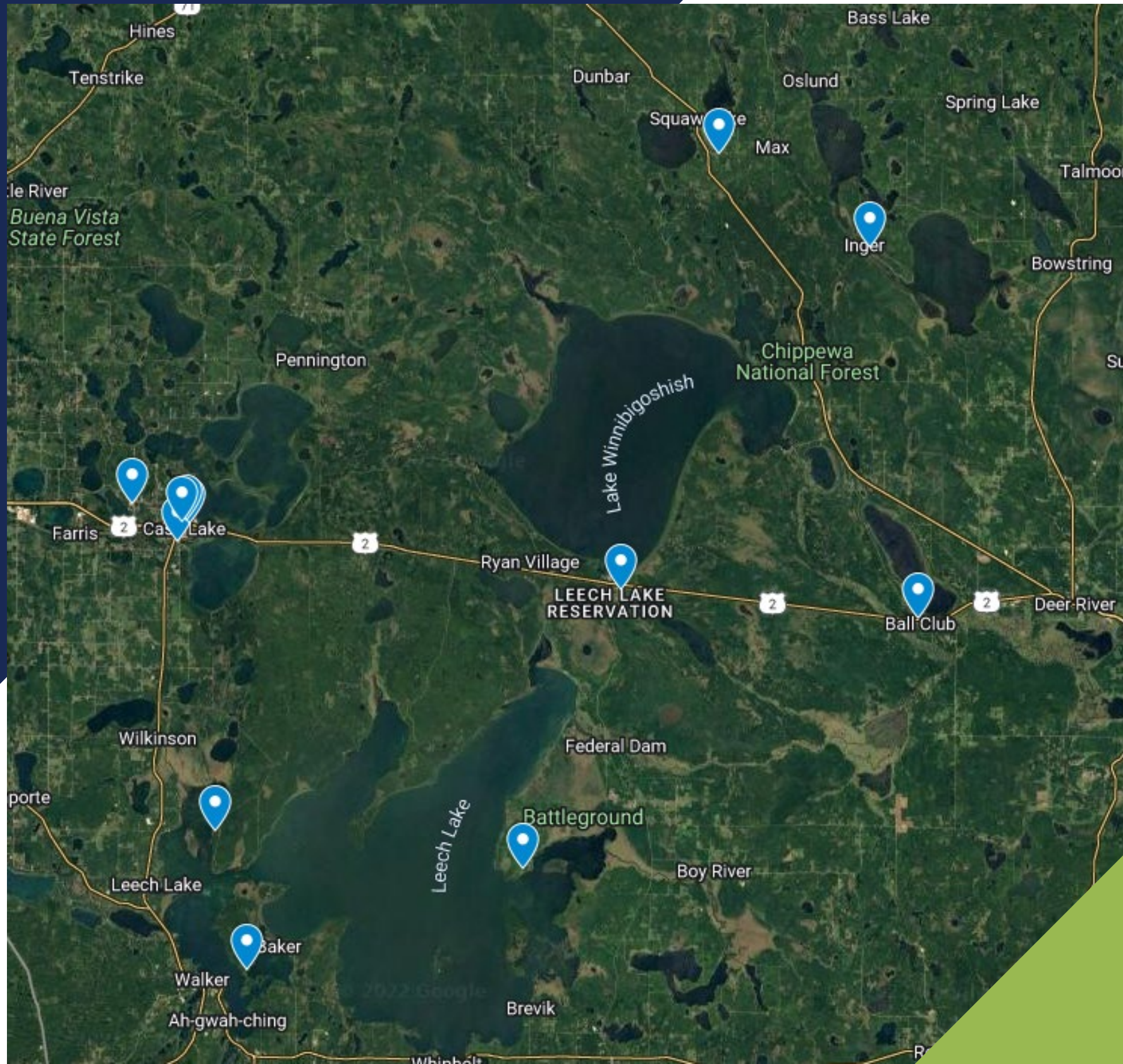
The project, funded by a DOE grant, will add 534kW of capacity in ten separate arrays- nine mounted on the roofs of Tribal buildings, and one ground-mounted in an apple grove.



Phase Two EV Chargers

This year, the Band will also begin the second phase of EV charger installation, which will install an additional 14 level two chargers and 2 level 3 chargers.

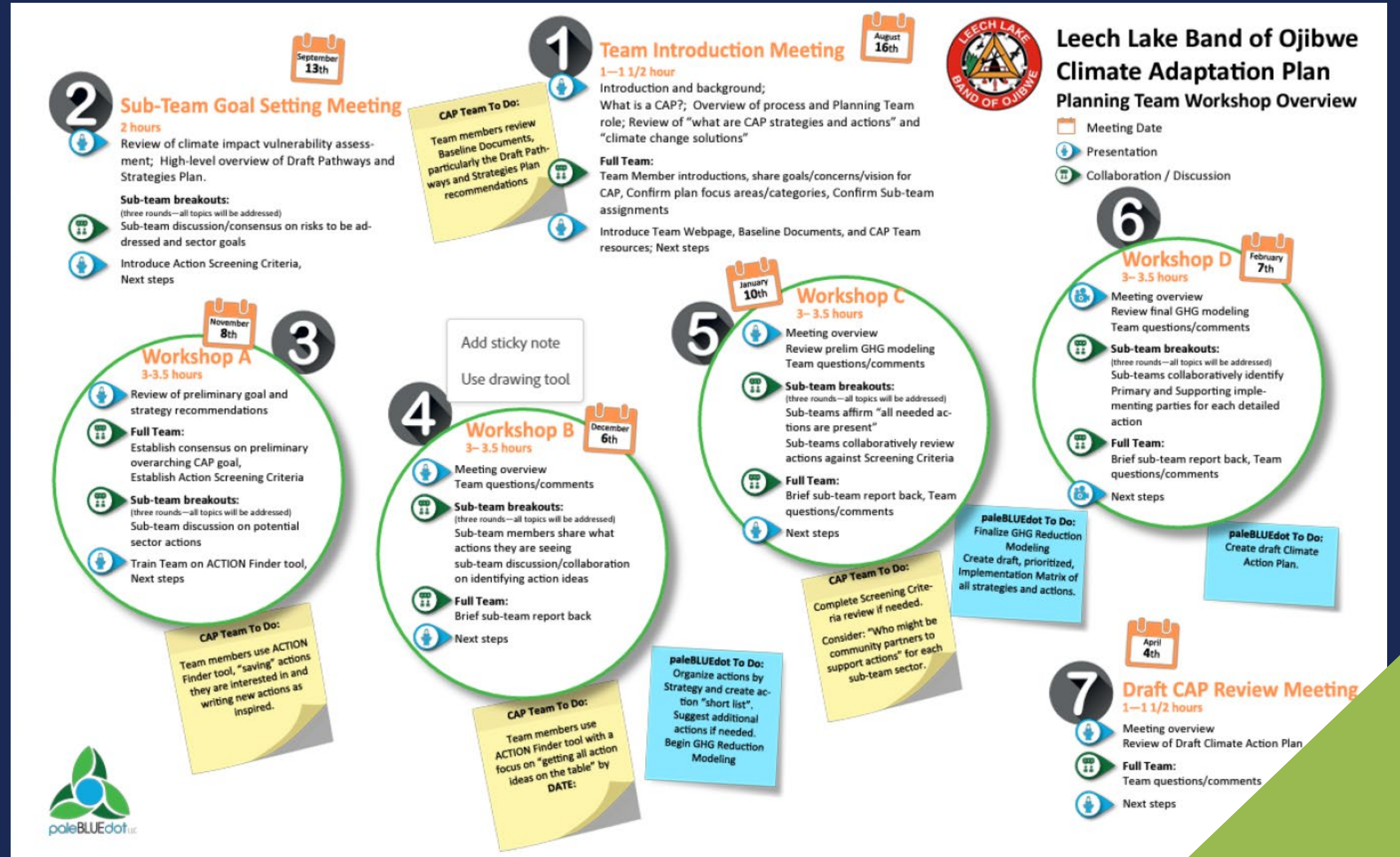
The same grant through the Department of Commerce will allow us to test two PHEVs for Fleet Management and host two EV drive events to spur interest on the Reservation.



Climate Change Adaptation Plan (CCAP)

A natural continuation of the Population Vulnerability Assessment, which makes predictions about climate impacts, the CCAP is designed to answer the question - what are we going to do about it?

The finished product will include contributions from experts across many divisions.



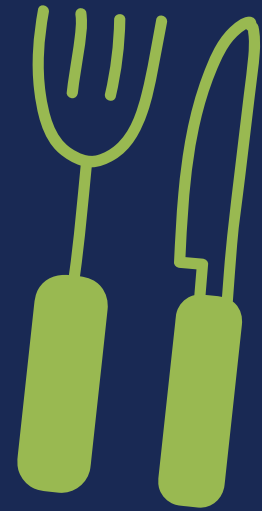
Greenhouse Gas Emissions Inventory

The Band has also recently begun to develop an inventory of emissions produced by government functions. This will help us get a picture of the impact we're having as well as provide recommendations for reducing that impact.

So far the results indicate that employee commutes constitute the largest source of emissions- a common problem for rural communities. Even those not the size of Rhode Island.



Looking Ahead...



Food Waste



Clean Transportation

Best Practices

Empower Advocates

Create Intraorganizational Teams

Recurring Opportunities for Collaboration

Assert and Respect Sovereignty

Honor Connections Between People and Land

Be Persistent



Contact Eugene Strowbridge

Sustainability Coordinator, Leech Lake Band
Eugene.Strowbridge@llojibwe.net