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GLISA
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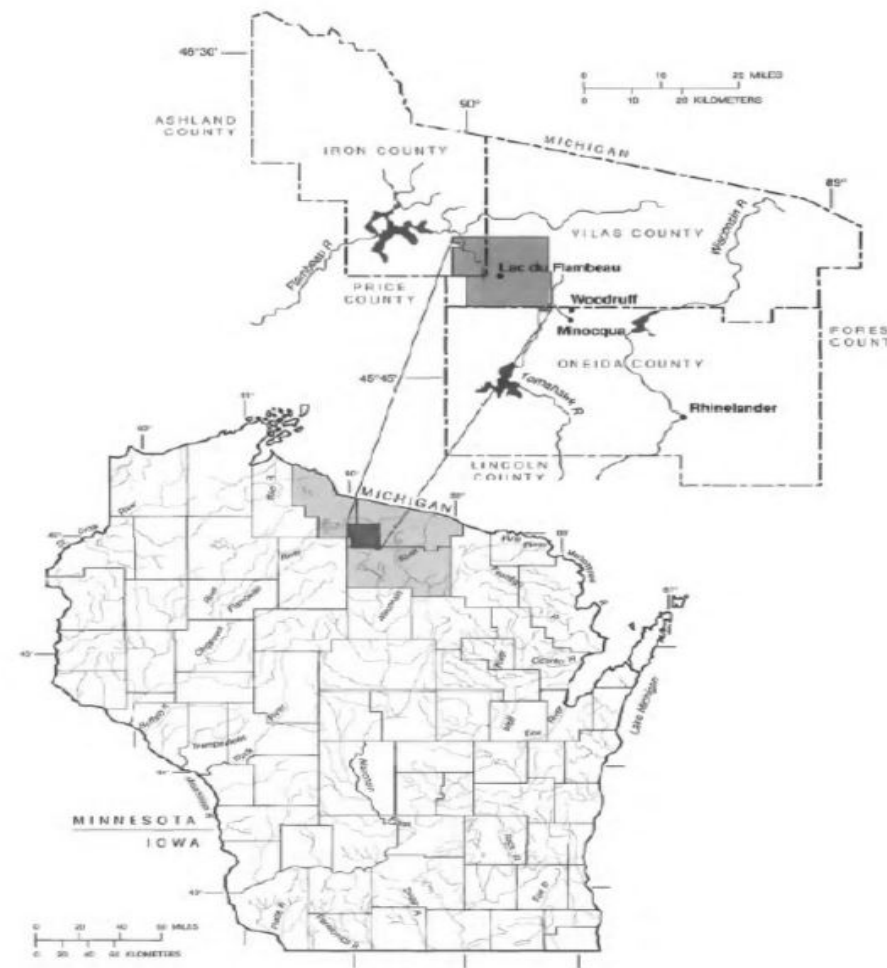


**U.S. DEPARTMENT OF ENERGY
INDIAN PROGRAM REVIEW
Lac Du Flambeau
Climate Resilience Initiative
December 13, 2018**

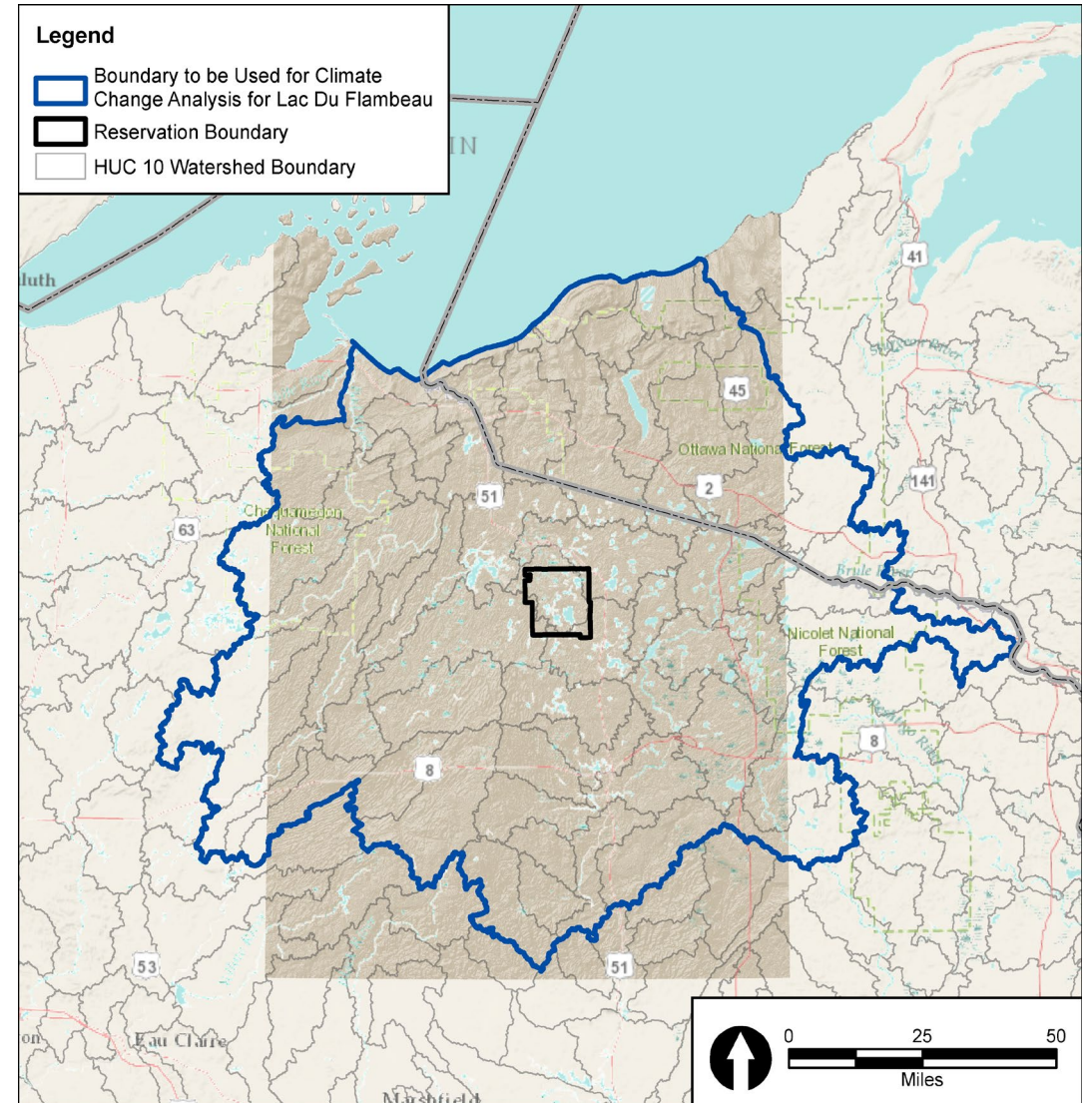
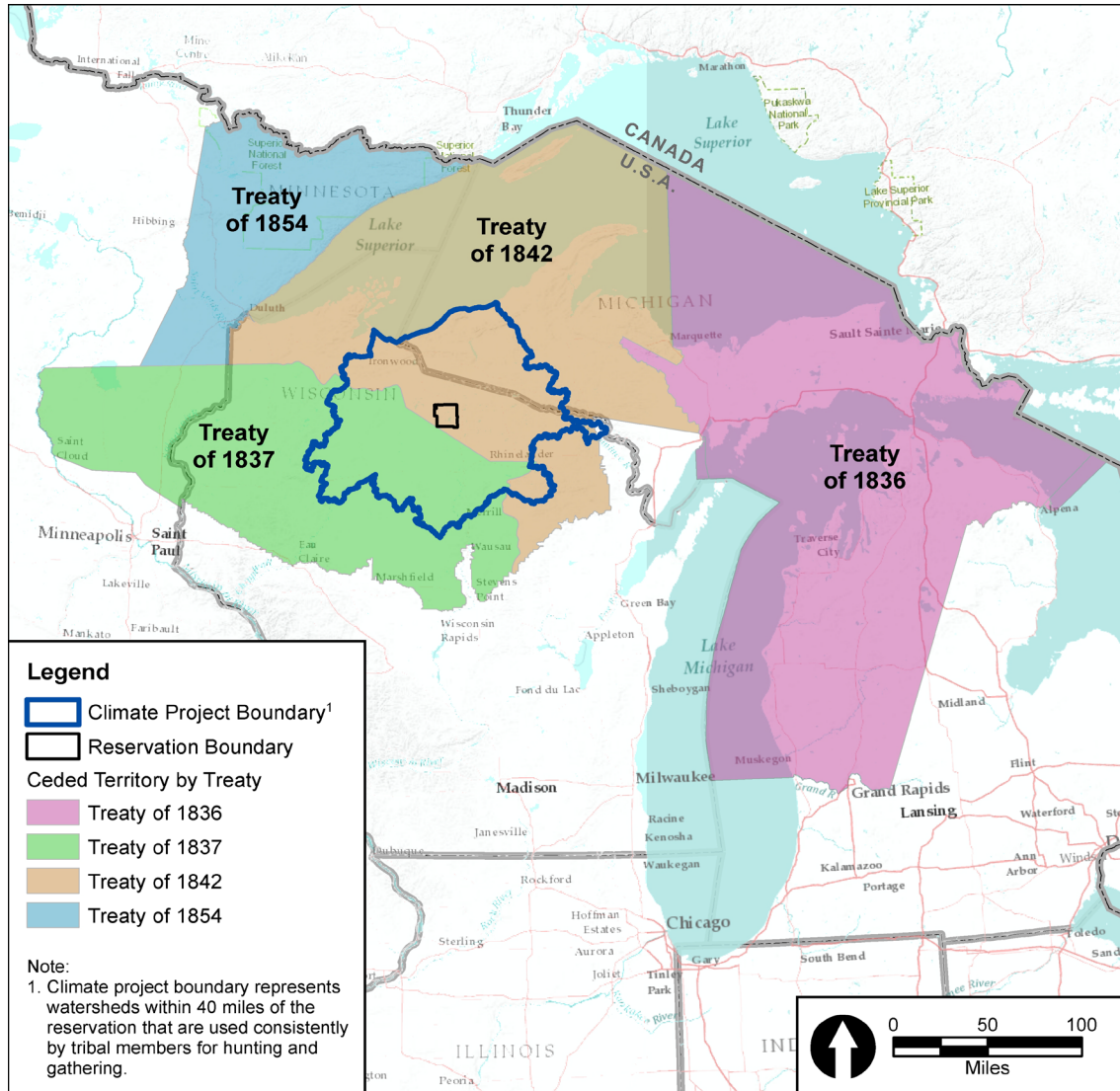
Lac du Flambeau Band of Lake Superior Chippewa Indians: Location



Lac du Flambeau Ojibwe



Lac du Flambeau Indian Reservation (Waaswagoning)



Lac du Flambeau
Indian Reservation

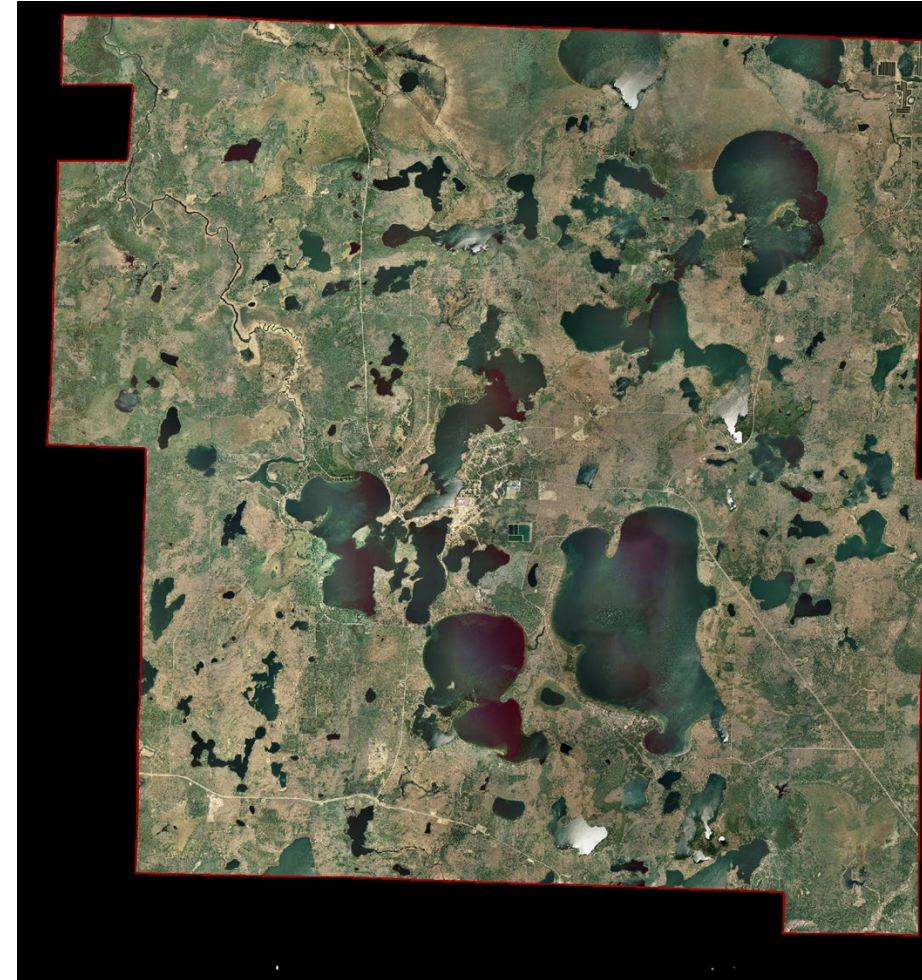
86,500 Acres

260 Inland Lakes

71 Miles of
Stream/Rivers

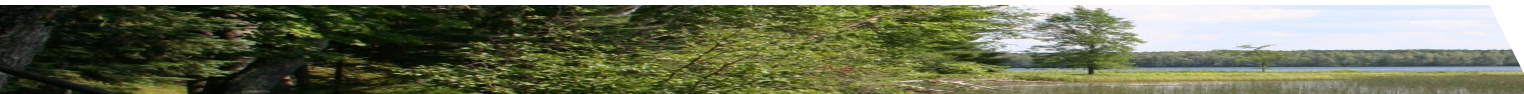
24,000 Acres of
Wetlands

42,000 Acres of
Forest



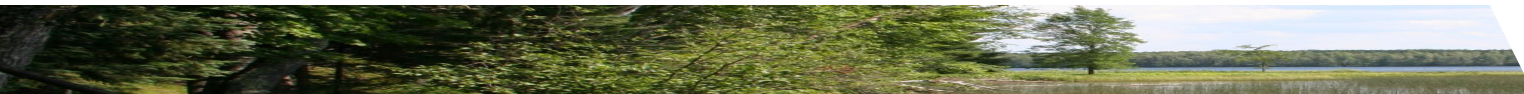
Initial Reflections on Project

- In 2016 the Lac du Flambeau Tribal Council (Governing Board) recognized the need to protect our trust-natural resources and health for the next seven generations from climate alterations and extremes.
- Will integrate key aspects of our Tribal life ways, resources and knowledge that have been passed down from generations or Traditional Ecological Knowledge (TEK).
- Incorporate Western Science expertise to develop comprehensive Resilience Plans to create a sustainable community for Tribal members, descendants and the seventh generation.



PROJECT OVERVIEW

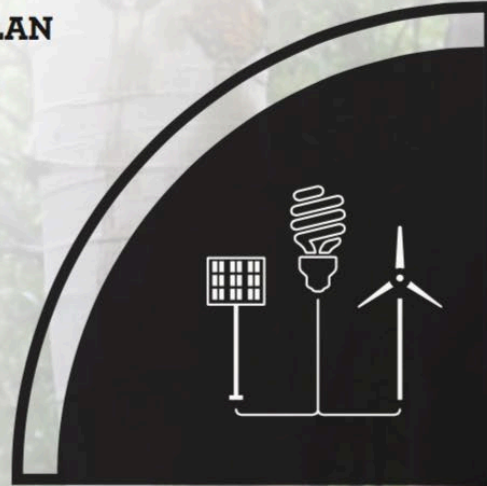
“The primary goals of this project are to create a **comprehensive Climate Resiliency Plan** and to increase the capacity of all Lac du Flambeau tribal program managers to incorporate environmental impact thinking into the **everyday management** of their departments.”



Lac Du Flambeau Climate Change Resilience Objectives

ENERGY REDUCTION PLAN

The Tribe is identifying ways to reduce energy use, save money, and decrease greenhouse gas emissions.



VULNERABILITY ASSESSMENT

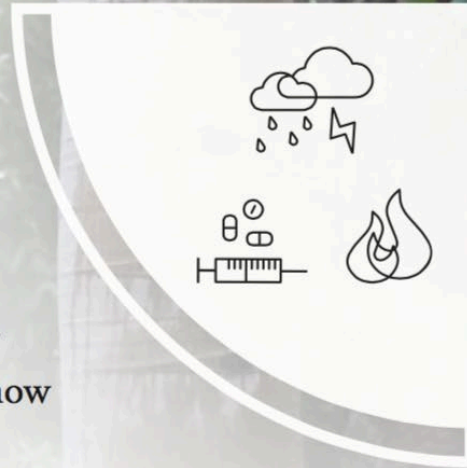
The Tribe will use a community assessment process to determine the vulnerability of concerns within our tribal environment, health, and infrastructure.



HAZARD

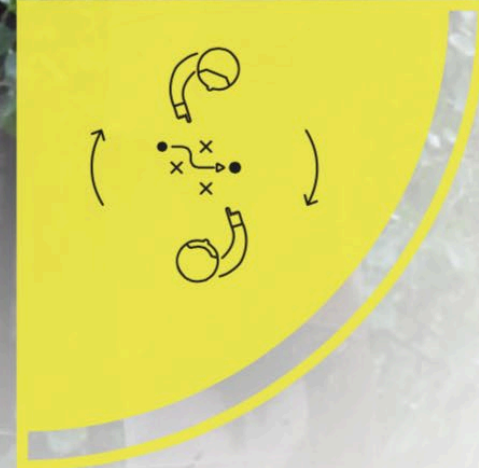
MITIGATION PLAN

Through hazard mitigation planning the Tribe will reduce both natural and man-made risks that our community might face now and in the future.



ADAPTATION PLAN

Through adaptation planning, the Tribe will identify actions the community can take to prepare for climate change.



Community Engagement, Tribal Leader Directive and Tribal Staff



Tribal Climate Resilience Planning Team

- Community Health
- Land Management
- Police Department
- Water and Sewer Utility
- Planning and Development
- Lake of the Torches Casino
- Facilities/Buildings
- Natural Resources Programs-Fisheries, Wildlife, Great Lakes Restoration Initiative, Water Resources, Environmental Protection, Environmental Response, Wildrice Cultural, and Conservation Enforcement
- Communications/PR
- Administration
- State of Emergency
- Forestry
- Dental Facility
- Housing Authority
- Public School*
- Fire Department*



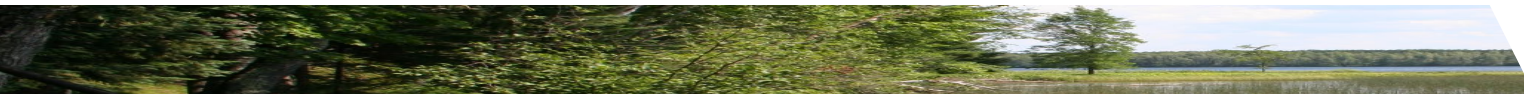
OUR SUPPORT PARTNERS



adaptation
international

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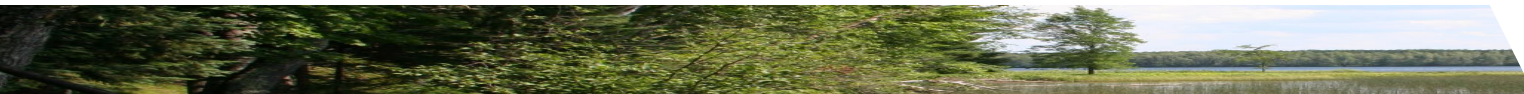
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GLISA-Projected Seasonal Climate

Variable	Mid-Century (2040-2059)	End of Century (2080-2099)
Annual Temperature	4.2°F	8.4°F
Winter Temperature	3.8°F	7.9°F
Spring Temperature	3.6°F	7.4°F
Summer Temperature	5.5°F	10.6°F
Fall Temperature	4.4°F	8.5°F
Annual Precipitation	2.0 in.	4.7 in.
Winter Precipitation	1.0 in.	1.5 in.
Spring Precipitation	1.1 in.	1.6 in.
Summer Precipitation	-0.1 in.	-0.1 in.
Fall Precipitation	0.6 in.	1.6 in.

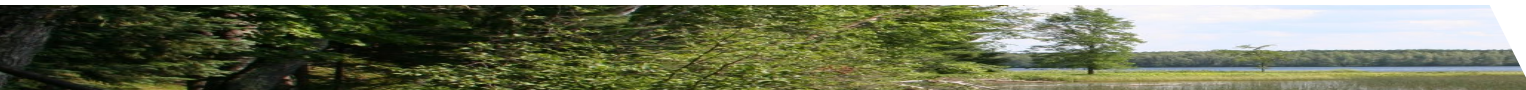
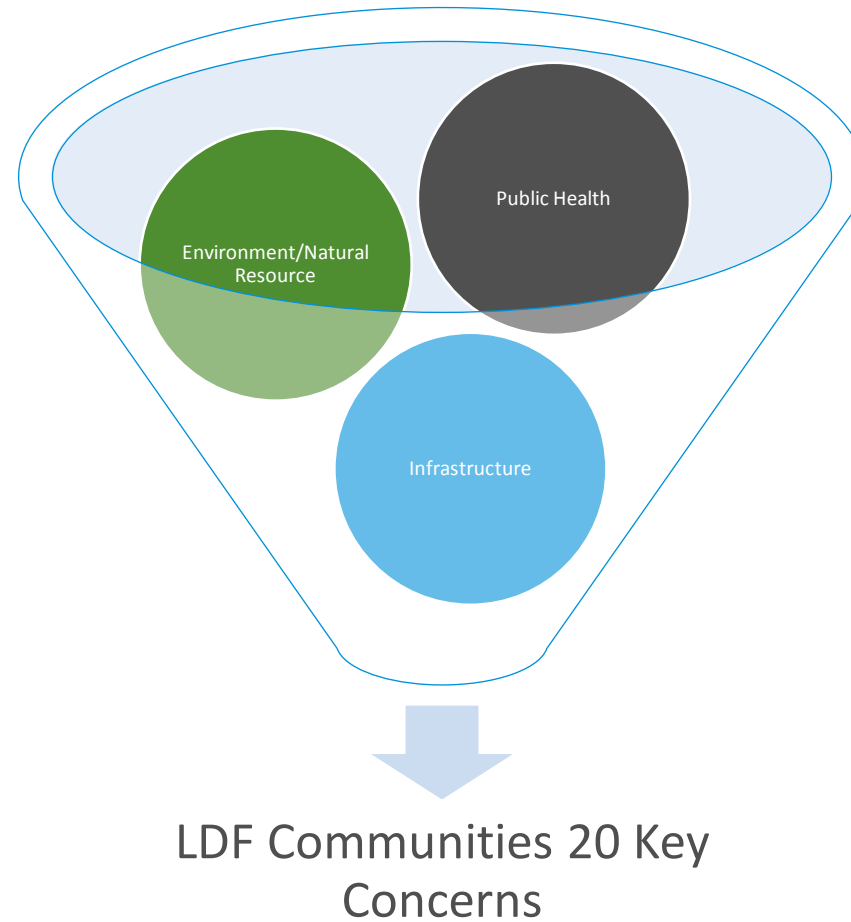


Identifying and Organizing the Key Concerns



Climate Resilience Project

3 Concern Areas: Environment/Natural Resource, Infrastructure, Public Health



20 Natural Resources Species, 4 Infrastructure and 4 Health Concerns

Natural Resources

Great Blue Heron (Crane)

Common Loon (Loon)

Walleye (Fish)

Sturgeon (Fish)

Cisco (Fish)

Black Bear (Bear)

Martin (Martin)

White-tailed Deer (Deer)

Bald Eagle (Bird)

Muskrat

Snowshoe Hair

Honey Bees

Little Brown Bat

Spring Peeper (Frog)

Wild Rice

Sugar Maple

White Birch

White Cedar

Wild Strawberries

Highbush Cranberries

Community Health

Increases in Vector-Borne Disease

Mental Health Impacts from loss of Nat. Resource

Extreme Heat Affecting Elders / Youth

Increases in Allergy Problems Elders / Youth

Infrastructure

Severe Thunderstorms affecting run-off

Flooding Affecting Homes and Buildings

Flooding Affecting the Water Treatment Plant

Wildfire Affecting Homes and Buildings



Species Selected for Assessment



Animal Species	Plant Species
Great Blue Heron (<i>Crane</i>)	Wild Rice
Common Loon (<i>Loon</i>)	Sugar Maple
Walleye (<i>Fish</i>)	White Birch
Sturgeon (<i>Fish</i>)	White Cedar
Cisco (<i>Fish</i>)	Wild Strawberries
Black Bear (<i>Bear</i>)	Highbush Cranberries
Martin (<i>Martin</i>)	
White-tailed Deer (<i>Deer</i>)	
Bald Eagle (<i>Bird</i>)	
Muskrat	
Snowshoe Hare	
Honey Bees	
Little Brown Bat	
Spring Peepers-Frog	



Energy Reduction Plan – Electricity and Propane

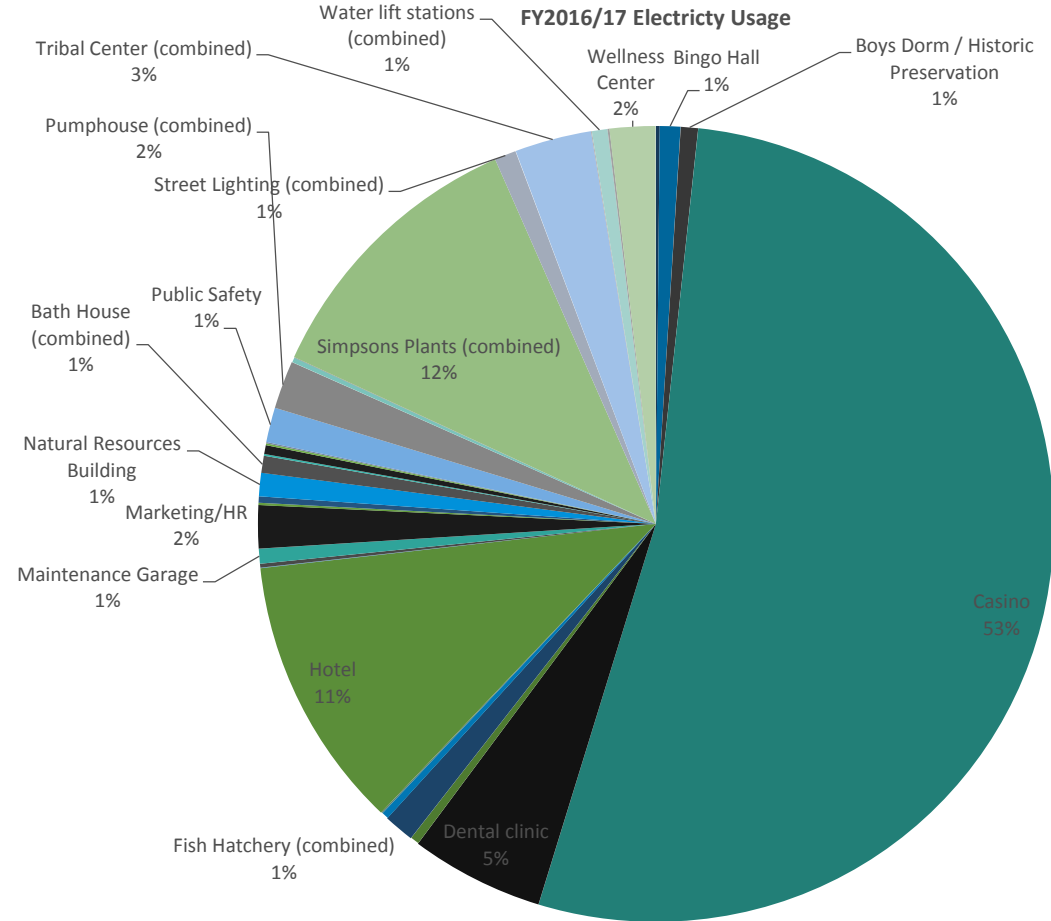
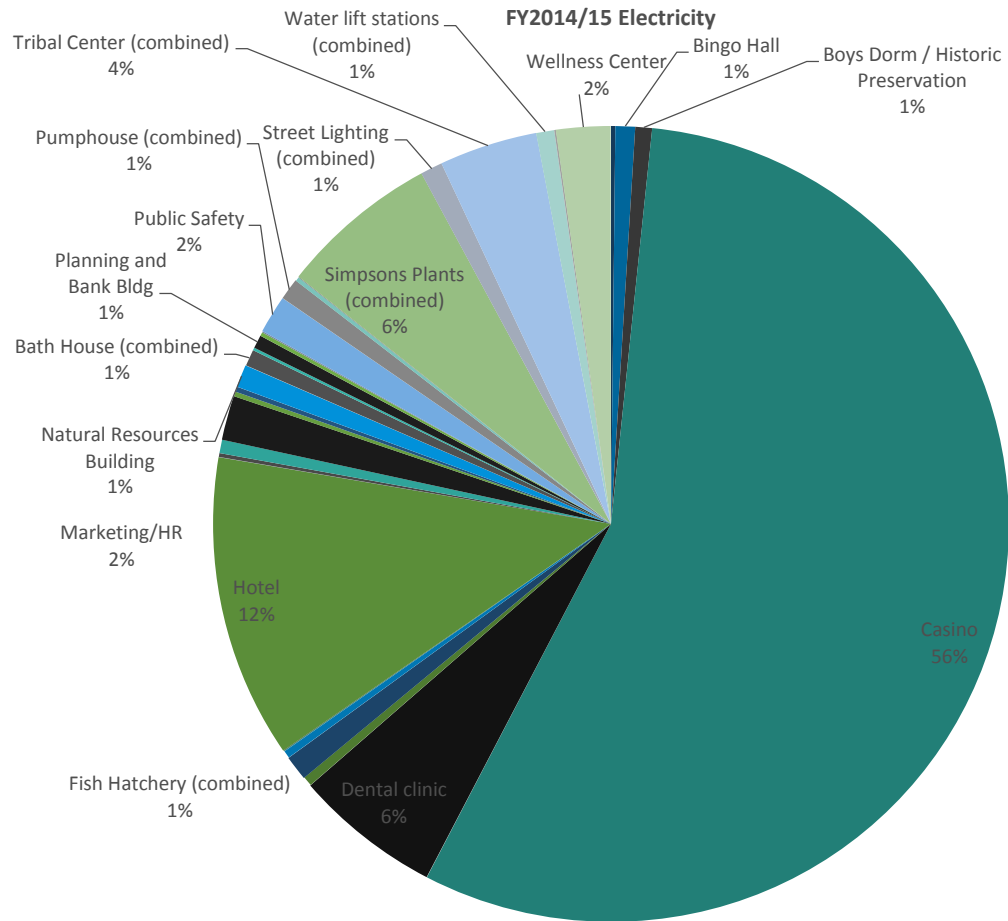


Electricity Data Summary

Total Electricity FY 2015: 9,445,472 kWh

Total Electricity FY 2017: 9,873,483 kWh

Increase of 428,011 kWh

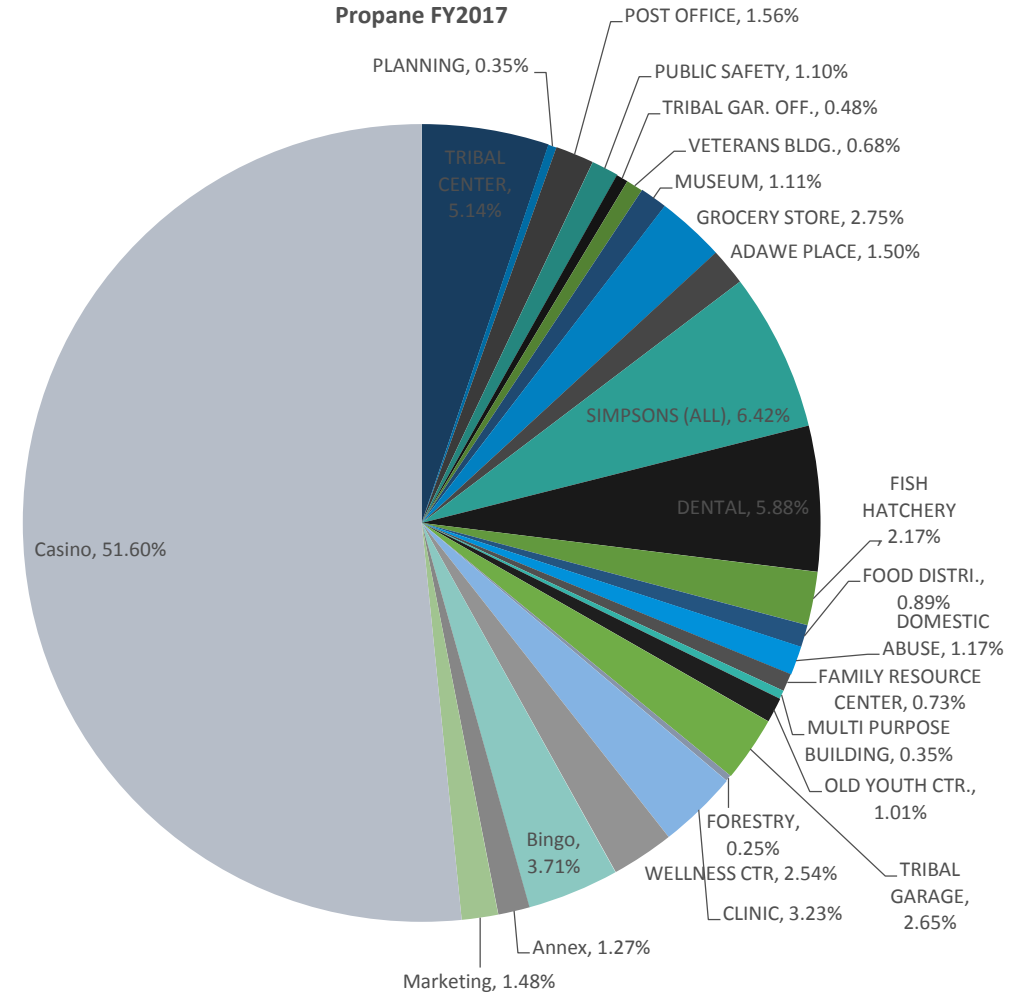
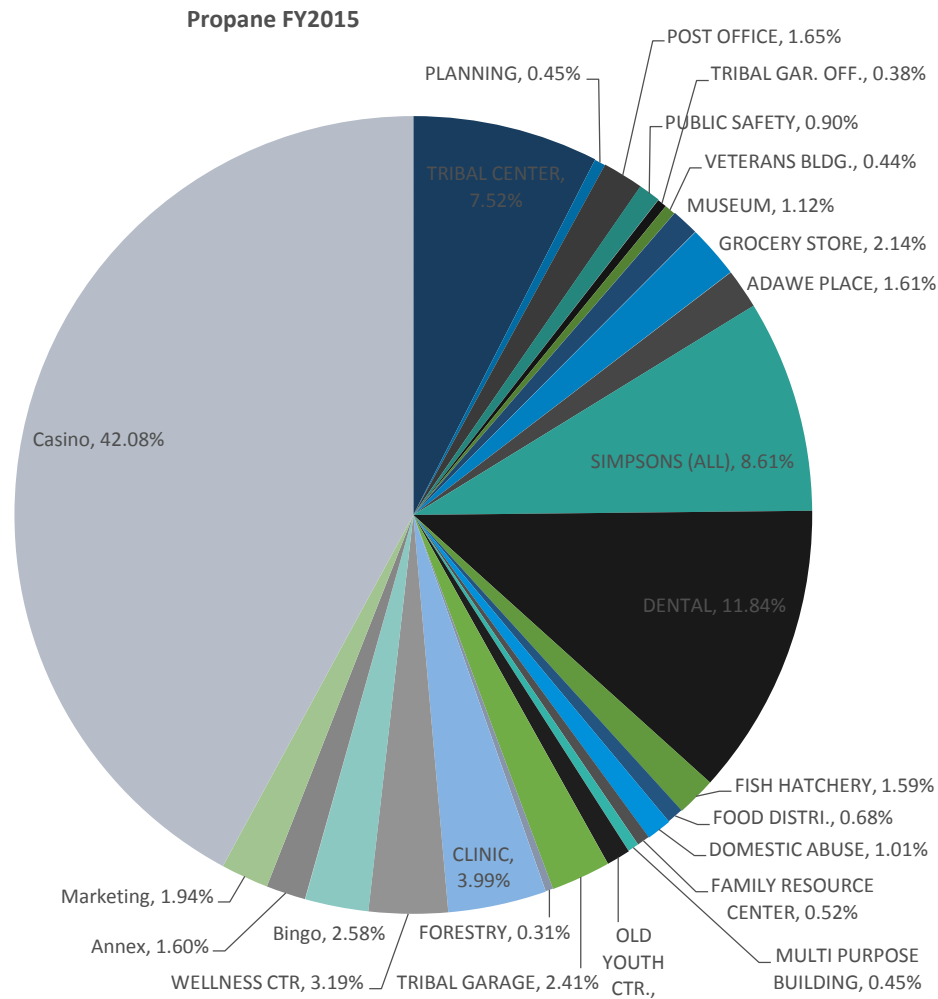


Propane Data Summary

FY 2015 Propane Usage: 325,600 gallons

FY 2017 Usage: 289,216 gallons

Decrease of 36,384 gallons



Project Timeline

Lac du Flambeau Tribe Climate Change Resilience Plan Project Timeline	2017				2018												2019												2020		
	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	
Project Set-up.																															
Community Engagement																															
Climate Vulnerability Assessment																															
GHG Mitigation - (Energy Reduction Plan Development - GHG Emissions Reduction Plan)																															
Adaptation (Environmental Adaptation Plan)																															
Climate Change Resilience Plan																															
Integration into IRMP, EM, and other plans																															



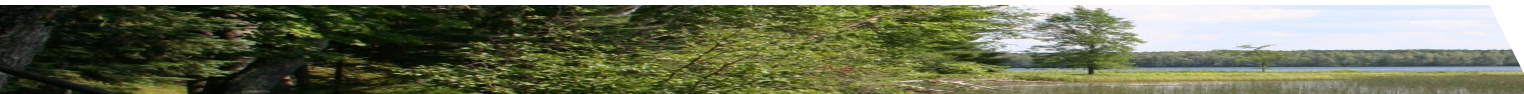
Progress through November 2017

- Contractor RFP
- Hired contractor – Adaptation International
- Management Team kickoff meeting
- TCRP/Contractor kickoff meeting



Progress through December 2018

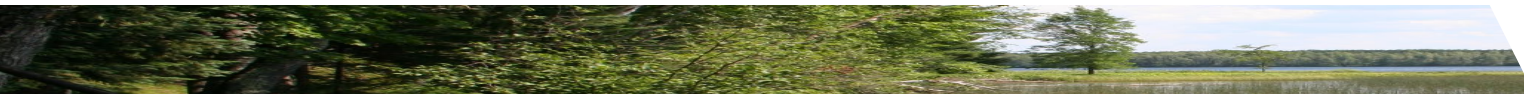
- Community Surveys, Tribal Leader Engagement and TEK Interviews – Identified/Prioritized 20 Species, 4 Infrastructure and 4 Health areas of concern
- Identified Climate Projections that will impact our Community through end of century
- Projected by January 1, 2019 – Vulnerability Assessment of 20 Species, 4 Infrastructure and 4 Health concerns
- Gathered Energy consumption data for all Tribal Facilities/Buildings and analyzing use and emissions



Spring Peeper

Wildrice Stand

Bald Eagle



Miigwitch (Thank You!)



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