St. Croix Chippewa Indians of Wisconsin
CPRG Priority Climate Action Plan (PCAP)

April 2024

Prepared for:

U.S. Environmental Protection Agency
Climate Pollution Reduction Grant Program

Prepared By:

The Saint Croix Chippewa Tribe, in conjunction with WSB,
the Tribe's contracted sustainability consultant

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Key Definitions and Acronyms

CAA: Clean Air Act

CAP: Criteria Air Pollutants

CO2: Carbon dioxide

CO_2e: Carbon dioxide equivalent

Comprehensive Climate Action Plan (CCAP): A narrative report that provides an overview of the grantees' significant GHG sources/sinks and sectors, establishes near-term and long-term GHG emission reduction goals, and provides strategies and identifies measures that address the highest priority sectors to help the grantees meet those goals.

CH_4: Methane. Methane is a greenhouse gas with a GWP that is 25 times that of CO_2. It is produced through anaerobic decomposition of waste, enteric fermentation, production of natural gas and petroleum products, and other industrial processes.

CPRG: Climate Pollution Reduction Grant programs from the Environmental Protection Agency

DOE: United States Department of Energy

EPA: United States Environmental Protection Agency

GHG: Greenhouse gas

GLIFWC: Great Lakes Indian Fish and Wildlife Commission

GPC: Global Protocol for Community-Scale Emissions

Greenhouse gas (GHG Inventory): A list of emission sources and sinks and the associated emissions quantified using standard methods.

HAP: Hazardous Air Pollutant

IPCC: United Nations Intergovernmental Panel on Climate Change

IRA: Inflation Reduction Act

Kg: Kilograms

kW: Kilowatt

kWh: Kilowatt-hour

LEED: Leadership in Energy and Environmental Design

Low Income / Disadvantaged Communities (LIDACs): Communities with residents that have low incomes, limited access to resources, and disproportionate exposure to environmental or climate burdens. Although the Inflation Reduction Act does not formally define LIDACs, EPA strongly recommends grantees use the Climate and Economic Justice Screening Tool and the Environmental Justice Screening and Mapping Tool to identify LIDACs in their communities. These tools identify LIDACs by assessing indicators for categories of burden: air quality, climate change, energy, environmental hazards, health, housing, legacy pollution, transportation, water and wastewater, and workforce development.

MMt: Million metric tons

MPG: Miles per gallon

MW: Megawatt

MT CO_2e: Metric tons of carbon dioxide equivalent. This is the standard unit for measuring greenhouse gas emissions.

NAAQS: National Ambient Air Quality Standards

NbCS: Nature-based climate solutions

PM 2.5: Particulate matter of 2.5 micrometers and smaller

Priority Climate Action Plan (PCAP): A narrative report that includes a focused list of near term, high-priority, and implementation-ready measures to reduce GHG pollution and an analysis of GHG emissions reductions.

SEK: Scientific Ecological Knowledge

Scope 1 Emissions: All direct GHG emissions

Scope 2 Emissions: Indirect GHG emissions from the consumption of purchased electricity, heat, or steam.

Scope 3 Emissions: Other indirect emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, outsourced activities, etc. The Scope 3 emissions included in this inventory are imported water consumption, waste generation, urban forestry, and agriculture & land management.

State: All 50 U.S. states and the District of Columbia and Puerto Rico.

TEK: Traditional Ecological Knowledge

USGCRP: U.S. Global Change Research Program

VMT: Vehicle miles traveled

WHO: World Health Organization

Introduction

The term climate describes regional, other large-scale geographical area, or global weather patterns in terms of precipitation and temperature based on long term observations and may be difficult for humans to detect based on extremely different time scales between human life expectancy and geologic time and the time it typically takes for climate patterns to change and a “new normal” or average to become established.

It is the consensus of the scientific community that the global climate has been changing more rapidly due to anthropogenic influences; mostly the burning of fossil fuels, when comparing long-term weather data from the pre-industrial era to the industrial era.

Global warming is the long-term heating of the earth’s atmosphere influenced by dramatic increases in the concentration of greenhouse gases (GHGs) in the atmosphere. These GHGs trap heat in the atmosphere slowing the release of heat to the outer atmosphere; essentially insulating the earth. These changes to the climate and increases in GHGs and co-pollutants have had, are having, and will continue to have profound effects on ecosystems and humanity.

In the Midwest, these effects are primarily more extreme heat, frequent and intense rainfall events, and flooding. These effects will impact infrastructure, health, agriculture, forestry, transportation, air and water quality, and pose additional risks to the Great Lakes. Projections for northwestern Wisconsin based on the RCP4.5 greenhouse gas emissions scenario available on the Wisconsin Initiative on Climate Change Impacts website show that winters will become warmer, and the frequency and magnitude of severe storm events will increase. These events will have a disproportionate effect on low-income and disadvantaged communities who have fewer resources to respond or adapt to these impacts.

This Priority Climate Action Plan (PCAP) is a requirement of the Climate Pollution Reduction Grant that was awarded to the St. Croix Chippewa Indians of Wisconsin (SCCIW) in the fall of 2023. It covers policies, projects, and practices aimed to reduce greenhouse gas (GHG) emissions that are achievable in the short term. This document will be used to apply for funding from the U.S. Environmental Protection Agency (EPA) in a second phase, to implement projects before 2030.

The SCCIW are a self-governing, sovereign nation with unique resources and capacity to implement plans to reduce GHGs on Tribal lands. Through various plans produced by the SCCIW, the Tribes have already begun to prioritize and search for opportunities to adapt to the changing climate. These priorities include:

- Energy Sovereignty- This includes dramatically decreased or no energy costs to Tribal members.
- Protection of Cultural and Natural Resources.
- Improve physical health of Tribal members.
- Provide employment and economic opportunity for the Tribe and its membership.

The State of Wisconsin has a goal of 100% carbon-free electricity consumed by 2050. Through this EPA grant, the SCCIW aim to accelerate GHG reduction goals on Tribal lands through energy efficiency and carbon-free electricity. This Priority Climate Action Plan (PCAP) outlines measures to reduce GHG emissions over the next several years under projects and practices they have jurisdiction and is focused on creating opportunities to work through the community of stakeholders to make efficient progress on reducing these emissions.

Climate Pollution Reduction Grant Overview

The U.S. Environmental Protection Agency (EPA) Climate Pollution Reduction Grant (CPRG) program provides $5 billion in grants to states, local governments, Tribes, and territories to develop and implement ambitious plans for reducing GHG emissions and other harmful air pollutants. Authorized under Section 60114 of the Inflation Reduction Act, this two-phase program provides $250 million for noncompetitive planning grants and approximately $4.6 billion for competitive implementation grants.

The CPRG program is part of the Justice40 initiative, which sets a goal that 40% of the benefits of certain federal investments flow to disadvantaged communities that are "marginalized, underserved, and overburdened" by pollution. This unprecedented climate investment will provide public health benefits to communities most vulnerable to the impacts of climate change. The CPRG program will enable aggressive action to reduce GHGs through critical climate mitigation efforts.

The Climate Pollution Reduction Grants (CPRG) program has an overall goal of tackling climate pollution while supporting the creation of good jobs and lowering energy costs for families, accelerating work to address environmental injustice and empower community driven solution in overburdened areas, and deliver cleaner air by reducing harmful air pollution in places where people live, work, play, and go to school. This program will support actions to reduce GHG's and toxic air pollution through deployment of new technologies, operational efficiencies, and solutions that will transition America equitably to a low-carbon economy that benefits all Americans.

The SCCIW was awarded a Tribal planning grant that require three deliverables over four years:

- Priority Climate Action Plan (PCAP): Due April 1, 2024
- Comprehensive Climate Action Plan (CCAP): Due July 2025
- Status Reports – ongoing through July 2027

Related Plans and Context

The Wisconsin Clean Energy Plan

The Wisconsin Clean Energy Plan (CEP)[1] aims to change the adverse trajectory of climate change impacts. The CEP provides a framework for Tribal Nations, among other entities in Wisconsin, to take advantage of the influx of federal dollar for clean energy and environmental justice initiatives through programs and policies, supporting the use of clean energy resources and technologies, fostering innovation, and protecting public health and identifying and creating energy workforce opportunities. The CEP seeks to achieve the following objectives, as they align with the work proposed in the SCCIW's PCAP:

- 100% carbon-free electricity consumed by 2050 within the state of Wisconsin
- Align and fulfill carbon reduction goals as outlined in the 2015 Paris Agreement
- Reduce disproportionate impacts of energy generation and use on low-income communities and communities of color
- Maximizing the creation of, and equitable opportunities for, clean energy jobs, economic development and stimulus, and retention of energy investment dollars in Wisconsin
- Improve reliability and affordability of the energy system
- Strengthen clean energy workforce through training and education while retraining workers affected by the clean energy transition

[1] https://osce.wi.gov/PublishingImages/Pages/Forms/EditForm/Clean%20Energy%20Plan%202023%20Progress%20Report.pdf

- Protect human and environmental health by reducing ecosystem pollution from fossil fuels

St. Croix Forestry Inventory, Planning and Climate Change Susceptibility Plan

This project focused on providing an understanding of the existing forest resources (based on ground-level forest surveys over varying years) through an analysis of existing forestry data in combination with other ecological datasets while describing potential changes to the forest landscape using available climate change and climate-forest models. Lastly, mitigating steps, such as tree plantings, and a quantification of associated benefits were listed to aid in making resource management decisions by the SCCIW and integrated into plans such as the PCAP and Comprehensive Climate Acton Plan.

Specifics from this plan will be discussed in later sections.

Priority Climate Action Plan Overview and Definitions

The SCCIW PCAP leverages past and ongoing climate action planning. It focuses on measures that can be implemented near-term to reduce GHG emissions and advance climate pollution reduction goals.

The PCAP components include:

- A GHG inventory
- GHG reduction targets
- Quantified GHG reduction measures
- Benefits analysis
- A review of authority to implement
- Identification of other funding mechanisms, and
- Workforce planning analysis

Challenges involved in the development of this plan included a lack of publicly accessible and localized data to calculate a highly accurate emissions portfolio, along with limiting capacity for Tribal staff to assist.

SCCIW chose to participate in the CPRG to meet the goals identified in the introductory section. Those goals are:

- Energy Sovereignty - This includes dramatically decreased or no energy costs Tribal members
- Protection of Cultural and Natural Resources
- Improve physical health of Tribal members
- Provide employment and economic opportunity for the Tribe and its membership

The Tribe recognizes that the CPRG, associated implementation funding, and the two (2) planning documents, the PCAP and CCAP, will not provide a holistic pathway and all resources needed to meet these goals, but still provides an opportunity to move forward.

In addition, this plan will provide a basic understanding of climate pollution and its associated effects and impacts to Tribal council, membership, and decision makers.

Approach to Developing the PCAP

A PCAP outline was drafted to aid in the development of a CPRG workplan for the grant submittal. This outline included the required PCAP elements and some additional sections on carbon sinks were included along with sections describing GHGs and co-pollutants to provide a more tangible document for people to understand “real-world” impacts of climate pollution to the SCCIW community, economy, and resources.

SCCIW developed a QAPP using the draft QAPP provided by the US EPA. This QAPP was finalized in November 2023. In December 2023, SCCIW selected WSB to assist in drafting the PCAP and CCAP, along with facilitating internal and external stakeholder meetings.

The GHG Emissions Inventory was completed by WSB Engineering in February and March 2024 for the SCCIW Tribe. The EPA's Tribal Community GHG Inventory Tool was used to approximate annual emissions from multiple sectors. An emphasis was placed on the accuracy of Tribal-owned commercial energy data, where WSB received utility bills from most of the Tribe's largest emitting facilities (casinos, markets, hotels, etc.). Residential data involved collecting average single-family energy and fuel bills and extrapolating information for the whole Tribe, and transportation data was calculated using a fraction of Burnett County, Wisconsin, using the National Emissions Inventory (NEI) tool.[2]

SCCIW and consultants conducted stakeholder engagement in the form of a workshop in addition to reaching out to stakeholders in various ways including through emails where we solicited written feedback. These stakeholders included the Tribal community, county departments, and private utility companies currently serving SCCIW. In total, several dozen community members/organizations participated in the plan's development. A primary emphasis was on an in-person workshop hosted mid-March to discuss PCAP goals and scenarios for greenhouse gas reduction with key stakeholders representing various aspects of the community. See Appendix A for the Stakeholder Engagement Summary.

St. Croix Chippewa Indians of Wisconsin

The St. Croix Band of Chippewa Indians (SCCIW) are Wisconsin's native inhabitants and have a history of deep connection with the natural environment. For the Ojibwa People or Chippewa, as they became to be known, the woodlands provided all the materials needed for life including homes, food, ornaments, children's toys, and transportation, and also gave artistic and spiritual inspiration. In the modern day, the woodlands of northern Wisconsin remain an important aspect of life for Tribal members.

Today, SCCIW is composed of small tracts of lands representing communities made up of families who have lived in the same vicinity for generations. The five major SCCIW Tribal communities are Sand, Danbury, Round Lake, Maple Plan, and Gaslyn. They occupy land in Barron, Burnett, Polk and Douglas Counties, reservations lands occupy 6,338 acres.

[2] Available at: https://www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei

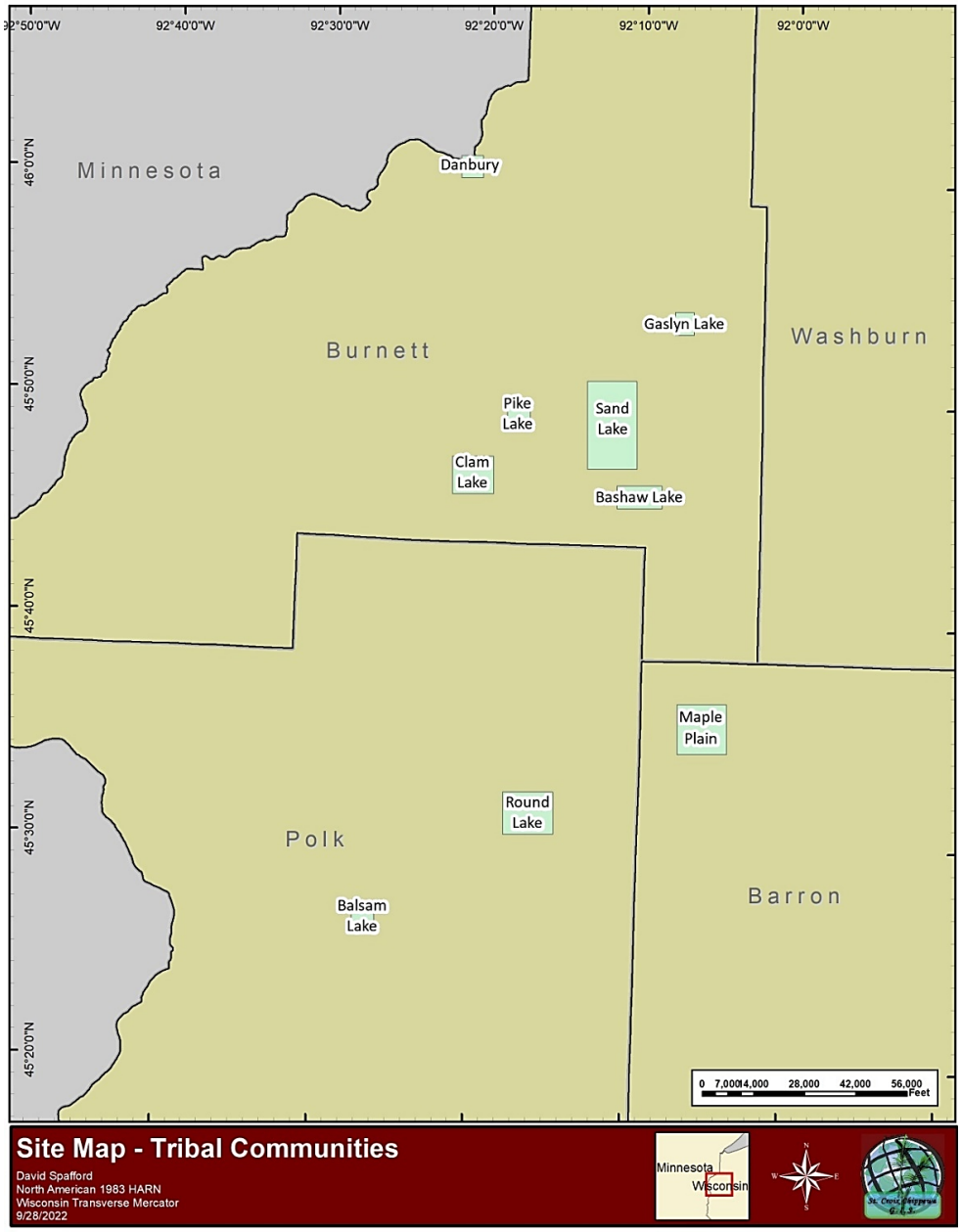

Figure 1 - SCCIW Communities

The SCCIW is a Sovereign Nation and a federally recognized Tribe governed by a five-member council, elected biannually to serve staggered four-year terms. The Tribal Council is responsible for the welfare of Tribal members and managing the daily Tribal business. The Council is governed by the Tribal constitution and by-laws, which were originally ratified under the Indian Reorganization Act.

The Tribal Government and Tribal Enterprises are one of the area's largest employers with over 1,000 employees. Departments within the Tribal Government include a Heath Department/Clinic, Family Resource Center, Housing Authority, Construction Company, Youth/Education, Elders, Food Distribution, EPA, Natural Resources, Police Department and many other departments and agencies dedicated to service in the SCCIW Tribal Community. SCCIW Tribal Government consist of a variety of services and departments to support Tribal membership, protect and improve natural resources, manage the day-to-

day operations of the Tribe. The SCCIW Tribal Environmental and Natural Resources Department houses a variety of programs which includes brownfields, Indoor Air, Solid Waste and Recycling, Surface Water Quality Monitoring, and Fisheries. In addition to these governmental services the Tribe also has a number of enterprises including three (3) casinos, two (2) campgrounds, a supermarket, and three (3) gas stations. SCCIW also has a Tribal economic development corporation that is charged with promoting economic development of the SCCIW Tribe through a variety of mechanisms.

Climate Pollution and GHGs

Climate pollution is a blended term related to both climate change and air quality. Climate change was discussed in a previous discussion. Air quality describes the general quality of the air related to an array of various constituents that may be found within the air. These may be chemical compounds and or particulate matter. Some are naturally occurring, and others are man-made chemicals.

We previously discussed one class of climate pollution in the form of GHGs. GHGs include:

- Carbon dioxide
- Methane
- Nitrous oxide
- Ozone
- Fluorinated gases
- Water vapor

These occur naturally with the exceptions of fluorinated gases which are synthetic. Water vapor is naturally occurring and is considered “feedback” as a function of temperature and is not listed as criteria pollutant are described in terms of water vapor reduction as part of a strategy to reduce the effects of GHGs. Elevated levels of these gases insulate the earth and result in the acceleration of global warming as their concentrations increase in the atmosphere. These artificial and accelerated concentrations are primarily the result of human activities such as combustion of fossil fuels, land clearing practices, uncontrolled wildfires, and the use of fluorinated gases in aerosols and materials production.

Aside from GHGs, there are hazardous air pollutants (HAPS) or “air toxics”. These can be gases, compounds, or metals. There are 188 listed HAPS for which health effect information has been developed based on various levels of exposure. There are also six (6) Criteria Air Pollutants (CAPS) for which air quality standards (primary and secondary) have been developed under the Clean Air Act. These include:

- Carbon Monoxide
- Lead
- Nitrogen Dioxide
- Ozone
- Particle Pollution (PM)
- Sulfur Dioxide

This information has been provided to the reader for background and to develop an understanding of the various pollutants and the relationship between climate change and these pollutants as this will be discussed in later sections.

Impacts to Human Health and Safety

The impacts to human health and safety due to climate change, associated GHGs, and HAPs are well documented and significant. A report[3] published by the US Global Change Research Program (USGCRP) in 2016, provides a comprehensive assessment of these impacts. **Table 1** below (taken from this report), lists these impacts along with climate driver, exposure, health outcome, and impact.

Table 1 - Examples of Climate Impacts on Human Health

	Climate Driver	Exposure	Health Outcome	Impact
Extreme Heat	More frequent, severe, prolonged heat events	Elevated temperatures	Heat-related death and illness	Rising temperatures will lead to an increase in heat-related deaths and illnesses.
Outdoor Air Quality	Increasing temperatures and changing precipitation patterns	Worsened air quality (ozone, particulate matter, and higher pollen counts)	Premature death, acute and chronic cardiovascular and respiratory illnesses	Rising temperatures and wildfires and decreasing precipitation will lead to increases in ozone and particulate matter, elevating the risks of cardiovascular and respiratory illnesses and death.
Flooding	Rising sea level and more frequent or intense extreme precipitation, hurricanes, and storm surge events	Contaminated water, debris, and disruptions to essential infrastructure	Drowning, injuries, mental health consequences, gastrointestinal and other illness	Increased coastal and inland flooding exposes populations to a range of negative health impacts before, during, and after events.
Vector-Borne Infection (Lyme Disease)	Changes in temperature extremes and seasonal weather patterns	Earlier and geographically expanded tick activity	Lyme disease	Ticks will show earlier seasonal activity and a generally northward range expansion, increasing risk of human exposure to Lyme disease-causing bacteria.
Water-Related Infection (*Vibrio vulnificus*)	Rising sea surface temperature, changes in precipitation and runoff affecting coastal salinity	Recreational water or shellfish contaminated with *Vibrio vulnificus*	*Vibrio vulnificus* induced diarrhea & intestinal illness, wound and bloodstream infections, death	Increases in water temperatures will alter timing and location of *Vibrio vulnificus* growth, increasing exposure and risk of waterborne illness.
Food-Related Infection (*Salmonella*)	Increases in temperature, humidity, and season length	Increased growth of pathogens, seasonal shifts in incidence of *Salmonella* exposure	*Salmonella* infection, gastrointestinal outbreaks	Rising temperatures increase *Salmonella* prevalence in food; longer seasons and warming winters increase risk of exposure and infection.
Mental Health and Well-Being	Climate change impacts, especially extreme weather	Level of exposure to traumatic events, like disasters	Distress, grief, behavioral health disorders, social impacts, resilience	Changes in exposure to climate- or weather-related disasters cause or exacerbate stress and mental health consequences, with greater risk for certain populations.

The World Health Organization (WHO) lists the most common health issues associated with exposure to air pollution as:

[3] USGCRP, 2016: The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment. Crimmins, A., J. Balbus, J.L. Gamble, C.B. Beard, J.E. Bell, D. Dodgen, R.J. Eisen, N. Fann, M.D. Hawkins, S.C. Herring, L. Jantarasami, D.M. Mills, S. Saha, M.C. Sarofim, J. Trtanj, and L. Ziska, Eds. U.S. Global Change Research Program, Washington, DC, 312 pp.

- Stroke
- Heart Disease
- Lung disease
- Lung cancer
- Pneumonia

A variety of human health impacts can result from exposure to HAPs. Fact sheets for each HAP are available on the US EPA's website[4]. Each Factsheet provides detailed information which includes:

- Chemical Name and CAS Number
- Hazard Summary
- Uses
- Sources and Potential Exposure
- Assessing Personal Exposure
- Health Hazard Information
  - Acute
  - Chronic
  - Reproductive and Developmental
  - Cancer Risks
- Physical Properties

Native American Communities experience a higher risk to health and safety from air pollution and climate change due to existing comorbidity, intimate connection to the natural environment, institutional barriers, lack of reliable infrastructure, and geographical isolation. The same USGCR report referenced above includes a chapter titled "Populations of Concern" in which this disproportionate risk is discussed in detail.

One example, and perhaps one of the most important pollutants to consider from a Wisconsin Tribal perspective, is mercury. Mercury is a naturally occurring element (metal) found in rocks and in coal. Mercury can be released into the environment naturally through volcanoes and forests fires, but the primary emission source is the burning of coal, wood, and oil. Mercury is released into the atmosphere through these activities then falls back to earth in the form of rain or dust. Mercury that enters the aquatic environment can be absorbed by fish through their gills or is taken up by smaller aquatic organisms which are fed on by fish which results in bioaccumulation or increasing concentrations of mercury as trophic layers increase. In this example this means that higher concentrations of mercury are found in larger fish as they feed on smaller fish and accumulate the mercury found in each of the fish they are feeding on.

Fish (primarily walleye) play a central role in the culture and diet of the Great Lakes Tribes. These Tribes retained the right to hunt, fish, and gather within the ceded territories covered under a series of treaties between the Tribes and the US Government. Chippewa Tribes exercise these rights to this day which includes the harvest of walleye through spearing and netting. Due to these cultural activities, fish consumption in Tribal communities is much higher than the general population, resulting in the potential higher exposure to mercury in fish tissue (the general population may also be exposed to mercury by consuming fish). Because of this, Tribal communities, government entities, and non-profits place a special emphasis informing and reducing risk/exposure to mercury primarily through educating Tribal harvesters and members of Tribal communities. This outreach and education includes color-coded harvest advisory maps for groups of consumers by age and sex, processing, and preservation instructions.

[4] https://www.epa.gov/haps/health-effects-notebook-hazardous-air-pollutants

Much of this planning document focuses on the reduction of GHGs, but the SCCIW wish to elevate the importance of reducing mercury in the environment through a variety of direct and indirect measures as a primary co-benefit.

In an effort to address air pollution and its impacts, the US Congress passed the Clean Air Act (CAA) in 1970 and made major revisions in 1977 and 1990. Amongst other things, the CAA required the EPA to establish National Ambient Air Quality Standards (NAAQS). These apply to the six (6) CAPs listed above. The primary standards protect human health while the secondary standards protect public welfare which includes damage to crops, vegetation, and buildings.

These standards list the CAP, a primary or secondary designation, the averaging time, the numerical threshold and narrative of how to apply the standard. These standards can then be used to determine if measured air quality meets or exceeds the standard. If the standards are not met for one or more standards, then the air is considered polluted and the area for which the standard is not met is designated as a "non-attainment area". These areas are identified in the EPA's Green Book which provides data on each of the CAPs.

A review of the information shows that the following Non-Attainment Areas Exist in our region:

- Lead
  - Eagan, MN
- Carbon Monoxide
  - Anoka County
  - Carver County (P)
  - Dakota County (P)
  - Hennepin County
  - Ramsey County
  - Scott County (P)
  - Washington County (P) All cities and townships except Denmark Township.
  - Wright County (P)

Impact on Cultural and Natural Resources

The connection between the natural world and Tribal communities cannot be overstated and cannot be fully described in this document. It may be best to reference the reader to the document "Dibaginjigaadeg Anishinaabe Ezhitwaad: A Tribal Climate Adaptation Menu" to begin to develop an understanding of this core belief and way of life.

To provide some context, this relationship/bond between Tribes and the natural world is paramount to how Tribes lived, live, and will live. Therefore, protection and restoration (when possible) of these systems is critical to the well-being of Tribal communities. The impacts of air pollution and climate change impact spiritual, mental, and physical health of Tribal members along with the direct impacts to the environment.

Impacts of climate change and air pollution on the environment is complex, especially when considering the synergy (good or bad) with other impact areas such as human health and economies. One approach would be to divide impacts/impacting factors into *physical* (hydrology, temperature, wind, etc.) and *chemical* (GHGs, HAPs, etc.).

Physical influences/impacts/forces can dramatically impact environmental health and arrangement in a variety of ways. These physical influences include but are not limited to changes in precipitation patterns, temperatures, and increased or decreased hydrology and therefore, water levels.

Both physical and chemical influences can reduce or increase growth rates, increase mortality, result in shifts in geographic location (range) of species, or cause species to become threatened, endangered, or

extinct. For SCCIW this is especially impactful as the membership is tied to the land on which and water near where they live historically, presently, and in the future. Moving may not be possible and would result in great harm to or elimination of their culture.

The Wisconsin Initiative on Climate Change Impacts 2021 Assessment Report[5] includes sections on land management (agriculture, forestry, Plants and Natural Communities, and Wildlife) and Water Resources (water levels, water quality, water temperatures, ice cover, fisheries, Great Lakes and Mississippi River).

Key points from the land management section of this report are:

- Warmer winters, wetter springs, and extreme weather events are making agricultural production in Wisconsin less competitive and overwhelming conservation practices to keep soil in place and protect water quality. A shift towards increasing living cover on farm fields and promoting rotational grazing can reduce greenhouse gas emissions, which have increased by 14.3 percent from 2005 to 2017. Well-managed pastures and farm fields build and retain soil carbon, help communities cope with the increase in extreme rainfall events, and reduce damage to roads, bridges, and other infrastructure.
- Warmer winters, increasing deer herds, extreme weather events, summer droughts, and longer growing seasons are stressing forest ecosystems and increasing the risk of outbreaks of new pests and diseases. Iconic species like paper birch are vanishing from northern forests as the climate warms. Forest management, logging, and the forest products supply chain are facing uncertainty, with implications for rural economies.
- Warmer and wetter conditions, extreme storms, summer droughts, milder winters, and longer growing seasons are amplifying non-climate stressors to the point where diverse native habitats are simplified, associated wildlife species are diminishing or disappearing, and species extinction rates are accelerating.
- Changing growing seasons, summer droughts, reduced snowpack, and increased flooding are reducing critical habitat and food sources for many wildlife species. Many species are shifting ranges and changing migration patterns to adjust to the changes. Climate-vulnerable species need help to adapt to rapidly changing conditions.

Key points from the water resources section include:

- Warming temperatures and changing precipitation patterns are decreasing water quality and changing aquatic ecosystems.
- Warmer water temperatures and increasing variability in ice on and off dates, duration and thickness are changing the fish species that can live in Wisconsin's waters. Cool- and cold-water fish are particularly at risk. Loss of these resources will have spiritual, cultural, and health impacts to Wisconsin's eleven Tribes and other subsistence fishers.
- Warming waters in the Great Lakes are impacting lake ecology, fisheries, and water-quality based recreation. Both increasing precipitation and drought are leading to extreme lake level fluctuations in Lake Superior and Lake Michigan that impact both habitats and structures built along the lakeshore.
- A wetter climate is increasing the volume of water flowing in the Mississippi River and impacting critical backwater habitat and recreational fishing opportunities.

These key points summarize changes/impacts to land and water resources across the state. These key points illustrate the impacts from climate change and air pollution on a large cross section of natural resources. While this information is relevant, data and reports specific to SCCIW are available to inform and guide decisions to adapt and mitigate the impacts of climate change on natural and cultural resources.

[5] https://wicci.wisc.edu/2021-assessment-report/

In 2022, the SCCIW Tribal Environmental and Natural Resources Department finalized a report titled “ST. CROIX FOREST INVENTORY, PLANNING AND CLIMATE CHANGE SUSCEPTIBILITY PROJECT” that provided a holistic description of forest stands across fee and trust lands, aggregated various climate prediction, forest climate impact models, invasive species datasets, and forest disease layers that summarized the potential impact to SCCIW forests based on inventory data, listed mitigation and adaptation actions, and quantified benefits of tree planting projects. The benefits and specific actions (reduction strategies) will be discussed later in this plan.

While there are predictable climate change outcomes, their direct influence on the SCCIW reservation forested lands will be variable depending on soil type, geography, and species composition. The Climate Change Field Guide for Northern Wisconsin Forests helps to predicts the capability of trees to withstand changes to a warmer, wetter, and more intense storm system. An overview of the species predicted to have poor, fair, good, mixed potentially new habitat with migration potential is shown in **Table 2** below.

Table 2 - Climate Change Capability in the SCCIW Tribal Lands

Location	North Central Wisconsin Uplands (Section 212Q)	Western Wisconsin Superior Uplands (Section 212K)
POOR CAPABILITY	• American hornbeam • Eastern hemlock • Balsam fir • Tamarack (native) • Balsam poplar • Yellow birch • Black spruce	• American hornbeam • Black willow • Balsam fir • Eastern hemlock • Balsam poplar • Serviceberry • Black spruce • Slippery elm
FAIR CAPABILITY	• American basswood • Quaking aspen • Bigtooth aspen • Red pine • Black ash • White ash • Jack pine	• Black ash • Tamarack (native) • Jack pine • White ash • Quaking aspen • Yellow birch • Red pine
GOOD CAPABILITY	• American elm • Ironwood • Bitternut hickory • Northern pin oak • Black cherry • Northern red oak • Black oak • Red maple • Boxelder • Silver maple • Bur oak • Slippery elm • Eastern redcedar • Sugar maple • Green ash • White oak • Hackberry	• American basswood • Hackberry • American elm • Ironwood • Black cherry • Northern pin oak • Black oak • Northern red oak • Black walnut • Red maple • Boxelder • Silver maple • Bur oak • Sugar maple • Eastern redcedar • White oak • Green ash
MIXED RESULTS	• Eastern white pine • Paper birch • Northern white-cedar • White spruce	• Bigtooth aspen • Northern white-cedar • Bitternut hickory • Paper birch

		• Eastern cottonwood • White spruce • Eastern white pine
NEW HABITAT WITH MIGRATION POTENTIAL	• American beech • Red mulberry • Blackgum • Sassafrass • Chinkapin oak • Shagbark hickory • Honeylocust • Shingle oak • Pignut hickory • Sycamore • Pin oak	• American beech • Red mulberry • Black locust • Sassafras • Honeylocust • Shagbark hickory • Osage-orange

Based on the forest inventory of SCCIW lands, the table provides a “mixed bag” for its forest resources.

Two (2) species are highlighted for the remainder of this section - walleye and wild rice. As discussed in the human health and safety section, walleye are a central component of the traditional and present-day diet of Great Lakes Tribal Communities. Because of this and the cultural connection to walleye, negative changes in abundance of health of this species can be catastrophic to these communities.

Annual electrofishing surveys focused on young of year walleye between 1995 and 2014 show a decreasing trend in abundance of age-0 walleye and an increasing trend in largemouth bass relative abundance (over 8”). These trends may be due to a variety of factors, but the impact of climate change on these fish communities was assessed specifically in a study completed by Hansen et al. 2017. This study calculated the increase in lake temperatures based on various existing climate models to predict changes in the relative abundance of age-0 walleye and relative abundance of bass across the study area and created a web-based application for the public and researchers to view prediction for three (3) time periods on a lake-specific basis. Conclusions of the study show that most lakes will warm and will not provide the thermal habitat walleyes need to support natural reproduction, but a majority of lakes will favor largemouth bass.

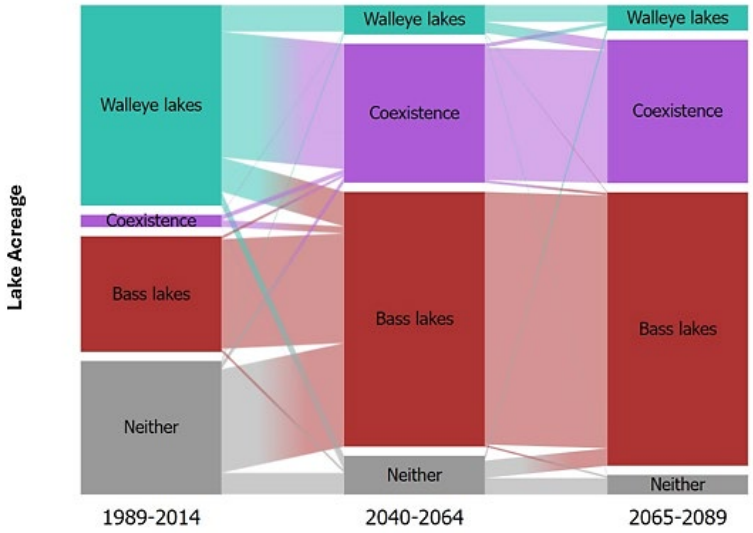

Figure 2 - Changes in walleye and largemouth bass communities in Wisconsin[6]

[6] Source: Hansen et al 2017.

Other recent studies identified that high variability in ice-out dates can impact the timing of adult walleye egg laying and fertilization. If eggs are laid too early or too late, the walleye fry will not have adequate food sources (zooplankton) to service as water temperature dictates zooplankton and phytoplankton abundance.

In addition, extreme changes in lake hydrology and stream hydrology may be scouring rocky/gravely substrate where walleye lay eggs and further limiting the ability of fry to hatch, reducing the abundance of young walleye and ultimately adults.

Wild rice is another resource central to the way of life for Wisconsin's Chippewa Tribes. Impacts from anthropogenic factors such as lakeshore development and installation of roadways and culverts in addition to invasive species, have already reduced the acreage, density, and health of wild rice beds across Wisconsin. The added stressors from climate pollution and change will further reduce this important cultural resource.

Version 2 of Aanji-bimaadiziimagak o'ow aki (The World is Changing), a climate vulnerability assessment completed by the GLIFWC climate Change Team in 2023, provides an assessment of 66 beings along with a numerical vulnerability score on a scale from 0 (least vulnerable, to 32 (extremely vulnerable) and a blend of traditional ecological knowledge (TEK) and scientific ecological knowledge (SEK).

The best-case scenario vulnerability score for wild rice is 14, while the worst-case scenario is 30, these scores make wild rice the most vulnerable being in the entire assessment. Of the 27 applied criteria to wild rice based on the CCVI methodology, 11 were identified as having either "somewhat of an increase" or "increase" on wild rice's vulnerability to climate change. Factors that influenced this score include, but are not limited to, natural barriers, land use changes (predicted), poor natural dispersal, physiological thermal niche, historical and physiological hydrological niche, disturbance regime, ice dependence, pathogen sensitivity, and documented response to climate change.

Wild rice is an annual plant and goes through a number of life stages within a singular growing season. One of the most vulnerable stages is floating leaf which happens in early summer. The plant grows one leaf that floats on top of the water. The plant "breathes" through this leaf until the primary stem or tiller grows and forms additional emergent leaves. In this stage high water or rapid changes in water level can drown or uproot the plant due to its very shallow root system in what is most often flocculant substrates. Also, the seeds need to freeze or be very cold for a period of four (4) to five (5) months to break dormancy. Increasing lake temperatures referenced in the walleye study may affect the ability of seeds to remain viable.

Effects on Economics

There is immense uncertainty around some of the global economic models that attempt to estimate the aggregate impact of climate change on the global economy, but the models do agree there will be some negative impact even under the least severe climate change scenario. In an article published online by the Center for Global Development (Kenny 2022), the author states that "climate change is not likely to make the world poorer than it is, even though it will make it poorer than it might have been." This is based on economic projections using a variety of climate change models to predict global economic growth rates through 2100. Conclusions in this article share agreement with those in many other reports, with one of the most often cited conclusions being the most severe economic impacts will be concentrated in areas least able to bear them and least responsible for them. From a climate justice perspective this would require richer countries to assist with economic growth in these areas to support adaptation, take a more aggressive approach to GHG reductions, and be prepared to provide crisis response efforts to these areas from climate change induced natural disasters.

Similarly, the US will experience economic impacts from climate change. Some studies state a 0.7% decrease in gross domestic product (GDP) for every 1°F increase in temperature on average and that the

US could lose 1 to 4% of GDP annually by 2100. As with the global economic scenarios, these impacts will be most severe in the poorest one-third of US counties.

NOAA's National Centers for Environmental Information-Billion Dollar Weather and Climate Disasters Database[7], shows that the number of these events/year has increased from 0.5/year between 1980 and 1989 to 1.6/year between 2010 and 2019. In the last five (5) years (2019 to 2023), that has increased to 4.2/year and a total of 21 events. In 2023 alone, there were 6 events (note that these were adjusted using consumer price index).

The Fifth National Climate Assessment Report (2023)[8] includes a chapter on Tribes and Indigenous Peoples. Within that chapter, indigenous livelihoods and economies are discussed. Climate change threatens to disrupt subsistence practices such as planting and harvesting and loss of timber revenue and tourism dollars (which may include gaming). Additionally, damage to infrastructure (roads, bridges, etc.) from extreme weather events such as flooding, may disproportionately impact Tribes and Tribal governments due to lack of funding or revenue from other impacted sectors.

GHG Sources Inventory

Overview

The SCCIW focused this greenhouse gas inventory on energy emitting sectors, including commercial and residential, transportation, and land use. In fiscal year 2022, the SCCIW generated 87,339 metric tons of CO_2 equivalent ($MMtCO_2e$) emissions from these sectors. Transportation is SCCIW's largest contributor of GHG emissions, followed by energy, particularly from building use.

Methods used to estimate GHG emissions for commercial and residential facilities included working directly with Tribal staff to pull, review, and calculate energy and fuel totals for casinos, hotels, other commercial buildings, attached parking lots, maintenance garages, homes, and more. In all cases, the Global Warming Potential from IPCC5 was used for converting all gases to CO_2 equivalency.

As the data collection process progresses, future reporting will see enhancements. For the CCAP, SCCIW is looking at gathering data directly from third-party sources that were unavailable during the PCAP due to the swift timeline. This encompasses electric, gas, and propane utility information from utility providers, vehicle registration details from motor vehicle departments, public transportation ridership figures, wastewater treatment plant data, gas station records regarding fuel sales volume, as well as data concerning livestock and agricultural emissions.

Table 3 - SCCIW GHG Emissions Inventory

Sector	Emissions (Metric Tons CO_2e)
Stationary Energy and Fuel (Buildings)	49,808
Transportation	53,903
Waste	2,001
Agriculture, Land Use, Other	1,076
Total	**87,339**

Total GHG Emissions from the SCCIW are 87,339 $MTCO_2e$ (metric tons of carbon dioxide equivalent). As shown in Figure 3, most of the greenhouse gas emissions produced come from the Transportation and

[7] https://www.ncei.noaa.gov/access/billions/
[8] https://nca2023.globalchange.gov/

Buildings sectors, while approximately 3% of emissions are from Waste and Agriculture, Land Use, and Other.

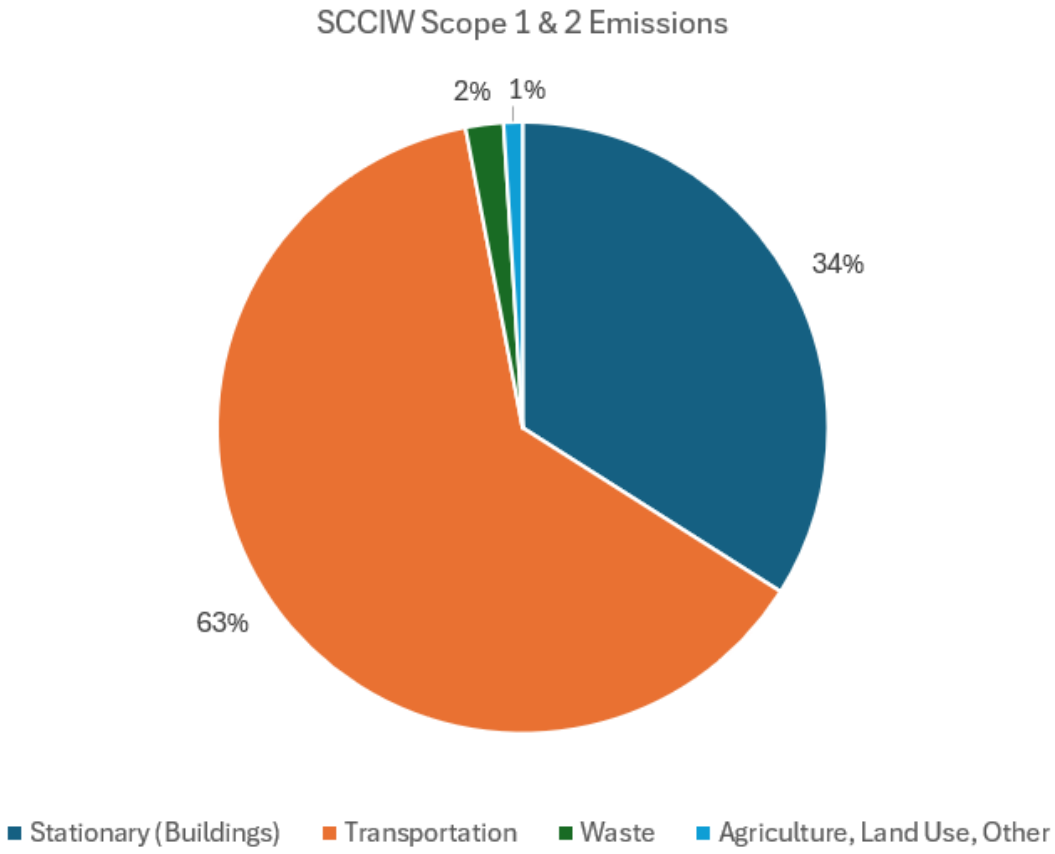

Figure 3 - Summary of Emissions

GHG emissions are classified as either direct (Scope 1) or indirect (Scope 2) based on the level of control a reporting entity has of the emitting source. Figure 3 above shows the summary of SCCIW emissions. In total, Transportation is the largest proportion of GHG emissions at 63%, followed by Stationary from building electricity and fuel use making up 34% of total GHG emissions. Waste makes up 2%, and Agriculture, Land Use, Other makes up 1% of total SCCIW GHG emissions. Most of the emissions from Stationary and Transportation emissions are occurring from carbon dioxide (CO_2).

Buildings

Based on PCAP estimates, commercial buildings emit more CO_2e than residential buildings (SCCIW contains mostly single-family housing). Some of the commercial building types within the Tribe are casinos, lodging, retail, healthcare, offices, agency buildings, community centers, and storage/warehouse facilities. Industrial sector emissions were not found to be a significant source across the Tribe based on available data. Figure 4 below shows emission from both Scope 1 (fuel combustion) and Scope 2 emissions (electricity).

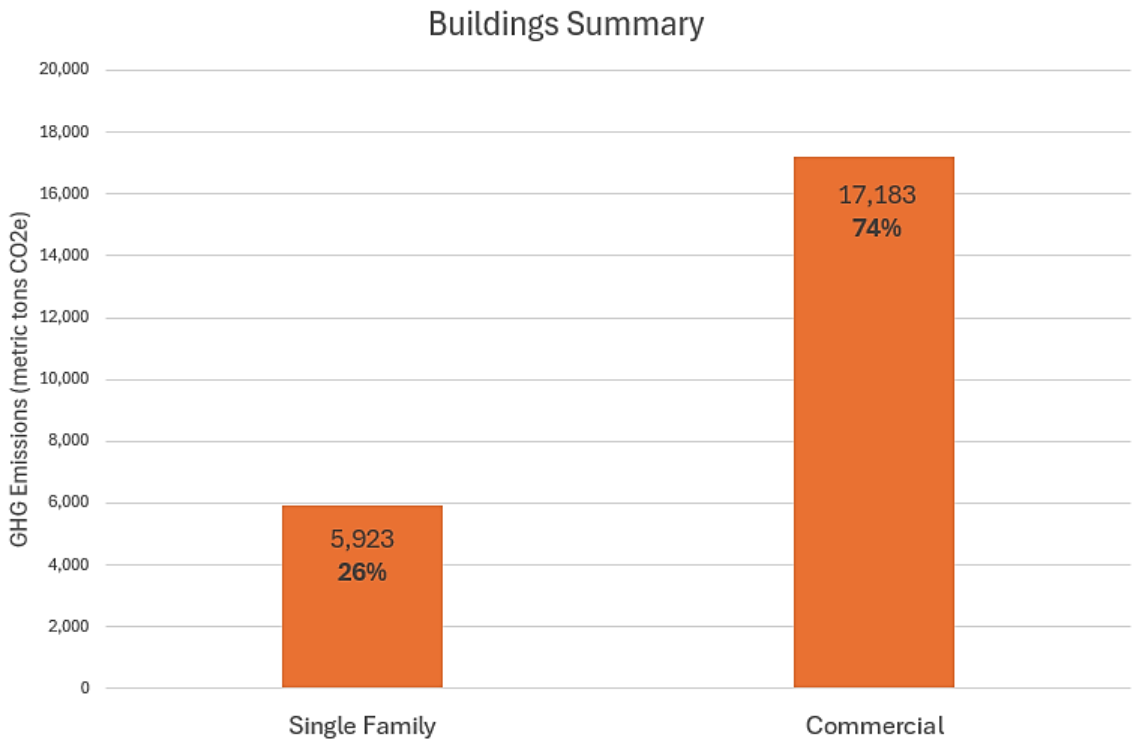

Figure 4 - Building Emission Summary

Transportation

All reported Transportation emissions are Scope 1 from combustion vehicles. The majority of transportation emissions occur from on-road passenger cars and vehicles, which is calculated using proxy data[9] when actual gasoline and diesel data was unavailable. Figure 5 shows the split between on-road gasoline vehicle emissions, on-road diesel emissions, and non-road gasoline and diesel equipment such as waterborne vehicles, recreational vehicles, lawn equipment, and others.

[9] https://www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei

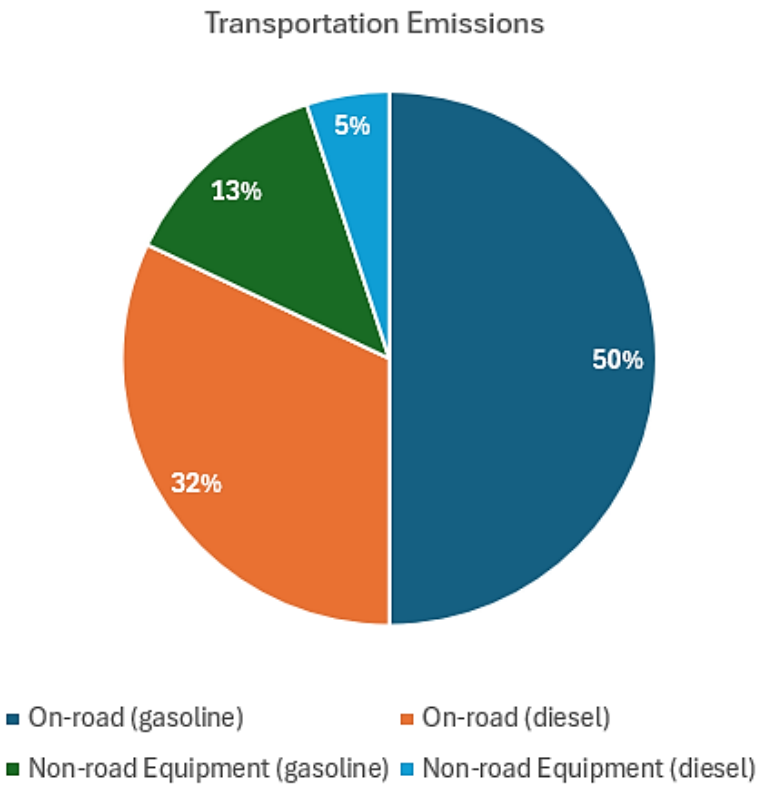

Figure 5 - Transportation Emissions

Waste

Waste information includes an estimated calculation of emissions from landfills, through there are none within the Tribal boundaries.

GHG Sinks

The previous section described a variety of GHG sources within the state of Wisconsin and more specifically within the SCCIW managed lands and communities. This section focuses on what is referred to as GHG or carbon "sinks" and Nature Based Climate Solutions. This is especially applicable to this PCAP as the connection between Tribal communities and the natural world is foremost and critical to the continued survival of Tribal cultures, as was discussed previously.

Ecosystems can retain or sequester carbon, functioning as a sink. The amount of sequestered or stored carbon is referred to as a C stock. Each ecosystem has different sequestration rates and capabilities influenced by a number of factors that make calculating the stock and sequestration rate complex.

The Second State of the Carbon Cycle Report (2018)[10], estimates that the largest carbon stock (sink) in the US is forest soils sequestering ~31,454 Tg C. Terrestrial wetland sediments hold 20,188 Tg C, and forest biomass is the third largest pool with 19,675 Tg C. When comparing soil stock to biomass stocks

[10] https://carbon2018.globalchange.gov/

across forests, agriculture and grasslands, wetlands, and inland waters, soil stocks are ~3.3 times larger than the biomass stock (70,691 Tg C vs. 21,799 Tg C).

Table 4 - Estimated Stocks of Major North American Carbon Pools[11]

Carbon Pools	Canada	United States	Mexico	North America
Forest Biomass[b]	18,591	19,675	1,995	40,261
Forest Soils[c]	31,395	31,454	4,900	67,749
Agricultural Soils[d]	5,500	13,000	2,115	20,615
Grassland Biomass[e]	ND[f]	1,362	ND	1,362
Grassland Soils[g]	ND	6,049	4,100	10,149
Tundra Biomass[h]	1,010	350	NA[f]	1,360
Permafrost Soils[i]	ND	ND	NA[f]	459,000
Terrestrial Wetland Biomass[j]	946	412	16	1,374
Terrestrial Wetland Soils[k]	46,354	20,188	764	67,306
Inland Waters Sediment	ND	ND	ND	ND
Tidal Wetland and Estuary Soils[l]	ND	ND	ND	1,886
Coastal Ocean Sediment	ND	ND	ND	ND
Total Biomass	**20,547**	**21,799**	**2,011**	**44,357**
Total Soils	**83,249**	**70,691**	**11,879**	**626,705**

Notes

a) Data, in teragrams of carbon (Tg C), are from the sector-based chapters of this report.
b) Includes above- and belowground biomass plus deadwood (Table 9.2, p. 368).
c) Includes litter plus soil (Table 9.2).
d) Canadian estimate (Table 12.4, p. 483); U.S estimate from Rapid Carbon Assessment (RaCA) project (Table 12.1,p. 479); Mexican grazing lands estimate (Table 12.3, p. 482).
e) Estimate for conterminous United States only (Table 10.2, p. 403).
f) ND = no data; NA = not applicable.
g) Conterminous U.S. estimate (Table 10.2); Mexican estimate for "Other Lands" (Table 12.2, p. 481).
h) Tundra vegetation biomass for Canada and Alaska (Table 11.2, p. 442).
i) North America contains about one-third of the total estimated 1,460 to 1,600 petagrams of carbon (Pg C) stock of circum-polar permafrost soils (to a 3-m depth; see Ch. 11: Arctic and Boreal Carbon, p. 428).
j) Calculated as 2% of the total carbon stock of nonforested wetlands with peatland and mineral soils (Table 13.1, p. 514).
k) Calculated as 98% of the total carbon stock of nonforested wetlands with peatland and mineral soils (Table 13.1).
l) The total estimated carbon stocks from tidal wetlands, estuaries, and seagrasses (see Ch. 15: Tidal Wetlands and Estuaries, p. 596.

Identifying what and how natural systems can aid in mitigating and reversing the impacts of climate change is a key first step in developing reduction measures and strategies for the SCCIW and realizing additional co-benefits.

Research by The Nature Conservancy shows that nature-based climate solutions provide up to 37% of emissions reductions needed by 2030.[12] This same study identified 20 different pathways ranging from reforestation to avoided coastal impacts. For each of the pathways the climate mitigation potential ($PgCO_2e$/yr- petagrams of CO_2 equivalent per year) and co benefits are calculated. Co-benefit categories include:

- Air
- Biodiversity
- Water
- Soil

[11] https://carbon2018.globalchange.gov/
[12] https://www.pnas.org/doi/10.1073/pnas.1710465114

And the major habitat categories are:

- Forests
- Agriculture and Grasslands
- Wetlands

The study concluded that forest related pathways account for > 66% of the cost-effective mitigation needed to hold global warming to below 2°C by 2030. Grassland and agriculture pathways accounted for ~20%, and wetlands accounted for 14% of the opportunities by the same measure for the forestry related practices. However, this is aggregated data and applying it to the SCCIW community will be needed to realize the full benefit of NbCS based on actual land use and habitats that presently make up the SCCIW land base.

The most recent trust land forest inventory data, presented in the 2022 St. Croix Forest Inventory, Planning, and Climate Change Susceptibility Project Report (2010 to 2018 data), shows that of the 2,435 trust acres inventoried, 1,415 were forested with 15 different habitat codes assigned. The 2016 National Land Cover Database[13] has the following cover types and % cover for all Tribal Lands (Fee and Trust) based on 2022 Tribal land acreage.

Table 5 - Tribal Land Cover % based on the 2016 National Land Cover Database and 2021 Tribal Lands database

% Cover	Classification
2.30	Open Water
4.54	Developed, Open Space
0.51	Developed, Low Intensity
0.51	Developed, Medium Intensity
0.53	Developed, High Intensity
0.14	Barren Land
51.37	Deciduous Forest
1.05	Evergreen Forest
8.33	Mixed Forest
0.44	Shrub/Scrub
0.80	Herbaceous
4.33	Hay/Pasture
1.90	Cultivated Crops
19.02	Woody Wetlands
4.23	Emergent Herbaceous Wetlands

Based on the high percentage of Tribal lands that support forested, grassland, and wetland habitat types, the ability of the SCCIW to incorporate NbCS into the GHG reduction measure portfolio through protection, management, and restoration of Tribal cultural and natural resources provides an opportunity to meet CPRG reduction goals while realizing co-benefits.

[13] https://www.mrlc.gov/national-land-cover-database-nlcd-2016

Quantified GHG Reduction Measures

This section describes the priority GHG reduction measures as well as quantifiable GHG emission reductions, benefits, and challenges, along with implementing authority, metrics for tracking progress, and funding sources.

1. Clean Energy and Efficient Buildings (Commercial)

Summary: The Tribe aims to reduce greenhouse gas emissions in tribal-owned commercial and public buildings by promoting energy electrification, increasing energy efficiency through building retrofitting, and adopting new green building standards for future development. These buildings include the casinos, hotels, clinics, markets, and others.

Electricity	Installing commercial solar PV Systems with battery storage microgrid for Tribal casinos, hotels, community centers, gas stations, markets, or maintenance facilities, especially for new construction
Commercial retrofits	Retrofitting can considerably reduce the energy and fuel consumption of single and multifamily homes. Instances comprise improving insulation or fitting energy-efficient windows (weatherization), updating HVAC systems, integrating smart technologies, advocating for electrification, and installing heat pumps for example.
Adopt green building standards	Increase building efficiency by the Tribal Council adopting green building standards for new major renovations.

Estimate of Quantifiable GHG Emissions:

Renewable electricity	If all Tribal owned facilities were to use solar PV for their electricity, 53,215,022 kWh of electricity would be avoided, or 22,186 Metric Tons of annual CO_2 equivalent in GHG emission reductions[14]
Commercial retrofits	Energy savings for retrofitted commercial buildings can vary; however, a recent meta-analysis of 4,765 whole building retrofit projects found that over one-fifth of the projects reported energy savings of 20% or more[15]
Adopt green building standards	Emissions savings from adopting LEED or other green building standards has the potential to reduce GHG emissions by 50% from reduced water consumption, 48% from reduced solid waste, and 5% from transportation practices[16]

Lead Implementing Agency: SCCIW Tribal departments - Renewable energy sector, building sector

Implementation Milestones:

Renewable electricity	A feasibility study will be conducted for appropriate solar development locations (Month 5), followed by the engineering of the identified solar system (Month 8), and finally, installation and interconnection of the solar system (Month 12-18)
Commercial retrofits	For increasing energy efficiency through commercial building retrofits, Tribal members will be trained (Month 12), energy audits will be completed (Month 24), a weatherization/HVAC contractor will be procured (Month 28)
Adopt green building standards	Begin Tribal legislative process for adopting new standards (Month 12), formally adopt new building standards (Month 18-24)

[14] https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results
[15] https://buildings.lbl.gov/sites/default/files/Regnier%20C%20-%20System%20Retrofit%20Trends%20Study%20Updated%205-8-20%20Final.pdf
[16] https://ww2.arb.ca.gov/sites/default/files/classic/research/apr/past/11-323.pdf

Geographic Location: Within the Tribe

Funding Sources:

Community Resilience Fund

The Tribe will explore the idea of allocating the financial savings created by the reduction in energy consumption from future sustainability projects into a Community Resilience Fund. This could then be used to propel work and invest in community-driven sustainability pilot projects, with an emphasis on addressing climate resiliency and self-sufficiency.

Clean Electricity Investment Tax Credit (26 U.S. Code §48E)

It is assumed that any proposed solar systems would be eligible for a 40% investment tax credit (ITC). This includes Solar and wind facilities with a maximum net output of less than 5 MW, including associated energy storage technology. For organizations that do not pay federal taxes such as non-profits or Tribal communities, this incentive can be received as a "direct pay" option. The base ITC is only 30% but a bonus 10% is given to projects located on Indian Lands.

Clean Electricity Production Tax Credit (26 U.S. Code §45Y)

Provides a technology-neutral tax credit for production of clean electricity. Replaces the production tax credit for electricity generated from renewable sources (§45) for facilities placed in service in 2025 and later. Annual tax credit (via direct pay for Tribes) Amount: 0.03 cents/kW, inflation adjusted. WITH labor requirements met – 0.15 cents/kW, inflation adjusted. 10% increase for meeting certain domestic content for building materials. Can stack with "energy communities" bonus credit program.

Communities Sparking Investment in Transformative Energy (C-SITE)

Through the US DOE, this program is funding $18M for projects that can support eligible local Tribes to implement projects that provide direct community benefits, spark additional investments, meet community-identified priorities, and build local capacity. Community benefits may include creation of local economic opportunities for workers, workforce measures and agreements, community revitalization, lowered energy burdens, increased access to renewable energy, improved air quality, increased public participation in energy decision-making processes, and improved quality of life for local residents. Eligible activities include building efficiency and/or electrification, electric transportation, energy infrastructure upgrades, microgrid development and deployment, renewable energy, and workforce development. Applications are due May 31, 2024.

IRA Community Change Grants

Eligible activities include implementation activities for a climate plan (which can include solar development). The Tribe must partner with a community-based non-profit organization, such as MTERA, to apply.

Rural Energy for America Program (REAP)

The program provides loan financing and grant funding to agricultural producers and rural small businesses (must meet Small Business Administration size standards) for renewable energy systems or energy efficiency improvements. Loan guarantees on leans up to 75% of total eligible costs and grants available for up to 50% of total eligible costs.

Utility rebates for energy efficiency

Through Bayfield Electric, rebates are available for agricultural, commercial and industrial appliances. These programs are great places to start to reduce the energy, and GHG, of buildings. Eligible activities

include Commercial Vending Machine Controls, Dairy Plate Cooler/Well Water Pre-Cooler, Dairy Refrigeration Heat Recovery with Electric Backup, Electric Forklift Battery Charger, Low/Zero Energy Livestock Waterer, Exhaust Fan, Circulation Fan, Scroll Refrigerator Compressor, or Variable Frequency Drive.

Metrics Tracking: Number of Tribal properties and private businesses retrofitted with energy-efficient systems (appliances, HVAC, etc.), number of buildings weatherized, staff trained, energy audits completed, contractor procured, EPA progress reports.

2. Clean Energy and Efficient Buildings (Residential)

Summary: The Tribe aims to reduce the financial burden of home energy usage for individual Tribal members and increase the Tribe's energy independence through the development of solar systems and residential building retrofits. Most residential properties get their electricity from Polk-Burnett Electric Cooperative and receive fuel from FerrellGas Hayward in the form of propane, for heating and cooking.

Renewable electricity	Installing residential solar PV Systems with battery storage microgrid for Tribal members would reduce the reliance on utilities', reduce energy bills for residents, and reduce the occurrence of increasing rolling blackouts
Residential retrofits	Retrofitting can considerably reduce the energy and fuel consumption of single and multifamily homes. Instances comprise improving insulation, fitting energy-efficient windows, updating HVAC systems, integrating smart technologies, advocating for electrification, and installing heat pumps. Expediting the retrofitting and construction of energy-efficient housing can be achieved through resident education, along with the provision of incentives, designs, and guidance support

Estimate of quantifiable GHG Emissions:

Renewable electricity	If all Tribal residents were to use solar PV for their electricity, 2,206,512 kWh of electricity would be avoided, or, 920 Metric Tons of annual CO_2 equivalent in GHG emission reductions[17]
Residential retrofits	On average, retrofitted single-family homes will use 32% less energy compared to homes that have not undergone retrofits.[18] LEED Gold equivalent new homes will use 64% less energy on average

Lead implementing agency: SCCIW departments - Renewable energy sector, building sector

Implementation Milestones:

Renewable electricity	Environmental reviews conducted (Month 4), train staff (Month 5), feasibility studies conducted (Month 6), contract with solar installer company (Month 8), installation of solar system (Month 12)
Residential retrofits	Train staff (Month 6), complete energy audits of residential properties (Month 24), weatherization/HVAC contractor procured (Month 28)- for installs

Geographic Location: Within the Tribe

Funding Sources:

Community Resilience Fund

[17] https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results
[18] https://doi.org/10.2172/1129577

The Tribe will explore the idea of allocating the financial savings created by the reduction in energy consumption from future sustainability projects into a Community Resilience Fund. This could then be used to propel work and invest in community-driven sustainability pilot projects, with an emphasis on addressing climate resiliency and self-sufficiency.

Home Electrification and Appliance Rebate Program

Through the Inflation Reduction Act's Home Electrification and Appliance Rebate (HEAR) program, the DOE's Office of State and Community Energy Program has $424,438 specifically allocated to SCCIW in the form of a formula grant for Home Electrification and Appliance Rebates, providing up to $14,000 per eligible household for energy efficiency and electrification home upgrades. [19] Letters of intent are recommended for submittal to the DOE on May 15, 2024, with applications open until May 31, 2025.

Clean Electricity Investment Tax Credit (26 U.S. Code §48E)

It is assumed that any proposed solar systems would be eligible for a 40% investment tax credit (ITC). This includes Solar and wind facilities with a maximum net output of less than 5 MW, including associated energy storage technology. For organizations that do not pay federal taxes such as non-profits or Tribal communities, this incentive can be received as a "direct pay" option. The base ITC is only 30% but a bonus 10% is given to projects located on Indian Lands.

Communities Sparking Investment in Transformative Energy (C-SITE)

Through the US DOE, this program is funding $18M for projects that can support eligible local Tribes to implement projects that provide direct community benefits, spark additional investments, meet community-identified priorities, and build local capacity. Community benefits may include creation of local economic opportunities for workers, workforce measures and agreements, community revitalization, lowered energy burdens, increased access to renewable energy, improved air quality, increased public participation in energy decision-making processes, and improved quality of life for local residents. Eligible activities include building efficiency and/or electrification, electric transportation, energy infrastructure upgrades, microgrid development and deployment, renewable energy, and workforce development. Applications are due May 31, 2024.

Clean Energy Technology Deployment on Tribal Lands Program

The DOE Office of Indian Energy is making 5-10 awards for a total of $25 million for Indian Tribes to: (1) install clean energy generating system(s) and energy efficiency measure(s) for Tribal Building(s); or, (2) deploy community-scale clean energy generating system(s) or community energy storage on Tribal Lands; or, (3) install integrated energy system(s) for autonomous operation (independent of the traditional centralized electric power grid) to power a single or multiple Essential Tribal Buildings during emergency situations or for Tribal community resilience; or, (4) provide electric power to unelectrified Tribal Buildings. Final design and engineering activities directly resulting in the installation of clean energy technology or infrastructure, or verification of the actual energy generated, displaced, or saved (amount, cost, and percentage) are allowable activities under this program. All proposed projects submitted to the program must have: 1) Completed energy studies and analyses (comprehensive feasibility study and/or energy audit(s) or industrial energy assessment(s)), and 2) Completed development (pre-construction) activities, and design and engineering (except final design and engineering).

Utility rebates for energy efficiency

[19] https://www.energy.gov/sites/default/files/2023-11/Tribal-Allocations-11.9-1.pdf

Through Bayfield Electric, rebates are available to reduce the energy, and GHG, of buildings. Eligible activities include Clothes Dryer, Clothes Washer, Dehumidifier, Dishwasher, Freezer, Inductive Range or Refrigerator

Metrics Tracking: Number of homes retrofitted with energy-efficient systems (appliances, HVAC, etc.), number of homes weatherized, staff trained, energy audits completed, contractor procured to explore feasibility of eligible renewable technology and conduct energy analysis, EPA progress reports, solar installer progress reports, Tribal Council minutes.

3. Reduce Emissions from Vehicles

Summary: The Tribe aims to reduce GHG emissions through fleet electrification and EV adoption. This includes, but is not limited to, on road vehicles such as light and heavy-duty vehicles, and off-road vehicles such as ATVs, and other recreation vehicles. SCCIW acknowledges the need to switch to lower emission vehicles, but is also sensitive to the fact that EV's are a direct product of mining, which goes against the Tribe's beliefs. The Tribe will make thoughtful progress in this transition and encourage the use of more sustainable practices as it relates to the full life cycle of EV's (such as battery recycling). The choice to commit to vehicle electrification is thus necessary, but not without consequences. In an effort to explore solutions that will have a lower impact, SCCIW would like to explore clean transportation fuel options such as hydrogen produced from renewable energy. Innovative projects like this can be funded in part by the Community Resiliency Fund.

Reduce Emissions from Vehicles	The SCCIW Tribe aims to replace a third of government fleet vehicles and install more charging stations within the Tribe

Estimate of quantifiable GHG Emissions:

Reduce Emissions from Vehicles	54,603 Metric Tons of annual CO_2 equivalent in GHG emissions reduction[20]

Lead implementing agency: SCCIW Transportation Department

Implementation Milestones:

Reduce Emissions from Vehicles	Install 4 more charging stations within the Tribe (Months 12-24), electric vehicles procured (Months 24-36), electric vehicles delivered (Month 60)

Geographic Location: Within the Tribe

Funding Sources:

Federal Vehicle Rebates and Tax Credits

[20] https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results

WI Department of Transportation NEVI charging station funds

EPA CPRG Implementation Grant Funding

WI Economic Development Corporation programming

NW Regional Planning Commission programs and the Northwest WI Workforce Investment Board

Bayfield County Economic Development corporation

Metrics Tracking: EPA progress reports, director monthly reports, department of transportation, number of EV charging stations installed, number of fleet vehicles converted to electric, number of instances of visitors using EV charging stations funded by these programs.

4. Land Use, Land-Use Change, and Forestry

Summary: As described in the Cultural and Natural Resources Section of this document, the protection, restoration, and management of the natural systems and beings with which the SCCIW coexist is foundational to the SCCIW way of life and future. In the Carbon Sinks section, we discussed how these systems can act as carbon "sinks" to reduce the amount of GHGs and the severity of impacts from them.

The term land use, land use change and forestry is used as it is a primary term used in GHG emissions and sink reporting. This term broadly includes wetlands, forests, and soils, and the biomass above and below ground. GHG reduction measures are often referred to as NbCS.

Much like many of the direct capture technologies and non-nature-based sequestration technologies there is still much research needed to reduce uncertainty in reduction and sequestration rates and processes. However, NbCS will be needed to meet GHG reduction goals and identified in such documents as the Paris Accord (2015), US National Climate Assessment (2023), and the Second State of the Carbon Cycle Report (2018). NbCS have the potential to provide > 30% of the global mitigation required to achieve climate targets under the Paris Accord (IUCN, 2024.)

The Tribe aims to reduce greenhouse gas emissions by sequestering carbon through protecting, managing, and restoring above and below ground biomass, forests, wetlands, and soils, while developing green infrastructure, and implementing responsible development & zoning policies to enhance carbon sequestration. Additional strategies may include investing in other NbCS programs or projects outside of the SCCIW lands and entering carbon markets to diversify the economic portfolio of the SCCIW while meeting GHG reduction goals.

In this document we will explore NbCS related to wetlands, forests, grasslands, and soils.

Wetland NbCS

Wetlands play an important role in the traditional lifestyle of the SCCIW, such as supporting wild rice beds. They also provide multiple benefits such as nutrient transformation, sediment and other particulate retention, and fish and aquatic invertebrate habitat.

Wetlands form natural infrastructure in regard to water transport and act as conduits and reservoirs for hydrologic processes. Anthropogenic infrastructure such as roads and utilities provide needs for our current lifestyle, but constructing these without regard to natural infrastructure can be damaging to these systems and (constricted flows, nutrient loading) result in damage to the built infrastructure as well; e.g., roads and culverts flooding and leading to these structures being swept away completely or extensively damaged. Climate change will exacerbate these impacts as discussed previously, while wetlands can

provide a NbCS to reducing the flooding and damage potential by storing water from more frequent and intense rainfall events.

Tiner 2015, listed 10 separate wetland functions that could be predicted using either the Circular 39 or hydrogeomorphic wetland classification system. One of the functions is carbon sequestration at high or moderate levels. Wetlands that provide a high level of carbon sequestration are primarily palustrine, lacustrine, and riverine with emergent, shrub, or forested live biomass as the dominant subtype. The author does include a note that bogs and other continuously saturated wetlands and those with organic soils should also be rated high. The functionality turns to moderate as the hydrologic regime shifts from inundated/flooded to seasonally flooded and saturated soils. While this text identifies wetland types that provide high and moderate levels of carbon sequestration based on the dominance of live biomass and inundated soils, it does not provide a method to quantify sequestration rates nor capacity.

NbCS through "wetland pathways provide 14% of the mitigation opportunities needed to keep warming to <2°C by 2030, furthermore, while wetlands are less extensive than forests and grasslands, they hold higher carbon stocks per unit area than forests and grasslands" (Griscom 2017).

To understand the role wetlands, play in sequestering carbon and quantifying reductions, we should first consider the carbon (C) pool of a specific wetland based on a variety of attributes and then the carbon flux (emission or sink) based on anthropogenic or natural disturbance. We could also consider the "carbon sink potential" of a wetland to better understand what restoration practices could be employed to increase the C pool of a specific wetland.

The Second State of the Carbon Cycle Report (2018) identifies the average net ecosystem exchange (NEE) flux values (for freshwater wetlands in the CONUS) of forested wetlands over organic soils as -120.97 g C/m2 per year, non-forested wetlands over organic soils as –134.97 g C/m2 per year, non-forested wetlands over mineral soils as –102.15 g C/m2 per year, and forested wetlands over mineral soils as –66.99 g C/m2 per year.

Using the Wisconsin Wetland Inventory database and clipping wetlands to Tribal lands, there are 4,569 acres of wetlands within Tribal lands representing 413 individual basins. This does not include the 502 wetland point locations that represent areas that were too small to delineate. Of these 160 wetlands are forested (does not include wetlands that are identified as shrub dominant) totaling 1,705 acres. Emergent and shrub dominated wetlands account for 2,715 acres or 227 individual basins.

If we use the lowest NEE flux value for forested wetlands (-66.99 g CO_2 C/m2 per year) along with the acreage for forested wetlands, that results in a flux of –462.13 Metric Tons of CO_2/year (± 162). Additional analysis under the CCAP will need to occur to determine the validity and certainty of this estimate.

We also to consider the balance between having diverse sets of wetlands across the landscape for a variety of functions. Additional assessments of the suite of wetland functions provided by existing wetland types and level 2 condition factors that influence the level of function will need to be completed to provide a decision matrix for Tribal Council, Managers, and Community Members as to how to approach wetland protection, management, and restoration to meet GHG reduction goals and other cultural and natural resource needs.

Grassland and Agricultural NbCS

In the 2022 St. Croix Forest Inventory, Planning, and Climate Change Susceptibility Project, only 43.68 acres of Tribally owned land was classified as "herbaceous" based on the 2016 National Land Classification Dataset, while 236.42 acres were classified as Hay/Pasture, and 103.74 acres were classified as cultivated crops. Based on the small % of land that supports these land uses, NbCS utilizing these habitat types are not explored in detail, in this PCAP, but will be discussed in the CCAP as the

acquisition of adjacent agricultural land (to Tribal lands) and conversion to grassland and/or implementation of agricultural GHG reduction measures can provide economic opportunity and improvement in natural resource integrity and cultural resource sovereignty.

SOCCR2 devotes a chapter to both agriculture and grasslands. Grasslands are reliable carbon sinks if protected from land use change. Wylie, et al 2016, found that the carbon flux of grasslands in the Great Plains Region of the US was –45 g C/m2/year, resulting in additional sink and sequestration. If extrapolated to SCCIW owned lands and expanded, this can become part of the GHG reduction portfolio with co-benefits realized.

Forestry NbCS

Forestry-based NbCS offer the greatest potential for reducing GHGs due to increased certainty in the flux rates and storage capacity calculation as well as forest providing a more stable system when compared to wetlands (due top hydrologic changes) and grasslands (due to land conversion).

Forests are a net sink for atmospheric carbon dioxide; with US forests sequestering ~ 267 Tg C/year between 2000 and 2015. Natural disturbances such as wildfire, wind events, and invasive species (insects primarily) can reduce the carbon sink potential of forested habitats.

Forested habitats are a dominant habitat type across SCCIW owned lands. There are also extensive datasets for forested tracts on both fee and trust lands. The 2022 St. Croix Forest Inventory, Planning, and Climate Change Susceptibility Project Report details the forest stocks in terms of habitat types (Kotar), volume, age, tree type, and size.

While incredibly informative, this dataset is ageing and is in dire need of updating. Lack of management and impacts from wind events have contributed to this dataset becoming outdated. However, this data still provides a critical basis for forestry planning to meet cultural, ecological, climate, and economic goals.

A series of site-specific Forest Management Plans were created that outlined specific forest management actions that need to be taken to meet the goal identified in the plans. Tree plantings was one action that was common among many of the sites. **Table 6** below shows the sites, acreages, species, and proposed planting year identified in the Forest Management Plans.

Table 6 - FMP Recommended Plantings

FMP Site	Stand #	Acreage	Species	Proposed Planting Year
Danbury	1	5	Jack Pine	2014
Danbury	2	4	Jack Pine	2014
Danbury	9	2	Red and White Pine	2014
Danbury	11	3	Red, White, and/or Jack Pine	2014
Danbury	12	1	Jack Pine	2014
Pearson	4	25	White Spruce	2014
Round Lake	8 & 10	30	Sugar Maple	2016
Round Lake	3 & 11	80	Red Oak	2016
Sand Lake Central Unit	10	8	Red or White Pine	2015

Additionally, a series of parcels located within developed municipalities were identified, surveyed, and a planting plan developed for each parcel. The planting plan was then used to quantify the benefits regarding CO_2 reduction, energy saved, fuel saved, reduced runoff, and other GHG reductions. Below is from that report and provides quantified estimates for each of the benefits.

Table 7 - Quantified Estimates by Category

Category	Total Benefit over 40 Years of the New Planting
CO_2 Avoided (pounds)	177,648
CO_2 Avoided ($)	$ 4,132
CO_2 Sequestered (pounds)	218,833
CO_2 Sequestered ($)	$ 5,089
Electricity Saved (kWh)	20,655
Electricity Saved ($)	$ 3,076
Fuel Saved (MMBtu)	736
Fuel Saved ($)	$ 6,137
Tree Biomass (short ton)	55
Rainfall Interception (gallons)	1,221,275
Avoided Runoff (gallons)	5,561
Avoided Runoff ($)	$ 50
O3 Removed (pounds)	432
NO2 Avoided (pounds)	29
NO2 Removed (pounds)	47
SO2 Avoided (pounds)	439
SO2 Removed (pounds)	9
VOC Avoided (pounds)	5
PM2.5 Avoided (pounds)	3
PM2.5 Removed (pounds)	20
Total Number of Trees Planted (count)	91

The same study also outlined specific action items to implement findings and realize benefits of the report which include:

- As discussed perhaps the most important and easily adopted step would be to develop and maintain a holistic inventory of cover types that includes invasive species (absence/presence and abundance), medicinal or culturally significant plant, shrub, and tree species, forest volume, age, size, and species composition, and tree disease data. The framework for this inventory has already been developed as part of this and other previous Tribally led projects, but data gaps do exist for some parcels and older data; specifically for harvested or damaged forest stands has not been updated.
- This inventory update should be used to develop a reservation-wide forestry workplan. Some workplan activities have already been identified in site specific FMPs and others could be developed using the analysis presented in this report. The workplan would address goals identified in the BIA FMP, site specific FMPs, and the SCCIW IRMP.
- Implement a tree planting project using the developed parcels planting list described in section 11 of this report to realize immediate and long-term benefits.
- Consider strategies to reduce greenhouse gas emissions of the Tribal Nation to contribute to mitigating climate change impacts. Examples could include ensuring energy and water efficiency measures have been taken for Tribal-owned buildings and sites, along with sharing resources with Tribal members on programs to help save money and energy or water. Some of this could be addressed with the creation of a Tribal wide sustainability plan that would outline specific actions and policies that would result in quantifiable reductions in greenhouse gases and energy savings.
- Revisit the St. Croix Chippewa Youth Forest Plantation project to identify opportunities to replace trees that have died and expand the plantation or create a new plantation or mini plantations in other Tribal communities.
- Explore carbon offset programs and grant funding sources (see Appendix C) to support Tribal forest and natural resource initiatives to address the issues identified in this report and other cultural and

ecological needs of SCCIW. This could include redirecting funds from Tribal Forest timber sales to a "forestry fund" which could support additional staff and provide a sustainable operating budget.

Protect, Manage, and Restore Wetlands Protect, Manage, and Restore Wetlands	Phase 1 - The SCCIW will develop a dataset using existing level 1 wetland data to identify wetlands that provide carbon sequestration function at a high and medium level based on Tiner 2015. Wetland Flux rates and C storage capacity will be applied to these wetlands to identify a level 1 C Pool capacity. Level 2 field visits will be completed to develop a condition score that identifies and assigns score values to anthropogenic impacts to these wetlands that reduces their C flux rate.
	Phase 2 - A subset of wetlands identified in Phase 1, will be selected for protection, management, and restoration to improve C pools and add the GHG reduction totals for the SCCIW.
Implement Developed Parcel Tree Plantings	Design planting plans and plant trees adhering to the 2022 SCCIW 2022 St. Croix Forest Inventory, Planning, and Climate Change Susceptibility Project Report.

See Second State of Carbon Cycle Report (2018) and 2022 St. Croix Forest Inventory, Planning, and Climate Change Susceptibility Project Report

Estimate of quantifiable GHG Emissions:

Protect Manage and Restore Wetlands	462.13 Metric Tons of annual CO_2 equivalent in GHG emissions reduction
Implement Developed Parcel Tree Plantings	218,833 pounds of CO_2, plus co-benefits identified in **Table 7**.

Lead implementing agency: SCCIW Tribal Council in coordination with the SCCIW Environmental and Natural Resources Department

Implementation Milestones:

Protect, Manage, and Restore Wetlands Protect, Manage, and Restore Wetlands	Create the WI wetlands geodatabase for Tribal lands (Complete), Assess Forested and herbaceous wetlands (complete) Complete Literature review for C flux rates of various wetland types (Months 1-2), Assign flux values to individual wetlands based on literature review(Month 2) Complete level 2 site visits to identify and score pre-determined anthropogenic factors influencing (positively or negatively) C flux (Months 3, 4, and 5), Select individual basins for protection, management, or restoration based on score quartiles (Months 6 and 7), Create plans for implementing protection, management, and/or restoration activities (Months 7, 8, and 9), Update Carbon flux and storage values post-completion (Months 9, 10, and 11), Update SCCIW GHG Reductions (Months 11 and 12)
Implement Developed Parcel Tree Plantings	Review and finalize planting plans for each parcel (Month 1), Coordinate with homeowner or Enterprise Manager for each parcel (Months 2 and 3), Finalize site plan and advertise for bids (Month 4), Select contractor and complete plantings (Months 5 and 6), Final Site visit-post-planting, (Months 6 and 7), Update SCCIW GHG Reductions tracking (Month 8)

Geographic Location: Tribal Fee and Trust Lands in Polk, Burnett, Barron, and Washburn Counties (WI)

Funding Sources:

EPA CPRG Implementation Grant

Nature Conservancy

USDA NRCS

Metrics Tracking: EPA progress reports, director monthly reports, contractor reports

Benefits Analysis

In addition to reducing greenhouse gas emissions, the priority measures included in this PCAP reduce co-pollutants including Hazardous Air Pollutants (HAP) and Criteria Air Pollutants (CAP) within Tribal communities. This analysis includes a baseline air pollution emissions inventory of co-pollutants for the SCCIW.

Co-Pollutant Emissions Inventory

The National Renewable Energy Lab released an updated report in 2021 on the Life Cycle Greenhouse Gas Emissions related to Electricity Generation.[21] By conducting a systematic review encompassing approximately 3,000 published life cycle assessment studies covering various utility-scale electricity generation methods including wind, solar photovoltaics, concentrating solar power, biopower, geothermal, ocean energy, hydropower, nuclear, natural gas, and coal technologies, as well as lithium-ion battery, pumped storage hydropower, and hydrogen storage technologies, the report highlights significant findings. It demonstrates that for grid-scale technologies, the median total life cycle CO_2e/kWh for photovoltaic solar stands at 43gCO_2e/kWh, while lithium-ion battery storage records 33gCO2e/kWh. In stark contrast, natural gas stands at 486gCO_2e/kWh (over 10 times higher), and coal at 1001gCO_2e/kWh (over 23 times higher).

EPA power profiler[22] shows the grid electricity mix for this area (zip code 54893, MROW) of 39.6% coal, 10.6% gas, 4.4% hydroelectric, 34.6% wind, 8.6% nuclear, 0.8% biomass, and 0.9% solar. The CO_2 emission intensity is 995.8 lb/MWh, 16.8% higher than the national grid average demonstrating the outsized impact of deploying renewables in the region through improvements in air quality for residents and to habitat. All areas chosen to install renewables are in areas that are currently developed. Reduction estimates for criteria air pollutants (CAP) and hazardous air pollutants (HAP) are only required for industrial sector measures listed in the PCAP. SCCIW did not list any industrial sector measures. Thus, an inventory of the 2020 amounts are as follows: Burnett County has a total hazardous air pollutant (HAP) of 949.54 tons. Total criteria air pollutants (CAP) for Burnett County is 19,462.49 tons.

Tribes are not required to complete Low-Income and Disadvantaged Communities (LIDAC) Analysis in the initial PCAP since Tribal Nations and the land within the Reservation boundaries of federally recognized Tribes are designated as disadvantaged on resources such as the Climate and Economic Justice Screening Tool (CEJST) and the Environmental Justice Screening and Mapping Tool (EJScreen).

Qualitative Community Benefits

Community benefits represent the broad range of additional benefits from greenhouse gas reduction measures that influence a community's public health, economy, natural environment, and quality of life. **Table 8** summarizes the community benefits anticipated through the implementation of PCAP GHG

[21] https://www.nrel.gov/docs/fy21osti/80580.pdf
[22] https://www.epa.gov/egrid/power-profiler#/MROE

reduction measures. In the sections that follow, further details regarding these community benefits are provided, broken out by PCAP measure strategy area: energy efficiency, transportation, and land use.

A fundamental aspect of most PCAP initiatives involves decreasing overall air pollution by preventing the combustion of fossil fuels. The adverse health effects of air pollution downstream are severe, encompassing exacerbation of asthma, cardiovascular diseases, adverse birth outcomes such as low birthweight and premature delivery, as well as increased visits to emergency rooms, hospitalizations, and fatalities. Any decrease in fossil fuel extraction or energy consumption leads to enhanced air quality and better public health outcomes.

Public health will benefit because of the increase in emissions-free renewable energy supported by this grant, as well as a reduction in energy usage due to energy efficiency, as well as the beginning of an effort to convert some vehicles to electric which would lead to a reduction in tailpipe emissions. Tribal members that suffer from asthma could benefit from project-related reductions in particulates that otherwise are associated with energy produced at coal and natural gas power plants and emissions from diesel and other internal combustion engines.

There are many economic benefits resulting from this proposal. A primary emphasis of the Tribe is to enhance self -sufficiency, grid reliability, energy independence. Renewable energy and battery storage systems will help with these goals and provide a more stable economic environment. Economic development also occurs thanks to EV charging stations that the grant could support. While drivers charge their vehicle, the drivers using the ports spend money eating, drinking, shopping and at the casino for gaming services. They might also choose to stay at local hotels because they can charge their vehicle while they stay overnight. This increased revenue supports economic development and jobs.

Workforce development will also be enhanced because of the associated skills related to trades in clean energy, renewables, energy efficiency, EV's and other services needed to support these clean technologies. Opportunities provided by the program will strengthen the diversity of local businesses and related services such as contractors needed for EV and solar installment, repair and maintenance.

Because of the community engagement in this program, many social benefits will result including building trust, relationships, strengthening partnerships, collaboration, and social and community cohesion for resiliency. The grant will help the community work together in new ways, leveraging the decades of relationships and connection they already have.

With the diversification of energy sources such as solar and perhaps battery storage, grid resilience will be enhanced to weather extreme events that can result in power outages from the utility. Microgrids and solar/storage facilities can keep residents safe, businesses operating and society functioning at its fullest, even with more extreme weather events. This climate resilience will help the community navigate the weather and other events related to climate change.

Air quality improvements from clean energy and EV's will benefit wildlife, water, etc. benefits from air quality improvement as well as human health, addressed in more detail in the health section. Reductions in emissions from prior power sources and internal combustion engine vehicles will result.

Table 8 - Community Benefits Summary Table

PCAP Measure	Projects	Environmental	Public Health	Economic	Other
Clean Energy and Efficient Buildings (Commercial and Residential)	Solar PV + Storage or Wind Clean energy microgrids	Reduction in air pollution	Reduction in negative health impacts (respiratory issues, etc.)	Job creation Potential to sell excess energy Lower energy bills	Energy independence Climate resilience to grid outages through storage

	Electrify HVAC equipment Efficient appliances, smart thermostats Low-flow fixtures Weatherization Green building standards		Improved indoor comfort		Greater resilience and reduced risk of power outages
Transportation	Electrify a third of government owned fleet Provide EV charging infrastructure Explore clean energy power (hydrogen) as a potential fuel	Reduction in air and noise pollution	Improved health from physical activity (walking, biking, etc.) Reduce risk of chronic diseases	Job Creation	Energy independence
Land Use	Identify wetland C stock and Flux, identify and implement projects to protect, manage, and/or restore wetlands to improve C flux and increase C stock Plant trees and shrubs Green infrastructure Zoning policies	Improved air and water quality-GHGs Stormwater mitigation Reduction in soil erosion and contamination Increased ecosystem biodiversity	Improved respiratory health Improved wellbeing Improve cultural connections Reduce the impact to safety from flooding (co-benefit)	Lower energy bills Reduce repairs to infrastructure through flood retention co-benefits	Addresses socioeconomic inequity by promoting better land use and zoning Improves resilience by reducing heat island effect

Review of authority to implement

The SCCIW Council has the authority to implement the identified measures through the authority of the Tribal Constitution. For all measures, the Tribal Council would be the authority to implement, except for Tribal member owned homes. The Tribal member homeowners would have authority for home weatherization and appliance upgrades. The Tribal Council retains authority to negotiate with utilities and contractors on behalf of the Tribe. The Tribal Council has a legislative process in place to enact ordinances that fall in line with the recommendations in this plan. Grant applications, including CPRG funding, need Executive Council approval before submission.

Workforce Planning Analysis

Numerous barriers exist when it comes to SCCIW energy sovereignty and the reduction of climate pollution, including fundamental injustices as well as bureaucratic land management processes and historical lack of access to clean energy tax credits. Land fragmentation and checkerboarding, inadequate consultation, administrative bureaucracy and lack of resources, in addition to lack of institutional capacity impedes effective management and oversight of resources.

Although the grant cannot address all societal challenges, support from the EPA for a CPRG grant can aid in the continual development of internal staff expertise and resources through capacity building efforts. Addressing personnel shortages in terms of staffing, skills, and experience is crucial, encompassing tasks such as coordinating and managing new programs, conducting outreach, and acquiring technical skills like building energy audits, weatherization, and installation, maintenance, and repair of solar and EV charging infrastructure. Personnel may be recruited and trained on the job to acquire the necessary skills to fulfill the program's objectives. Contractors can be enlisted to fill gaps as needed, with the ultimate goal of progressively empowering Tribal members to take on leadership roles and implement these initiatives independently over time. Consequently, grant funds could be allocated towards training Tribal members and staff in various areas, including conducting energy audits, providing weatherization services, installing energy-efficient appliances, maintaining and repairing HVAC systems and rooftop units, servicing renewable energy systems, installing, repairing, and maintaining EV charging stations, and maintaining and repairing electric vehicles, among other skills. This long-term focus on capacity building will contribute to economic development, empower the youth, establish pathways to prosperity, and enhance the cohesion of the Tribal community as a whole. Additionally, community and technical colleges offer programs[23] that pertain to the development of many of these skills. There are also virtual and on-demand training programs that can build and augment the skills needed within the community to achieve the grant goals.

One of the additional avenues available for capacity building is Midwest Tribal Energy Resources Association (MTERA)[24], a non-profit interTribal organization working on planning and pursuing innovative Tribal energy projects that help Tribes unlock value from clean energy resources on Tribal lands. SCCIW is a member of MTERA and has served on its board over the years and can continue to benefit from the idea-sharing cultivated between Tribes through this association.

[23] https://www.mstc.edu/search?search_api_fulltext=energy&type=All
[24] https://www.mtera.org/

Appendix A
Stakeholder Engagement Meeting Summary

On March 13, 2024, an in-person stakeholder engagement meeting was held at the Zhashagiins Event Center in Siren, Wisconsin. WSB facilitated the meeting and presented the preliminary GHG analysis findings, along with the proposed GHG reduction measures developed from community input. Feedback was received to refine these measures and better represent the needs of the Tribe.

Attendees

Name	Title	Department	Email
Kelly Bertuleet	Benefits	Director	kellyb@stcroixojibwe-nsn.gov
Melanie Johnson	Grants	Director	melaniecj@stcroixojibwe-nsn.gov
Bemusaakive	General Manager	GM for St. Croix Casino - Danbury	bemosaakwe@stcroixcasino.com
Matt Fury	GM – FourWinds		mattf@stcroixojibwe-nsn.gov
George Reynolds	EDC – PM	Housing	georger@stcroixojibwe-nsn.gov
Carley Eichman	Manager	Siren Event Center	carleye@stcroixojibwe-nsn.gov
Rick Peterson	CFO	Finance	rickp@stcroixojibwe-nsn.gov
Meghan Buhaug	Director	Head Start	meghan@stcroixojibwe-nsn.gov
Ward Staples	Director	Roads	wardwstaples@yahoo.com
Ashley Duffy	Director	Legal	aduffy@stcroixojibwe-nsn.gov
Gary Stoner	Director	Security	garys@stcroixojibwe-nsn.gov
Judie Cutler	Member	EDC	Judie.cutler@gmail.com
Jake Reynolds	Renewable Energy Coordinator	Renewables	jreynolds@stcroixojibwe-nsn.gov

Feedback Received

- Air Quality Monitors – there are none close to the Tribe, so they can't accurately monitor their air quality
- EVS
  - Lower fuel demands
  - How does this impact Tribal fuel sales?
- Overall Goal
  - Energy sovereignty
    - Cost Reduction for residents and businesses
    - No or minimum reliance on outside entity
    - Reduction of outages
    - Leading by example for sustainability
  - Want to be a champion this in this area
- Mercury Reduction
  - Brought up "what can we do since we are small"
  - Lower priority since there could be overly burdensome
  - SC specific impacts of mercury to all fish
- Other wildlife & WR/GHG
- Commercial (Investments in other areas/geographics while still not getting energy from a west east producer – they can use that to implement project here)
  - LEED Standards
  - Develop formal policy
    - LED (all lights)
    - Dawn to dusk
    - Water conservation
      - Site design
      - Green infrastructure

- Residential
  - HUD has existing standard
    - Not legally required to buy the cheapest materials
    - Market is trending towards sustainability
    - Limited supplies in this area
    - Wood stoves and wood boiler
      - Replace with other systems
      - Cheaper bur results in additional GHG and releases sequestered carbon
    - Intermediate steps
      - Long term goal and short term goals
      - Housing inventory
      - Can all 308 homes be lead?
      - SC has done a ton of work on HVAC but is this being tracked for tax credits?
      - Wood burning from others harms neighbors
    - Need air purifiers
- Policy
  - Feasibility
    - Implementation of tracking is critical
  - Precious Metals/Mining
    - Use of these is against Tribal policy
    - What contractions may exist
      - Precipitate thoughts on implementation activities and what those impact are
      - Draw attention to mining activities for example.
- Waste
  - Recycling Opps
    - Office trash – can be minimized with simply education custodial staff to reduce unnecessary waste
- Fleet
  - 120 vehicles (clinic & PD included – no housing included); there is a list per Rick
- Casinos
  - All under one umbrella that they share
  - Headstart buses - 3 buses. Use two routes; North and South Routes
- For every action and inaction there is reaction
- Open mind for energy options. Big energy funneling us to solar or other practices
- Do we need 120 vehicles? May revisit this
- Insurance $ implications
- House Sizes
  - Hempcrete or other materials – good sink
- Use less Resources
- Transportation Emissions
  - Break int Tribal Govt Fleet
    - Headstart
    - Casinos
    - Other
    - Tribal Measure
    - Tribal Staff