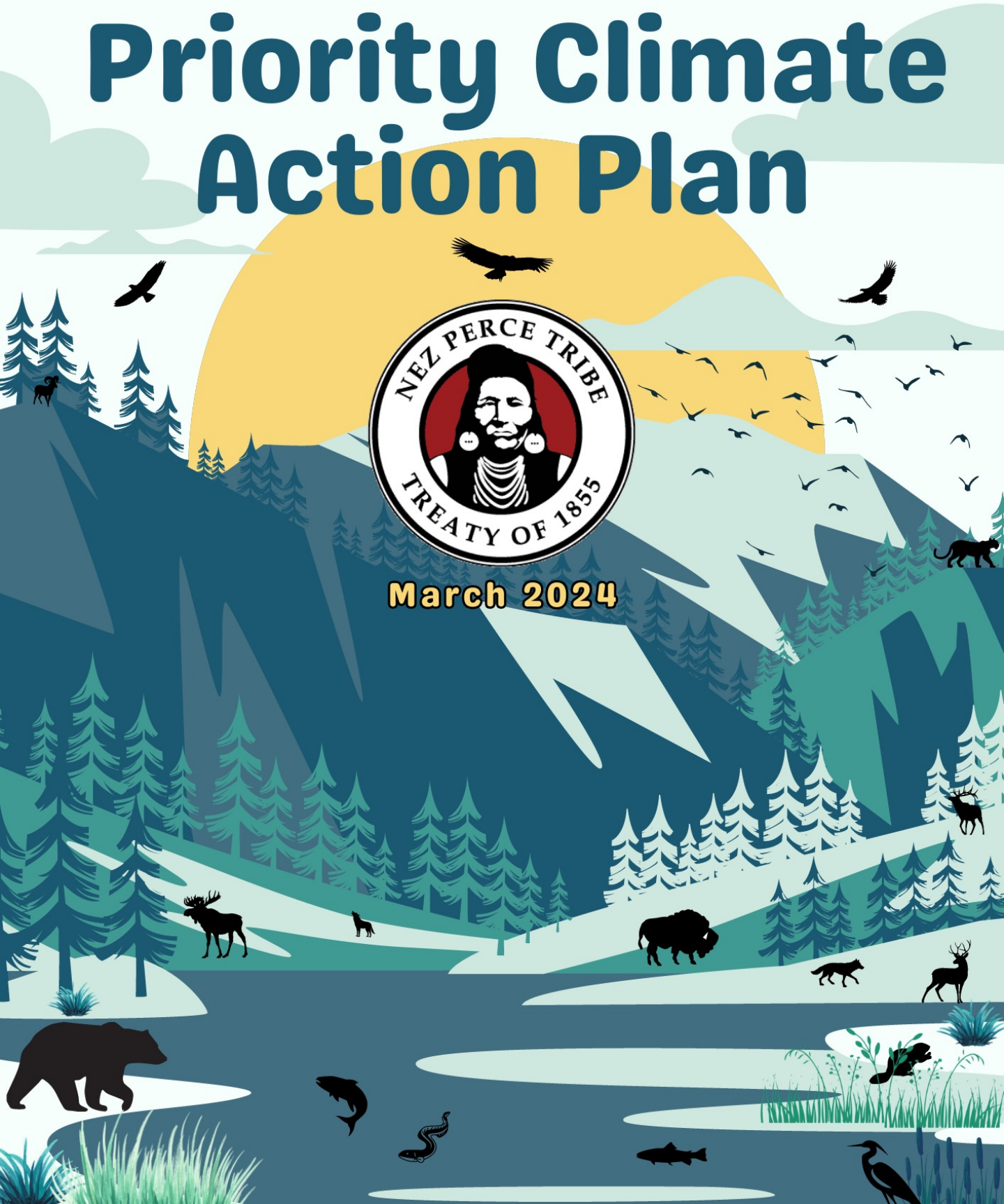
Nez Perce Tribe

Priority Climate Action Plan



March 2024

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1. To achieve maximum reductions in greenhouse gas emissions while driving benefits to surrounding communities

2. To invest in measures that are ready to receive funds to use over the next several years

"The Nez Perce Tribe's commitment to our sacred lands and resources are unwavering. As the original caretakers of this land and through the Priority Climate Action Plan (PCAP), we strive to advance climate solutions within the Nez Perce homelands extending dedication to our atmosphere, ecosystems, fish, wildlife, plants, and people for future generations to come. It is our responsibility to ensure that our people and sacred life sources are healthy and abundant. This PCAP aims to incorporate climate concerns to plan, develop, and protect our people and the life sources we depend on."

- Chairman Shannon F. Wheeler, Nez Perce Tribal Executive Committee

PCAP approved as per Resolution NP 24-212.

The measures in this PCAP are the culmination of decades of effort by Nez Perce Tribal leadership, Tribal staff, and Tribal partners to address the climate crisis. Significant effort has already been made to advance climate solutions on the Nez Perce Reservation and across Tribal government operations. The Tribe would like to acknowledge the staff, leaders, and partners who have devoted so much effort and shown incredible dedication to protecting all of nature, including the atmosphere, ecosystems, fish, wildlife, plants, and people since time immemorial on behalf of future generations.

This report was prepared by Measure Meant in collaboration with the Nez Perce Tribe Environmental Restoration and Waste Management Division's Air Quality Program and Water Resources Division's Climate Team.

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- Cover Art: Andrea Whiteplume
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- Editors: Office of Legal Counsel, Tribal staff

Traditional fisherman and elder Jeff Scott with his son, Basil George, solar crew manager, fishing on the Clearwater River in 2018 (Copyright: Greta Rybus)

Introduction & Overview

INTRODUCTION & OVERVIEW

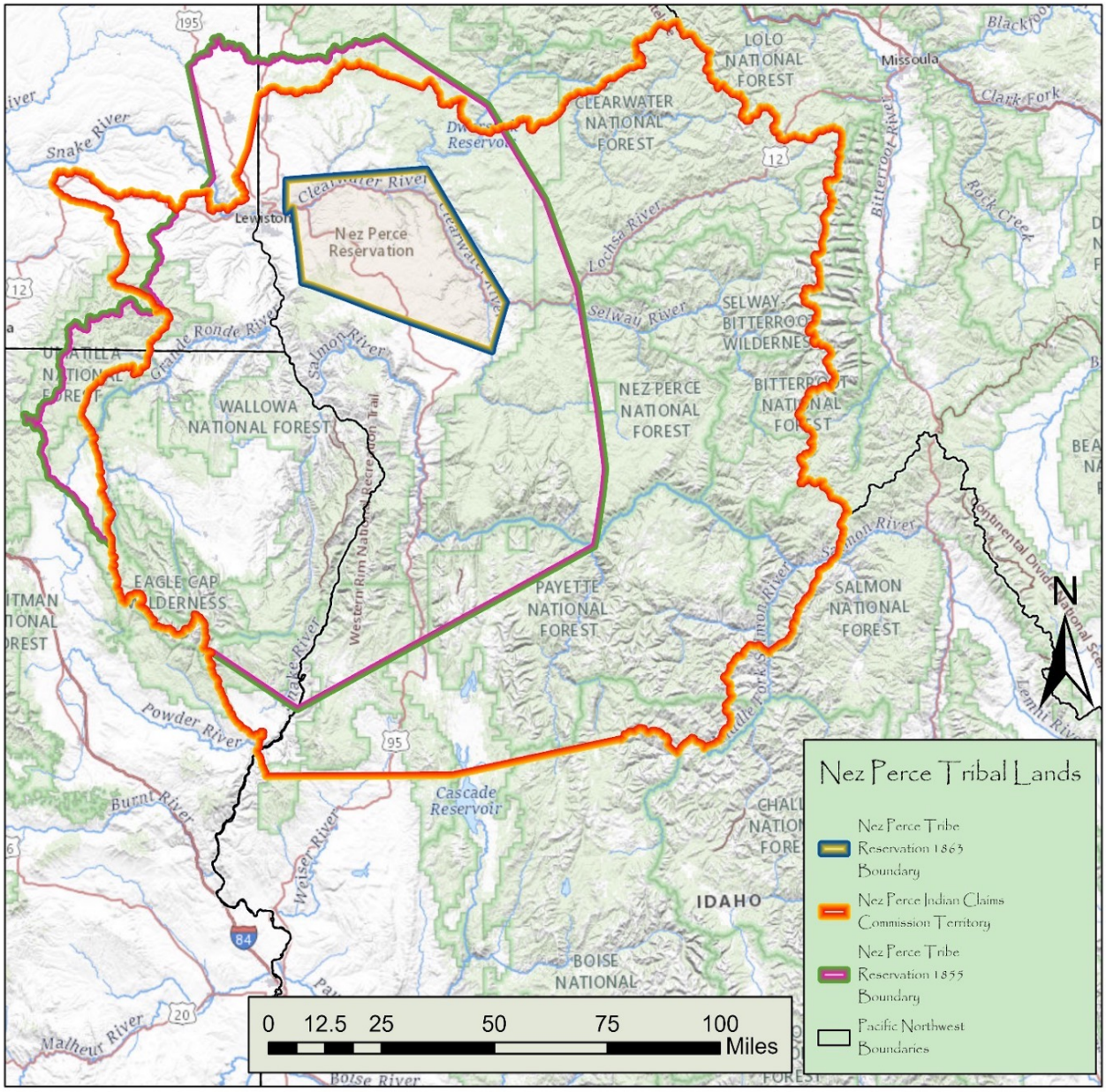
The Nez Perce Tribe (Tribe) is a federally recognized Indian Tribe by virtue of the Treaties of 1855, 1863, and 1868 with the United States Government and has more than 3,500 enrolled citizens. During the 1855 Treaty process, Tribal leaders negotiated retention of approximately 7.5 million acres to be protected as the Tribe's exclusive Reservation. The Tribe's 1855 Treaty with the United States secured, among other guarantees, a permanent homeland for the exclusive use and benefit of the Nez Perce People, along with the rights that the *Nimíipuu* have exercised since time immemorial, including the right to fish at all usual and accustomed places and the rights to hunt, fish, gather, pasture, and travel. Once gold was discovered on the 1863 Reservation, the Federal Government forced the Tribe into a second treaty in 1863, which reduced the Reservation to about 770,000 acres along the Clearwater River in what is now the state of Idaho. The map on the following page shows the boundaries from the treaty making era. The Nez Perce Tribe's Reservation crosses five counties, including Nez Perce, Lewis, Idaho, Latah, and Clearwater, and has an on-Reservation population of approximately 19,500.

Source: Nez Perce Tribe

The aboriginal territory of the Nez Perce People, or *Nimíipuu*, extends through north-central Idaho, northeast Oregon, southeast Washington, and parts of Montana. Throughout the treaty-making process, the Nez Perce Tribe retained the inherent right to fish at usual and accustomed fishing places, and to hunt, gather and graze livestock on open and unclaimed lands, all outside of the Reservation boundary. These off-Reservation rights have been upheld on numerous occasions in state court cases, citing treaty rights as the supreme law of the land. The borders of the Nez Perce usual and accustomed areas are not defined. The *Nimíipuu* have always networked with and had allyship with other tribes. The *Nimíipuu* traveled to buffalo country (the Great Plains), to the far north past the modern-day Canadian border, as far south to the redwood forests, and west to the mouth of the Columbia River.

Treaty References:
Treaty with the Nez Perces, June 11, 1855, 12 Stat. 957.
Treaty with the Nez Perces, June 9, 1863, 14 Stat. 647.

Map of Nez Perce Tribal Treaty Boundaries



Source: Nez Perce Tribe

The maps that have been used to help depict the usual and accustomed areas of the Nez Perce Tribe are not an accurate representation of the scope of usual and accustomed territory for the Nez Perce People, and it is hard to define these rights on a map. Since time immemorial, the *Nimíipuu* have used and occupied these lands and waters for subsistence, ceremonial, commercial, and religious purposes.

Chief Joseph, Nez Perce (1903)

"I have heard talk and talk, but nothing is done. Good words do not last long unless they amount to something . . . Good words will not get my people a home where they can live in peace and take care of themselves. I am tired of talk that comes to nothing. It makes my heart sick when I remember all the good words and all the broken promises . . . Treat all men alike. Give them all the same law. Give them all an even chance to live and grow. All men were made by the same Great Spirit Chief. They are all brothers. The earth is the mother of all people, and all people should have equal rights upon it."

- Chief Joseph of the Nez Perce*

Chiefs Joseph, Looking Glass, and White Bird (spring of 1877)

* Chief Joseph, quoted in "An Indian's Views of Indian Affairs." By Young Joseph and William H. Hare. The North American Review, Vol. 128, No. 269 (April, 1879): 432.

Tamal'wit is the core philosophy in *Nimíipuu* traditional teaching that captures the Tribe's holistic ridgetop to ridgetop management strategy and outlook as the first caretakers of this land. *Tamal'wit* or *Nimíipuu* natural law, encompasses the core beliefs of the Tribe.

That law includes the following core beliefs:

- Perpetuate a sensitive relationship with the land
- Ensure the survival of:
  - *Wéetespeme* (things from the land or "Resources");
  - *Letiitelwit* (people) along with the perceptions, values, language, and lifeways that have ensured their survival;
  - Pathways and points of access to those life sources
- Utilize the experience and guidance of '*anaqoonma* (animals and people who came before us)
- Convey this to future generations through *Nimíipuutímpt* (the Nez Perce Tribe's language)

Tinun Two Moons gathering Camas at Musselshell Meadows 9/15/23 (Copyright: Andrea Whiteplume)

This ancient approach to life expresses a profound sense of mutual obligation and reciprocity; recognizing that everything is alive, and the Tribe has a sacred obligation to treat the soil, air, water and all the Tribe's plant, animal, and human relatives with respect and care to maintain the sacred balance that perpetuates life. The Tribe's commitment to the land (*wetes*) and resources (relatives – *himíyu*) has endured since time immemorial.

The land, water, and air of the region represent essential threads in the cultural fabric of the Tribe, fulfilling subsistence, spiritual, aesthetic, recreational, and cultural roles. Nez Perce Tribal members and descendants actively reinforce their relationship with the land, now codified in the treaties, through their continued application of treaty rights at their "usual and accustomed places." Exercising those rights—and the material, spiritual, and social benefits associated with them—fosters a deeper relationship to the land and contributes to well-being. The Nez Perce Tribe exercises its treaty rights through consultation, discussion, and ongoing dialogue with federal and state agencies.

Tribal members pass their knowledge and practices to their children, and with it, their long-standing relationships with this landscape are perpetuated.

Wildfire on Nez Perce Reservation near Kooskia, Idaho in June 2021 during exceptional drought and heatwaves (Copyright: Alex "Tei" Tall Bull)

salmonids to survive the climate crisis amongst other threats.

The Nez Perce Tribe is experiencing increasing severity and frequency of wildfires, drought, heatwaves, extreme precipitation, floods, and erosion. This cycle of extremes has impacted the health, well-being, and lifeways of the *Nimíipuu* in tangible and intangible ways. In addition, it has had a wide range of social and economic impacts including public health impacts, losses to key subsistence resources (fish, game, wetlands, and native plants), and economic impacts on Tribal enterprises and the regional and local economy.

Although tribal communities are not major contributors to the greenhouse gas emissions that have caused climate change, climate change has had and will continue to have a disproportionate impact on tribes. The place-based cultures, community values, and survival skills that have demonstrated remarkable resilience in the face of dramatic and rapid change for the Nez Perce Tribe are the foundation of the Tribe's actions today. Current paradigms, management structures, infrastructure, energy and transportation systems, food systems, and tribal capacity and revenues are simply inadequate to address the climate crisis at the spatial scale and timeframe required. The Tribe is committed to confronting the climate crisis to save all the Tribe's relations, and to focus on helping climate threatened species such as

Express Fire on the hillside by the Clearwater River Casino & Lodge in July 2022 (Copyright: Anthony Williams, Nez Perce Tribe)

Tom Taha Road Damage from flooding in April 2019 from major disaster declaration for Idaho (HQ-19-057) (Copyright: Nez Perce Tribe Water Resources Division)

The Nez Perce Tribe applied for the CPRG planning grant to formalize its greenhouse gas reduction ambitions and to pursue implementation funding for climate change mitigation efforts that the Tribe has already been working towards. The Tribe recognizes the critical and urgent need to focus its efforts on mitigation to address the climate crisis. While the Tribe also recognizes the need for vulnerability assessments and adaptation, climate science very clearly demonstrates that dramatic actions must be taken rapidly to stop greenhouse gas emissions and reabsorb the excess carbon that is already in the atmosphere and oceans. Catastrophic climate change is upon us and threatens the lands, waters, and species the Tribe depends upon. Current extractive paradigms, resource management structures, and capacity are inadequate to address this crisis at the scale and speed needed. The Tribe applauds the CPRG as the most significant and comprehensive effort that the Federal Government has invested in to create meaningful change towards a healthier relationship between humankind, the atmosphere, and all the Tribe's human and non-human relations.

Climate-driven disruption of biological communities has considerable ramifications for the Tribe's culture and lifeways within and beyond administrative and treaty boundaries. As managers, the Tribe devotes substantial time, effort, and resources to the recovery and co-management of its treaty-reserved resources. The Tribe is leading on climate and demonstrating a determination to eliminate its carbon footprint while recovering ecosystems and species, protecting its people, and encouraging others to do the same.

This plan prioritizes five key sectors for carbon reductions that also support the Tribe's social and economic priorities listed above. Those sectors include Built Environment, Energy, Transportation, Natural Lands, and Waste.

Solar microgrid and pollinator garden at the Water Treatment Plant in Lapwai, Idaho (Copyright: Tuck Miller)

PCAP Sectors

PCAP SECTORS

Built Environment

Many of the homes and buildings on the Reservation were built decades ago with outdated building standards. These buildings require significant upgrades to improve their energy efficiency, provide heating and cooling in a changing climate, reduce exorbitant energy bills, and create resiliency on the Reservation.

Energy

The Tribe recognizes the urgency of the climate crises and is committed to reducing the impact of its government operations on the climate as rapidly as possible. The Tribe is already installing Photovoltaic (PV) systems throughout their operations and is developing Nimiipuu Energy to meet current and future demands of the region. Nimiipuu Energy, a private enterprise fully owned and operated by the Nez Perce Tribe, has the mission to lead a tribe-to-tribe energy cooperative of western tribes to generate 5,311 megawatts of renewable energy to disrupt and replace the current generation of the four lower Snake River dams.

The Tribe's vision is to reverse the exploitation and degradation caused by traditional energy generation, to prioritize underserved and remote communities, and to rapidly expand the Tribe's renewable energy market. The Tribe has primarily utilized PV solar panels and battery storage to create a greater energy independence and improve resiliency in tribal communities. While the benefit of financial self-determination and deployment of PV solar is laudable, the Tribe's primary mission is to replace the energy generation of the four lower Snake River dams to secure future salmon runs in our waters. Rapid deployment of PV solar and storage is a critical element to this goal.

While the Nez Perce Tribe plans to deploy a significant level of PV solar and storage within the traditional homelands of the *Nimíipuu*, achieving the Tribe's mission will require great effort from all northwest tribes. Only by linking the Nez Perce efforts through valuable collaboration will the Tribe get the momentum and energy generation to once more open our waterways for salmon and other fish species.

Transportation

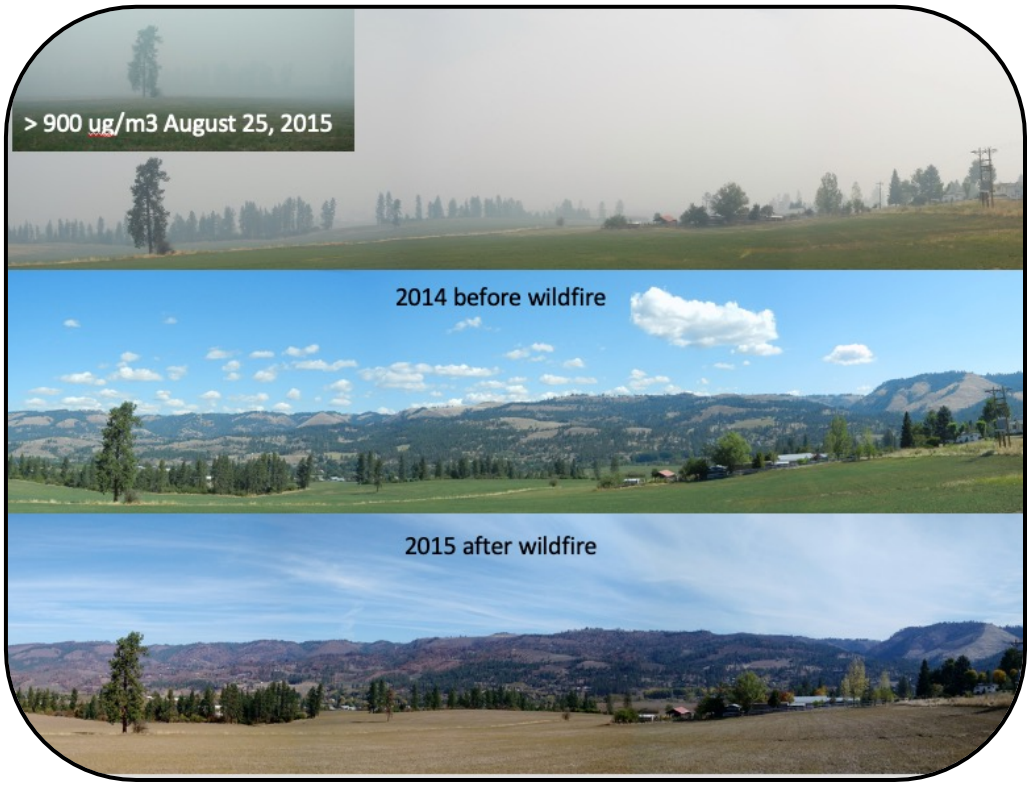
Reducing emissions from transportation is vital to the Tribe. On-road transport contributes more emissions than any other sector according to the Tribe's most recent greenhouse gas (GHG) inventory. Electrifying the Tribe's vehicle fleet and increasing transit options will not only reduce Tribal emissions, but they will also help reduce tailpipe emissions, harmful criteria air pollutants and hazardous air pollutants. Reducing these co-pollutants will lead to better outcomes for Tribal members and those living and working on or near Tribal facilities.

Natural Lands

Restoring natural grasslands, forests, riparian areas, and other habitats is part of the Nez Perce Tribe's holistic approach to climate mitigation and resiliency. In recent years, many thousands of acres of forests and grasslands have been lost to wildfires. Persistent drought has put further stress on natural landscapes. Replanting native grasses and trees will not only increase carbon mitigation, but it will also help restore struggling ecosystems important to the Nez Perce way of life.

Waste

There are two primary waste strategies that, if implemented, would reduce the Tribe's carbon emissions: converting food containers from Styrofoam to compostable or durable materials and diverting biological material from landfills. The Tribe's Social Services program delivers approximately 55,000 meals every year. Converting their packaging would create significant upstream carbon reductions. Additionally, composting food waste both significantly reduces carbon emissions and returns vital nutrients back to the soil.



Hazardous air quality during wildfire smoke event

Same view good air quality before wildfire smoke event

Burn scars on hillsides after wildfire event

Credit: Mary Fauci, Nez Perce Tribe Air Quality Program
(Copyright: Nez Perce Tribe)

PCAP Approach

APPROACH TO THE PCAP

The Tribe's Air Quality and Climate Change programs are working together on CPRG planning efforts. The Air Quality Program has conducted emissions inventories for the Reservation, and the Climate Change Program works with other Tribal programs to increase capacity at the Tribe in addressing the climate crisis.

The Nez Perce Tribe has been working on climate change mitigation and adaptation projects since the 1990s, and Tribal staff are integrating climate change concerns into planning efforts across the Tribe. In 2016, the Tribe convened a Climate Change Task Force with key Tribal staff members. Soon after, the Task Force hired a Climate Change Coordinator, who started building a dedicated climate change program to help Tribal staff address climate concerns throughout their operations. In 2019, the Nez Perce Tribal Executive Committee founded the Climate Change and Energy Subcommittee, which has helped lead the Tribe on climate actions including large solar and storage projects on the Nez Perce Reservation. The Tribe has already conducted a community wide climate change survey, developed a comprehensive draft vulnerability assessment, and is working on a Climate Change Adaptation Plan. Other climate related projects have engaged Tribal programs, staff, elders, community members, and partners in climate change planning efforts for the Tribe.

The measures put forward in this PCAP are climate mitigation and resiliency activities that Tribal staff and programs have identified and built capacity towards implementing through existing planning efforts. This PCAP is the culmination of those efforts. Specific outreach was conducted throughout the Tribe with the Tribal departments and other partners listed on the following page.

Nez Perce Appaloosa horses in Sweetwater, Idaho, in 2018 (Copyright: Greta Rybus)

Contributing Tribal and Non-Tribal partners

Nez Perce Tribal Executive Committee

- Climate Change and Energy Subcommittee

Nez Perce Tribal Executive Direction

- Social Services Department
- Education Department
- Transportation Department
- Technology Services Department
- Department of Fisheries Resources Management
  - Research, Production, and Watershed
- Department of Natural Resources
  - Environmental Restoration and Waste Management Division, Air Quality Program
  - Forestry and Fire Management Division
  - Wildlife Division
  - Water Resources Division
    - Brownfields, Climate Change, Solid Waste, and Water Quality Programs

Other Nez Perce Tribal Organizations

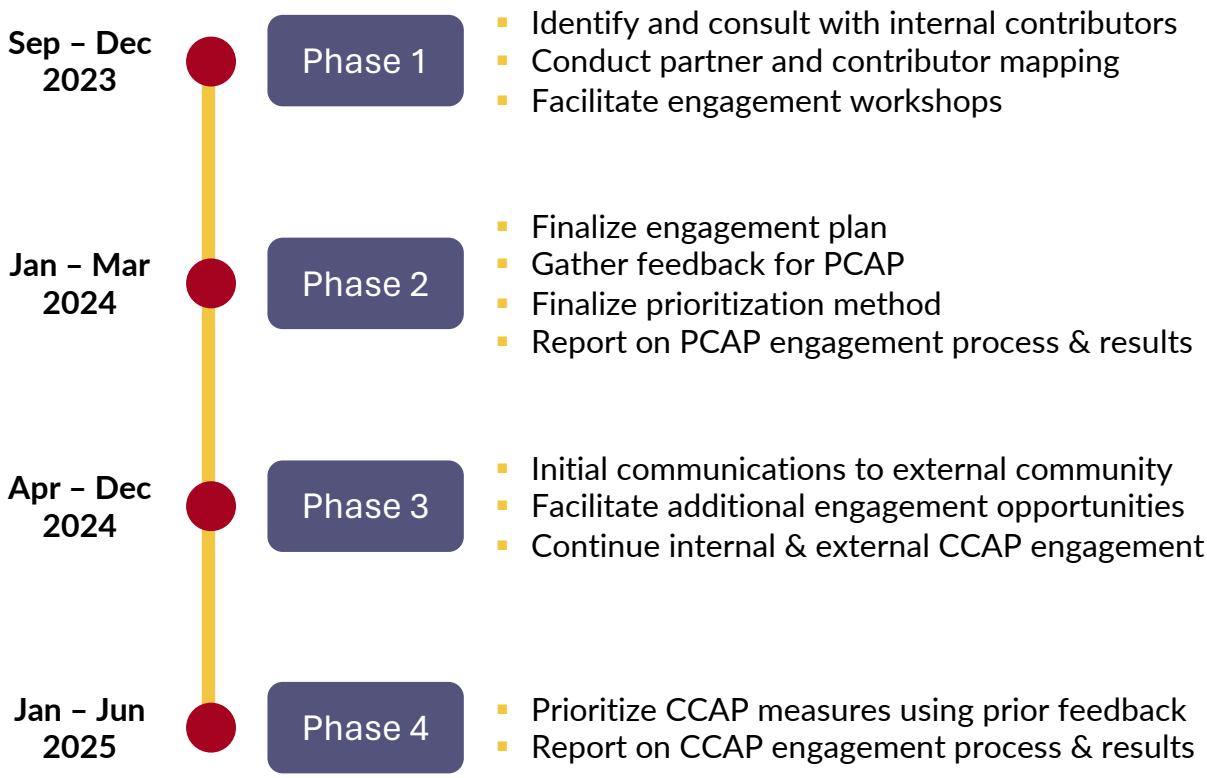
- Nimiipuu Health
- Nez Perce Tribal Enterprises
- Nez Perce Hemp Program
- Nez Perce Tribal Housing Authority

Non-Tribal Partners

- Idaho Department of Environmental Quality
- University of Idaho McClure Center
- State of Washington
- State of Oregon

From October 2023 through February 2024, internal engagement included a variety of workshops, surveys, and other opportunities to provide input and to co-create the Tribe's PCAP. Specific contributions to the PCAP resulting from internal engagement activities include a list of priority measures, the GHG inventory, the pollution reduction analyses, and the assessment of co-benefits the Tribe expects to gain from implementation of this plan.

PCAP Timeline



This diagram represents a visual outline of the Tribe's climate planning community engagement plan for both the PCAP and the Comprehensive Climate Action Plan (CCAP).

ABBREVIATIONS AND DEFINITIONS

Acronym	Definitions
BPA	Bonneville Power Administration
CARB	California Air Resources Board
CCAP	Comprehensive Climate Action Plan
CO_2e	Carbon Dioxide Equivalent
CPRG	Climate Pollution Reduction Grant
DOE	U.S. Department of Energy
eGRID	Emissions & Generation Resource Integrated Database
EPA	Environmental Protection Agency
EV/PHEV	Electric Vehicle/Plug-in Hybrid Electric Vehicle
GHG	Greenhouse Gas
GSA	U.S. General Services Administration
kg	Kilogram
kW	Kilowatt
LIDAC	Low Income Disadvantaged Communities
MT	Metric Tonne
MW	Megawatt
NWPP	eGRID Region Code for the Northwest Region
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
VPP	Virtual Power Plant

GHG Emissions Inventory

GHG EMISSIONS INVENTORY OVERVIEW

Scope & Methodology

Reservation scale emissions data are available from the EPA 2020 National Emissions Inventory (NEI) database for the Transportation and Forestry Fires Sectors. To allocate emissions from State level data obtained from the EPA 2021 Inventory of U.S. Greenhouse Gas Emissions and Sinks by state, the State of Idaho was split by population or land area to allocate emissions to the Nez Perce Reservation. Electricity Generation and Use, Waste and Materials Management, and Commercial and Residential Buildings sectors were allocated based on population. The Agriculture/Land Management sector was allocated based on land area.

Key Data Sources

- National Emissions Inventory (NEI)
- EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks
- Facility Level Information on Greenhouse Gases Tool (FLIGHT)

Introduction

The PCAP GHG emissions inventory for the Nez Perce Reservation was developed to identify sources of air pollution that may affect the Nez Perce Reservation air quality. This inventory is a preliminary emissions inventory and is composed entirely of existing data. The Tribe used available data to analyze what information is already known about sources near and on the Reservation. The Tribe used this analysis of existing data to develop their PCAP and to determine the primary sources of GHG emissions on the Reservation. A more detailed GHG inventory will be conducted for the CCAP process.

GHG sectors included:

- Industry
- Transportation
- Electricity Generation and Use
- Waste and Materials Management
- Commercial and Residential Buildings
- Agriculture/Land Management
- Forestry and Forest Fires

The Tribe's full GHG emissions inventory report is included as an appendix to this PCAP and can be found on page 71.

GHGs reported:

- Carbon Dioxide (CO_2)
- Methane (CH_4)
- Nitrous Oxide (N_2O)
- Fluorinated Gases (applicable only to the Industry sector)

GHG INVENTORY RESULTS

Several sources were used to compile the data included in this inventory. For the Transportation sector, data from the EPA 2020 National Emissions Inventory (NEI) for the Nez Perce Reservation were used. This data was generated by the Idaho Department of Environmental Quality at the state level and using population as a surrogate, emissions were split for on- and off-Reservation. Nez Perce Reservation emissions were the summation of the on-Reservation portions of emissions estimated for Nez Perce, Clearwater, Lewis, and Idaho counties. Data from the Forestry Fires sector also comes from the 2020 NEI.

For the Electricity Generation and Use, Waste and Materials Management, Commercial and Residential Buildings, and Agriculture/Land Management sectors, the 2021 greenhouse gas emissions for the state of Idaho from the EPA's Inventory of U.S. GHG Emissions and Sinks by State were scaled down to the Tribal level. County and state level data include emissions estimates from sources that include portions of Reservation land, because in most cases, emissions estimates for these source types do not exclude the portions of the source (e.g., vehicle emissions) on Reservation land. Allocations to the Reservation are by population for Electricity Generation and Use, Waste and Materials Management, Commercial and Residential Buildings sectors and allocated by land area for the Agriculture/Land Management sectors of this inventory.

Table: Nez Perce Reservation GHG Emissions (Metric Tons CO_2 Equivalent)

Sector	CO_2	N_2O	CH_4	Fluorinated gases	Total CO_2e
Transportation (Summed)	170,435	764	823	--	172,022
On-Road Mobile	147,829	764	353	--	148,946
Non-Road Mobile	22,606	NR	470	--	23,076
Industrial Processes and Product Use	34,861	421	3,877	6,037	45,195
Electricity Generation and Use	21,554	129	39	981	22,703
Waste and Materials Management	NR	1,463	7,567	--	9,030
Commercial and Residential Buildings	34,106	192	1,395	--	35,693
Commercial	14,054	36	228	--	14,318
Residential	20,052	156	1,166	--	21,375
Agriculture/Land Management	24,212	86,086	151,750	--	262,048
Agriculture	11,110	79,266	132,612	--	222,989
Land Use, Land-Use Change and Forestry	13,102	6,820	19,138	--	39,060
Forest Fires (Summed)	111,721	NR	12,164	--	123,884
Wildfire	92,342	NR	10,120	--	102,462
Prescribed fire	19,379	NR	2,043	--	21,422
Total	396,889	89,055	177,615	7,018	670,575

* NR – Not Reported

EMISSIONS RESULTS BY SECTOR

Transportation

The Transportation sector is divided into the sub-sectors of on-road mobile sources and non-road mobile sources. Reservation scale emissions data are from the EPA 2020 National Emissions Inventory (NEI) database. No estimate of GHG emissions from airports are available in the 2020 NEI at either the State or Reservation level. Emissions from locomotives and commercial marine vessels are available for the counties surrounding the Nez Perce Reservation but are not presented or addressed further.

Table: Distribution of Transportation Emissions by Type

Sector	CO_2	N_2O	CH_4	Fluorinated gases	Total CO_2e
Transportation – Total	170,435	764	823	--	172,022
On-Road Mobile	147,829	764	353	--	148,946
Non-Road Mobile	22,606	NR*	470	--	23,076

On-Road Mobile Sources

On-road mobile source emissions estimates for methane and nitrous oxide come from the 2020 NEI Nez Perce Reservation. There are no carbon dioxide emissions for on-road mobile sources for the Nez Perce Reservation in the 2020 NEI. There are county estimates for carbon dioxide in the 2020 NEI. The county carbon dioxide emissions were allocated to the Reservation emissions based on population allocation and then summed. Clearwater, Idaho, Lewis, and Nez Perce counties were used and the population allocation by county for the population on the Reservation is from the U.S. Census.

Table: Percent of County Residents Living on the Nez Perce Reservation

County	Population
Clearwater	65.3%
Idaho	25.6%
Lewis	91.0%
Nez Perce	11.9%

Non-Road Mobile Sources

Non-road emissions on the Reservation were taken from the 2020 NEI and are presented in the table on the following page. There are no nitrous oxide emissions reported in the 2020 NEI for the non-road inventory. Agricultural equipment is the largest source of CO_2e, emitting 19,288 metric tons CO_2e in 2020.

Table: GHG Emissions ($Mtco_2e$) From Non-road Mobile Sources

Non-Road Mobile Equipment Type (Reservation Level)	Carbon Dioxide (CO_2)	Methane (CH_4)	Total CO_2e
Agricultural Equipment	19,261	26	19,288
Commercial Equipment	634	14	648
Construction Equipment	644	0.7	644
Industrial Equipment	855	284	1,139
Lawn and Garden Equipment	473	18	492
Logging Equipment	99	1	100
Pleasure Craft	223	56	279
Recreational Equipment	417	69	486
Total	22,606	470	23,076

Industry

The 2021 GHG emissions at the facility level from the EPA Facility Level Information on Greenhouse Gases Tool (FLIGHT) was consulted when preparing this inventory. FLIGHT includes data for those facilities that are required to submit annual GHG emissions as part of the Greenhouse Gas Reporting Program (GHGRP). This includes facilities that emit above 25,000 $MTCO_2e$ of greenhouse gas emissions annually.

Table: GHG Emissions ($Mtco_2e$) From Industrial Sources

Sector	CO_2	N_2O	CH_4	Fluorinated gases	Total CO_2e
Industrial Processes & Product Use	34,861	421	3,877	6,037	45,195

There were no facilities in FLIGHT within the boundaries of the Nez Perce Reservation. Although there are no large industries on the Nez Perce Reservation, many small businesses operate and emit GHGs. Industry emissions were estimated by scaling down the 2021 Idaho GHG emissions to the Reservation level based on a population allocation. The population on the Reservation is 18,403 and the population of Idaho estimated from the 2020 Census Demographic Data Map Viewer is 1,839,106. Therefore, the ratio used to estimate the Reservation emissions is 0.01.

This ratio of 0.01 was multiplied by the 2021 Idaho GHG electricity use to obtain estimates for the on-Reservation industry emissions.

Climate Change and Energy Subcommittee Chairman Ryan Oatman at Tribal climate camp, March 2023, with Stefanie Krantz, Nez Perce Tribe Climate Change Coordinator (Copyright: Nez Perce Tribe)

Electricity Generation and Use

The Tribe used data for the state of Idaho reported in the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State in this section. Emissions data for 2021 with a category of Electricity Generation were reviewed for this section.

Table: GHG Emissions ($Mtco_2e$) From Electricity Generation and Use

Sector	CO_2	N_2O	CH_4	Fluorinated gases	Total CO_2e
Electricity Generation and Use	21,554	129	39	981	22,703

The Tribe realizes that electricity use on Tribal lands contributes to GHG emissions, even though these emissions are not originating from electrical generation on Tribal lands, except some hydropower. Electricity use emissions were estimated by scaling down the 2021 Idaho GHG emissions to the Reservation level based on a population allocation. The population on the Reservation is 18,403, and the population of Idaho estimated from the 2020 Census Demographic Data Map Viewer is 1,839,106. Therefore, the ratio used to estimate the Reservation emissions is 0.01.

Waste and Materials Management

The tribe used data for the state of Idaho reported in the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State in this section. Emissions data for 2021 with a sector of Waste were reviewed for this section. CO_2 emissions were not included for any of the sources within this sector.

Table: GHG Emissions ($Mtco_2e$) From Waste and Materials Management

Sector	CO_2	N_2O	CH_4	Fluorinated gases	Total CO_2e
Waste and Materials Management	NR	1,463	7,567	--	9,030

* NR – Not Reported

Emissions from Waste and Materials Management were estimated by scaling down the 2021 Idaho GHG emissions to the Reservation level based on a population allocation. The population on the Reservation is 18,403 and the population of Idaho estimated from the 2020 Census Demographic Data Map Viewer is 1,839,106. Therefore, the ratio used to estimate the Reservation emissions is 0.01.

Commercial and Residential Buildings

The Tribe used data for the state of Idaho reported in the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State in this section. Emissions data for 2021 with a category of Commercial or Residential were reviewed for this section.

Table: GHG Emissions ($Mtco_2e$) From Commercial and Residential Buildings

Sector	CO_2	N_2O	CH_4	Fluorinated gases	Total CO_2e
Commercial and Residential Buildings	34,106	192	1,395	--	35,693
Commercial	14,054	36	228	--	14,318
Residential	20,052	156	1,166	--	21,375

Commercial and Residential Building's fossil fuel combustion emissions were estimated by scaling down the 2021 Idaho GHG emissions to the Reservation level based on a population allocation. The population on the Reservation is 18,403 and the population of Idaho estimated from the 2020 Census Demographic Data Map Viewer is 1,839,106. Therefore, the ratio used to estimate the Reservation emissions is 0.01.

Agriculture and Land Management

The Tribe used data for the state of Idaho reported in the EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks by State in this section. Emissions data for 2021 with a sector of Agriculture or Land-Use Change and Forestry were reviewed for this section. This category includes GHG emissions as well as sinks. The sinks are emissions removal due to existing land management, such as land remaining in forests, as well as land use changes, such as planting trees in urban areas, that result in carbon sequestration. These sinks are shown as negative CO_2 emissions in the data set.

Table: GHG Emissions ($Mtco_2e$) From Agriculture and Land Management

Sector	CO_2	N_2O	CH_4	Fluorinated gases	Total CO_2e
Agriculture/Land Management	24,212	86,086	151,750	--	262,048
Agriculture	11,110	79,266	132,612	--	222,989
Land Use, Land-Use Change and Forestry	13,102	6,820	19,138	--	39,060

Agriculture and land management emissions were estimated by scaling down 2021 Idaho GHG emissions to the Reservation level based on a land area allocation. The land area of the Reservation is 1,203 square miles, and the Idaho land area is 83,569 square miles (U.S. Census). Therefore, the ratio used to estimate the Reservation emissions is 0.0144.

Forest Fires

Wildfires and prescribed burns are another source of GHG emissions. CO_2 and CH_4 emissions from these fires were estimated by EPA at the Tribal level and are included in the 2020 NEI Supporting Data & Summaries. Data is converted to metric tons CO_2e.

Table: GHG Emissions ($Mtco_2e$) From Forest Fires

Sector	CO_2	N_2O	CH_4	Fluorinated gases	Total CO_2e
Forest Fires (Summed)	111,721	NR	12,164	--	123,884
Wildfire	92,342	NR	10,120	--	102,462
Prescribed fire	19,379	NR	2,043	--	21,422

* NR – Not Reported

Big Hole National Battlefield at Nez Perce National Historical Park in Big Hole, Montana (Copyright: Ryan Oatman)

Priority Measures Benefits Analysis

PCAP SCOPE

The Tribe considers the following carbon emitting activities to be "in scope" for the purpose of their climate planning:

- Emissions from all Tribal operations either on- or off-Reservation
- Emissions originating from activities within the geographic boundaries of the Reservation and field offices

Because the PCAP is intended to highlight the Tribe's priority actions, it does not include an exhaustive list of climate mitigation measures. The purpose of the PCAP is to lay the foundations for the Phase II CPRG Implementation Grant application due to EPA April 1, 2024, and therefore outlines actions with the greatest opportunities for GHG reductions while providing the most impactful co-benefits to the Tribe.

PRIORITY GHG REDUCTION MEASURES

The following page includes a focused list of near-term, high-priority implementation-ready measures that have been identified for implementation by the Nez Perce Tribe. All measures are shovel-ready and capable of implementation within five years. Each measure focuses on achieving the most significant GHG reduction possible, while considering other relevant planning goals. This list includes both measures with high GHG reduction potential and measures that enhance carbon sinks. In addition to GHG emissions reductions, the rationale for selecting a measure for the PCAP also included other factors, such as reduction of co-pollutants (including criteria pollutants and hazardous pollutants), additional health benefits, environmental benefits, cultural benefits and/or other economic or community-related factors.

Priority Measures

#	Sector	Measure description	$MTCO_2e$*	$/MT
1	Built Environment (Commercial & Residential)	Energy audits and upgrades for Tribal government facilities, enterprises, and residences	53,084	$3,775
2	Electric Power (Electricity)	Rapidly deploy renewable energy (primarily solar) and battery/energy storage capability at Tribal facilities and residences	33,390	$3,354
3	Transportation	Convert the Tribe's fleet to EVs, hybrids, and PHEVs and install electric charging infrastructure	3,279	$3,993
4	Transportation	Increase the fleet of e-bikes used by staff at remote field facilities	19	$2,660
5	Transportation	Improve public transit services and infrastructure	841	$1,189
6	Natural & Working Lands	Sequester carbon through land restoration, forest management, and afforestation projects	142,023**	$84
7	Waste & Materials Management	Lower barriers to adopting biodegradable packaging for events, restaurants, and schools	6	$16,595
8	Waste & Materials Management	Divert food and biological waste from landfill to composting facilities	70	$35

Note:
*MTCO2e reflects total GHG reductions by 2030
**MTCO2e for Measure 7 reflects a 60-year horizon, using the CARB assumptions

MEASURE 1

Energy Audits And Upgrades For Tribal Government Facilities, Enterprises, and Residences

Measure Description

Measure 1 includes three projects that focus on energy efficiency improvements for residential, commercial, and Tribal government buildings. These buildings are not energy efficient and are poorly prepared for extreme weather events, resulting in high utility bills and negative health effects.

$MTCO_2e$
53,084
Cost
$200,416,000
$ / MT
$3,775

Project 1	Project 2	Project 3
Energy audits & upgrades for residences	Update old, inefficient wood stoves to more efficient models	Energy audits & upgrades for Tribal government facilities, commercial buildings

LIDAC Benefits

Implementing this measure will conserve energy consumption and lower energy bills for residents and Tribal government. Reduction of co-pollutants from wood smoke would create health benefits for residents throughout the Reservation. Once fully implemented, this measure also mitigates health risks from extreme weather events by adding cooling and back up heating sources for residences. This measure also increases employment opportunities.

Implementation Schedule And Milestones

Energy audits and upgrades will be completed on a rolling schedule over the five-year period of performance (2025 – 2029) with approximately 20 percent of the upgrades completed each year. Energy audits will be prioritized early in the period of performance in 2025 – 2026.

MEASURE 1 – PROJECT 1

Energy Audits and Upgrades For Residences

Sector	Geographic Scope	Implementing Agencies
Built Environment (Residential)	Reservation	Nez Perce Tribe

Potential Funding Sources	Progress Metrics
CPRG Implementation Grant; Nimiipuu Energy; Nez Perce Tribe; Dept of Fisheries; USACE; USFWS; BPA; grants from states of Idaho, Oregon, and Washington; DOE Energy Auditor Training Grant Program; DOE Weatherization Assistance Program	Reduction in kWh

$MTCO_2e$	Cost	$ / MT
40,212	$154,413,000	$3,840

Measure Description

Project 1 focuses on energy efficiency improvements for residences. There are 7,353 residential homes on the Nez Perce Reservation. Many of the homes are not energy efficient and are poorly prepared for extreme weather events, resulting in high utility bills and negative health effects. All the 7,353 homes would benefit from an energy audit and upgrades.

Energy audits will identify opportunities to weatherize buildings and reduce energy use. Weatherization upgrades may include but, are not limited to, sealing leaks in building envelope and heating/cooling systems, improving insulation, upgrading appliances, sealing or replacing doors and windows, minor wall/roof repairs, evaluating alternative heating and cooling options such as electric heat pumps, mini-splits, installing ceiling fans, and insulating water heaters.

The California Air Resources Board (CARB) provides a benefit calculator tool (Weatherization of Low-Income Dwellings) and this was used to calculate the emissions and co-pollutants. They do not provide a tool for all dwellings, so the low-income version is used as a proxy for emissions from all residential dwellings regardless of the income level.

According to the tool, weatherizing the single-family dwellings would reduce energy use by 18,353,790kWh per year and GHG emissions by 27,324 $MTCO_2e$ over a four-year period (2026 – 2029).

Using recent energy audit and weatherization costs from Lane Regional Air Protection Agency, the Tribe estimates a cost of $14,100 per dwelling for audits and upgrades, and $7,000 for ductless heat pumps, making the total cost per home $21,100.

Co-Pollutant Reductions by 2030

CO_2e	NO_x	SO_2	CO_2	$PM_{2.5}$	NH_3	VOCs	$/ton
40,212	27,733	--	--	3,402	--	2,963	$3,840

Co-pollutants in pounds are from the CARB benefits calculator for Low-income Weatherization. The tool does not provide data for all co-pollutants.

Nez Perce Tribal elder and gatherer Lee Bourgeau teaching long house protocols at the Nez Perce Wallowa Homeland Longhouse, Wallowa, Oregon (Copyright: Ryan Oatman)

MEASURE 1 – PROJECT 2

Update Old, Inefficient Wood Stoves to More Efficient Models

Sector	Geographic Scope	Implementing Agencies
Built Environment (Residential)	Reservation	Nez Perce Tribe

Potential Funding Sources	Progress Metrics
CPRG Implementation Grant; Dept of Fisheries; USACE; USFWS; BPA; grants from states of Idaho, Oregon, and Washington; DOE Energy Auditor Training Grant Program; DOE Weatherization Assistance Program	# of wood stove conversions

$MTCO_2$
6,259
Cost
$4,403,000
$ / MT
$703

Measure Description

There are an estimated 1,352 homes on the Reservation that use wood burning stoves or furnaces. Of those, 262 are considered fireplaces (no woodburning stove or insert) and 325 are non-EPA certified stoves or inserts. There are 756 homes that already have EPA certified stoves or inserts, so only 587 homes would require upgrades.

Burning firewood is a cultural practice for Tribal members and a traditional and primary source of heat for many homes on the Reservation. Removing stoves and replacing them with non-wood burning heat sources is not a viable option. Extreme weather events and power outages are common, and families rely on their stove for heat and cooking. Additionally, the Reservation is a high risk/high priority fire shed in the National Wildfire Crisis Strategy. With increased fuels reduction planned in nearby forests in the coming years, using locally sourced firewood through the Tribe's firewood bank program and replacing uncertified stoves is a way to reduce fuel in forests and reduce emissions by having wood burn more efficiently in an EPA-certified wood stove instead of in a wildfire.

CARB provides a tool (Benefit Calculator Tool for the Woodsmoke Reduction Program) to estimate the impacts of converting from different types of wood burning stoves to more efficient versions. That tool was used to calculate CO_2e emissions and co-pollutants, assuming that fireplaces are installed in 2025 and there are four years of emissions reductions.

The cost of an EPA certified wood stove or insert plus installation is estimated at $7,500. Cost estimates come from the Lane Regional Air Protection Agency (LRAPA) in Oregon. Their Targeted Airshed Grant (TAG) includes funding to conduct energy audits,

weatherization, wood stove changeouts and ductless heat pumps (DHP) into housing in Oakridge, OR. The costs in Oakridge would be reflective of costs in communities on the Nez Perce Reservation.

Co-Pollutant Reductions by 2030

CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/ton
6,259	13,748	--	195,615	--	280,744	$703

Co-pollutants in pounds using the California Air Resources Board Woodsmoke Reduction Calculator. The tool does not provide data for all co-pollutants.

MEASURE 1 – PROJECT 3

Energy Audits and Upgrades for Tribal Government Facilities and Commercial Buildings

Sector	Geographic Scope	Implementing Agencies
Built Environment (Commercial)	Reservation, Field Offices	Nez Perce Tribe

Potential Funding Sources	Progress Metrics
CPRG Implementation Grant; Dept. of Fisheries; USACE; USFWS; BPA; grants from States of Idaho, Oregon, and Washington; DOE Energy Auditor Training Grant Program; DOE Weatherization Assistance Program	Reduction in kWh

$MTCO_2e$	Cost	$ / MT
6,613	$4,160,000	$629

Measure Description

The energy efficiency of Tribal government and commercial buildings on the Reservation present an opportunity to create energy efficiency and reduce CO_2e emissions. Energy audits, like those proposed for residential buildings, will identify opportunities to weatherize buildings (e.g., seal windows), replace windows and doors with better insulated versions, evaluate alternative heating and cooling options (e.g., electric heat pumps), install water heater insulation, and other actions to reduce energy use.

The U.S. DOE via the Office of Energy Efficiency & Renewable Energy provides a Baseline Energy Calculator that estimates the estimated energy use and CO_2 emissions associated with losses through the building envelope, appliances and devices within residential and commercial buildings in the United States. The tool estimates 61 $MTCO_2e$ for a commercial building in Idaho. Energy audits and upgrades could reduce all these emissions across the 52 buildings included in the analysis and reduce 3,172 $MTCO_2e$.

Additionally, the U.S. DOE indicates that high efficiency HVACs can reduce energy use by 50 percent. Assuming 60 percent of building energy use is for HVAC, the upgrades would reduce 3,441 $MTCO_2e$ through reduced use of energy.

Installing a new HVAC system would cost about $50,000 including installation for each building and other efficiency improvements might cost an additional $30,000, for a total cost of $80,000 per building. Total cost for the project would be $4,160,000.

MEASURE 1 – PROJECT 3

Co-Pollutant Reductions by 2030

CO_2e	NO_x	SO_2	CO_2	$PM_{2.5}$	NH_3	VOCs	$/ton
6,613	83,200	--	--	10,206	--	8,890	$629

Co-pollutants in pounds are from the CARB benefits calculator for Low-income Weatherization. The tool does not provide data for all co-pollutants.

MEASURE 2

Rapidly Deploy Renewable Energy (Primarily Solar) at Tribal Facilities and Residences

Sector	Geographic Scope	Implementing Agencies
Electric Power (Electricity)	Reservation, Field Offices	Nimiipuu Energy, Nez Perce Tribe

Potential Funding Sources	Progress Metrics
EPA grant; Nimiipuu Energy; Nez Perce Tribe; USACE; USFWS; BPA; Solar for All; grants from states of Idaho, Oregon, and Washington, DOE (loan)	Solar panels installed; kWh purchased externally; VPP: meters connected & kWh sold

$MTCO_2e$	Cost	$ / MT
33,390	$111,975,000	$3,354

Measure Description

The Tribe is currently standing up Nimiipuu Energy as an independent Tribal corporation and it has largely operated with Nez Perce Tribal Staff. In this process the Tribe is becoming less reliant on PV solar installation consultants and bringing much of that activity internal. The Tribe is currently in the process of securing financing to develop a portfolio of about nine projects, with much of the buildings being Nez Perce Tribe owned buildings, and the majority resting within the Tribe's Reservation boundaries. In addition to developing a portfolio of owned Tribal PV systems, Nimiipuu Energy plans to begin to enter the solar developer market to make sales for residential and commercial projects.

Much of this accelerated activity is in response to the process of finalizing a guaranteed loan from the U.S. Department of Energy. This loan represents a significant funding source to fund future deployment of approximately 5,000 residential projects and 200 commercial projects to help meet the demands of clean energy in the face of population growth and electrification of buildings and transportation. In total the modeling has an approximate 60,000kW (60MW) nameplate capacity for residential and 40,000kW (40MW) nameplate capacity for commercial.

The Tribe completed the first part of this application process in early 2023 and has been working towards part two of this application for much of the past year. Nimiipuu Energy is close to submitting the second part of the application. The final loan acceptance, if approved, is estimated to be finalized in approximately 6 to 12 months.

An objective for solar installation is to match the 5,311MW of the four lower Snake River dams and to play a significant role in rapid PV solar deployment in the Inland Northwest and certainly within the Tribal community. The Nez Perce Tribe fully-owns and operates

Nimiipuu Energy, and all the ecological imperatives of indigenous values are shared in both organizations.

One of the Tribe's critical resiliency centers – the Clearwater River Casino & Lodge – would be fully solarized and paired with battery storage. Community centers in Lapwai, Kamiah, and other locations along with buildings connected with Tribal Programs, Services, and Functions (e.g., Fisheries) would be solarized and paired with battery storage as well. The Tribe's intention is to leverage the deployed solar and storage and implement a virtual power plant (VPP), greatly improving the resiliency of the local grid. Each individual solar and storage site would be consolidated into a decentralized energy capacity that would allow Nimiipuu Energy to deliver energy to the grid when it is most needed during an emergency or at peak times. The VPP would also generate additional income for the Nez Perce Tribe by allowing them to sell excess energy stored, replacing the non-renewable energy sources tapped when excess energy is needed.

Completing this conversion involves multiple initiatives:

- Create solar arrays and installing solar panels on commercial/residential buildings:
  - The Tribe used over 47 million kWh of electricity in 2023
  - Peak sun hours are estimated at 4.5 hours, using the PV Watts calculator (courtesy of the National Renewable Energy Laboratory) for Lapwai
  - The formula for calculating the size of a solar array is:
    kWh per day / peak sun hours / power rating (watts per panel)
  - Panels average a power rating of 350W or .35kW
  - Replacing 47 million kWh requires a system with a 30,000kW capacity
  - At a cost of $3 per watt, the total cost of purchasing the panels is approximately $90,000,000, which includes installation (per an estimate from RevoluSun, the Nez Perce Tribe's current partner for solar battery installation)
- Install Tesla Megapacks to store energy and maintain consistent grid capacity:
  - Each megapack has a 3.9MW capacity
  - Current estimate is that 4 megapacks are needed
  - Cost per megapack is $2,000,000, which includes installation (per RevoluSun)
  - Total cost of four megapacks is $8,000,000
- Install battery backups at each single-family dwelling and other housing facilities:
  - Each single-family dwelling is estimated to need two batteries, for a total of 700
  - The apartment buildings, two elder housing facilities, children's and women's homes would each have eight batteries installed, for a total of 58

- Tesla Powerwalls are the assumed battery at a cost per battery of $12,500 (fully-installed)
- Cost of the Powerwalls is $9,475,000

- Implement a Virtual Power Plant (VPP)
  - Once implemented a VPP would allow Nimiipuu Energy to sell excess electric capacity and generate income for the Tribe
  - The U.S. Department of Energy paper *Pathways to Commercial Liftoff: Virtual Power Plants* provides an example for determining the costs of a VPP serving 100,000 customers:
    - IT system integration = $500,000 as a one-time fee
    - Hardware = $250,000 as a one-time fee
    - Labor for implementation = $250,000 as a one-time fee
    - Annual software costs = $650,000 per year
    - Administrative costs = $50,000 per year
    - Annualized cost over 5 years = $900,000
  - Assuming the costs are not scalable based on the total number of customers, the total cost for the VPP would be $4,500,000

- GHG emissions:
  - Emissions are based on the eGRID emissions for the NWPP subregion
  - NWPP CO_2e emissions are 602.09 lbs. per MWh or .000273 MT per kWh
  - Total annual emissions = 12,841 $MTCO_2e$
  - Emissions reduction by 2030 with incremental integration = 33,390 $MTCO_2e$

The total cost of implementing the initiative is $111,975,000.

Co-Pollutant Reductions by 2030

CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/ton
33,390	3.64	1.98	0.4	0.125	0.12	$3,350

Co-pollutants in pounds using the EPA's AVERT tool.

LIDAC Benefits

On-site generation of renewable energy reduces co-pollutants while creating energy resilience for residents and Tribal government operations. Solar/storage solutions reduce

reliance on overhead power lines which can go down during storms and fires. Implementing this measure also lowers energy bills which is particularly important for low-income residents of the Reservation.

Implementing this measure creates resiliency by offering consistent, renewable energy for residents and Tribal operations. It also creates income generation by providing power to the grid when needed, offering economic benefits to the Tribe and the communities living on the Reservation.

By training and employing a Tribal workforce, additional economic benefits would positively impact the Tribal community.

Implementation Schedule and Milestones

With current Tribal capacity, approximately 2 million dollars of solar can be installed in a single month, so the Tribe's implementation timeline is dependent upon the amount of funding the Tribe can procure, and the speed with which it is available. Plans are underway to increase the Tribal certified solar/battery workforce from 30 staff to approximately 150 by 2025. The Tribe expects to install large battery storage capacity within the first two years of the project, however, due to supply chain limitations, this could take until 2029. Battery storage is expected to increase incrementally throughout the five-year period of performance (2025 – 2029).

Manager for Nez Perce Tribal Solar Crew installing Tesla Megapack at the Water Treatment Plant in 2021 (Copyright: Tuck Miller)

MEASURE 3

Convert Tribal Fleet to EVs, HEVs, and PHEVs and Install Electric Charging Infrastructure

Sector	Geographic Scope	Implementing Agencies
Transportation	Reservation, Field Offices	Nimiipuu Energy, Nez Perce Tribe, GSA

Potential Funding Sources	Progress Metrics
EPA grant; Nimiipuu Energy; Nez Perce Tribe; BPA; grants from states of Idaho, Oregon, and Washington	# of EVs/PHEVs in fleet vs fossil fuel powered vehicles

$MTCO_2e$	Cost	$ / MT
3,279	$12,895,000	$3,933

Details

On-road transportation emissions represent 148,946 MTCO2e, which is 23 percent of the Tribe's total emissions. This includes both in-boundary and out-of-boundary transportation. Most of the emissions are related to out-of-boundary trips, which are outside of the Tribe's control. Fleet vehicles are one of the best opportunities for the Tribe to make a near-term impact on vehicle-related emissions.

A combination of privately owned and fleet vehicles are responsible for the Tribe-specific emissions:

- Estimated emissions from all vehicles privately owned by Tribal members is 6,590 $MTCO_2e$
  - Tribal population is 3,500 people
  - An average Tribal family size is 3.06 people
  - Average family would own 1.2 vehicles per family
  - Total privately-owned vehicles would be 1,373
- Fleet vehicles represent 2,235 $MTCO_2e$ per year
  - Total Fleet vehicles owned by the Tribe is 138
  - Total Fleet vehicles owned by GSA is 130
- EV, HEV, PHEVs used in assumptions
  - Sedans – Toyota Camry Hybrid, Hyundai Ioniq 6
  - SUVs – Toyota Highlander Hybrid XLE, Ford Explorer EV
  - Light – duty Trucks – Ford F-150 HEV, Ford F-150 Lightning EV
  - Vans – Toyota Sienna Hybrid, Chrysler Pacific PHEV

Nearly 50 percent of the fleet vehicles owned by the Tribe are more than seven years old, with 16 vehicles with model years prior to 2000. The Nez Perce Tribe and GSA could transition their fleet to a mix of EVs and Hybrids (to account for range-related challenges) through 2029 at a cost of $12,900,000. This transition would eliminate 3,279 $MTCO_2e$ by 2030.

Non-road transportation also contributes to the Tribe's transportation emissions. This measure may include electrifying off-road vehicles and equipment when implemented.

To facilitate the transition, the Tribe will install EV chargers at various sites, primarily at or near Tribal facilities. There would be one charger for every two fleet vehicles, for a total of 95 charging stations by 2030. The cost of installing a Level 2 charging station can range from $2,700 to $24,000 and between $18,000 and $61,000 for Level 3 chargers. The assumption is that 75 Level 2 chargers will be implemented with a cost $12,000 each and 20 Level 3 chargers at an estimated of $40,000 each. The total cost of installing 95 chargers by 2030 would be $1,700,000.

Total cost for the project is $14,600,000 for purchasing EVs and Hybrids and installation of charging stations.

An added benefit of the project is that implementing Level 2 and Level 3 chargers would help incentivize Tribal members and employees to convert their personal vehicles to electric.

Co-Pollutant Reductions by 2030

CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/ton
3,279	204	11	72	--	767	$3,933

Co-pollutants in pounds using the AFLEET tool provided by the Argonne National Laboratory.

LIDAC Benefits

Implementing this measure will immediately reduce co-pollutants from tailpipe emissions resulting in improved health outcomes. It will also reduce fuel costs to the Tribe and to employees who convert to an EV or PHEV.

Implementation Schedule and Milestones

The Tribe currently has built enough capacity to be able to rapidly install EV charging stations once funding becomes available. The installation of charging stations is expected to be completed in tandem with solar upgrades and spread out over the five-year period of performance (2025 – 2029) with approximately 20 percent of the work completed each year.

Ron Oatman and James Oatman, Jr. fishing the South Fork of the Clearwater River (Copyright: Ryan Oatman)

MEASURE 4

Create a Fleet of E-bikes for Staff at Field Facilities

Sector	Geographic Scope	Implementing Agencies
Transportation	Reservation, Field Offices	Nez Perce Tribe

Potential Funding Sources	Progress Metrics
EPA grant; Nez Perce Tribe; Dept. of Fisheries; USACE; USFWS; grants from states of Idaho, Oregon, and Washington	E-bikes in use; Reduction in off-road Fleet vehicles

$MTCO_2e$	Cost	$ / MT
18.8	$50,000	$2,660

Details

Off-road transportation represents about 13 percent of all transportation emissions. The Tribe has 59 ATVs and UTVs in its fleet. These off-road vehicles are used at field locations and are often taken to remote sites. Due to reliability and long distances traveled in the field, only a portion of these vehicles can be converted at this time.

These vehicles collectively use an estimated 2,580 gallons of fuel per year, which is 27.6 $MTCO_2e$. Replacing ten of those vehicles with electric bikes would eliminate 4.7 $MTCO_2e$ per year. For the PCAP, e-bikes will be purchased by 2026 and there will be four years of reductions totaling 18.8 $MTCO_2e$

An electric mountain bike costs about $5,000 and ten bikes would cost around $50,000.

Co-Pollutant Reductions By 2030

CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/ton
18.8	1.0	0.1	0.2	--	3.4	$2,137

Co-pollutants in pounds are calculated AFLEET data from the Argonne National Laboratory.

LIDAC Benefits

Implementing this measure will reduce co-pollutants and increase physical activity resulting in improved health outcomes. It will also reduce fuel costs for the Tribal government.

Implementation Schedule and Milestones

Increasing the fleet of e-bikes is expected to take place in the first three years of the five-year period (2025 – 2028). Milestones include the number of e-bikes.

Nimíipuu child holding a Chinook salmon caught by dipnet on traditional Nez Perce fishing grounds at Rapid River and the Little Salmon (Copyright: Tuck Miller)

Nimíipuu children watching their grandfather, Allen Pinkham, traditionally fish salmon at Rapid River (Copyright: Tuck Miller)

MEASURE 5

Improve Public Transit Service and Infrastructure

Sector	Geographic Scope	Implementing Agencies
Transportation	Reservation, Field Offices	Nez Perce Tribe

Potential Funding Sources	Progress Metrics
EPA grant; Nez Perce Tribe; grants from states of Idaho, Oregon, and Washington	Transit trips; Transit miles traveled; Vehicle trips replaced

$MTCO_2e$	Cost	$ / MT
841	$1,000,000	$1,189

Details

The Nez Perce Tribe currently operates three bus routes using diesel fueled shuttle buses. This is the only public transit option available for Tribal members and non-Tribal members on the Reservation. The buses currently operate five days per week and given the expansive geography of the Reservation, the buses travel around 256,000 miles per year. All routes terminate in Lewiston, Idaho and nearly 100 percent of riders continue to Lewiston.

This measure assumes the following:

- Ridership in 2023 = 8,200 people
- Increased ridership of 10 percent per year
- Two new routes are added
- Buses run seven days per week starting in 2025
- One car trip is eliminated for every 1.25 riders
- Average round-trip is 210 miles per route
- All riders depart the bus in Lewiston, Idaho
- Shuttle buses have an estimated 11 mpg
- Passenger cars have an estimated 30 mpg
- Weekend ridership is 50 percent less than weekday ridership

Adding two new routes and running all five routes seven days per week more than doubles the miles travelled, increasing total miles to 538,000 per year from around

256,000. Total miles travelled increases to 2.79 million from 1.28 million miles in a five-year period, adding 1.51 million miles compared with the baseline.

Adding routes and providing weekend transit increases total miles traveled, it would also reduce about 16,800 additional car trips by 2030. At an average 210 miles per trip (same as the bus), this would eliminate about 3.5 million miles traveled by passenger cars.

The Tribe's Appaloosa Express transit program uses diesel shuttle buses for its fleet. Using EPA emissions factors, diesel produces about 13 percent more emissions per gallon than gasoline. CO_2 emissions for diesel are 10.21 kg/gallon and 8.78 kg/gallon for gasoline. Transitioning to gasoline-powered shuttle buses would reduce 33 $MTCO_2e$ for the three existing routes (prior to adding a weekend schedule). The cost of a new shuttle bus ranges between $100 – 120,000 depending on the model.

Providing two routes and weekend schedules adds around 282,000 miles on top of the current schedule and would create 225 $MTCO_2e$ using gasoline-powered buses. However, the new routes and weekends could replace 3,300 passenger car trips per year, eliminating 1,033 $MTCO_2e$. The net impact of the new routes would be 808 $MTCO_2e$.

Transitioning to gasoline-powered buses and adding routes and weekends could eliminate a combined 841 $MTCO_2e$.

Additional routes requires hiring additional drivers. Two new drivers might be needed for each of the two new routes, plus an additional driver for all five weekend routes. If a driver is paid $60,000 per year, including health benefits, the total increased employee-related costs would be $540,000. The actual cost might be lower if the weekend shifts are part-time positions.

The combined cost of new buses and additional employees would be around $1,000,000.

Co-Pollutant Reductions by 2030

CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/ton
808	2.1	.004	0.065	.043	.63	$1,238

Co-pollutants in pounds are calculated using scaled NEI data based on Clearwater, Idaho, Lewis, and Nez Perce counties.

LIDAC Benefits

Implementing this measure will mitigate isolation for seniors and reduce transportation costs for residents and employees on the Reservation. As a result, the community will benefit from improved physical and mental health outcomes, cost savings, and better access to cultural events.

Implementation Schedule and Milestones

Upgrades to the bus fleet and addition of new routes and expanded schedule could be completed by 2025.

Nez Perce elder and traditional gatherer Lee Bourgeau at Musselshell Meadows conveying what gathering means to the Tribe (Copyright: Greta Rybus)

MEASURE 6

Sequester Carbon Through Land Restoration, Forest Management, and Afforestation Projects

Sector	Geographic Scope	Implementing Agencies
Natural & Working Lands	Reservation, Usual & Accustomed Areas	Nez Perce Tribe, USFWS

Potential Funding Sources

EPA grant; Nez Perce Tribe; USFWS; USFS; BPA; EPA Wildfire Smoke Preparedness Grant; Climate-Smart Commodities for Idaho; Traceable Reforestation for America's Carbon & Timber; grants from states of Idaho, Oregon, and Washington

Progress Metrics

Acres planted compared to total acres from baseline

$MTCO_2e$

142,023

Cost

$11,900,000

$ / MT

$84

Details

This initiative involves restoring 1,975 acres and planting over 450,000 trees to reforest grazing land, improve riparian habitat, restore inland wetlands, and recover land lost to forest fires. The project involves planting 140 – 200 trees per acre and the cost of planting includes the cost of trees, tree protectors, labor, and fuel. The total cost of the project is estimated at $11,900,000, which is $6,025 per acre.

The California Air Resources Board (CARB) provides benefit calculators for reforesting forests and wetlands. COMET-Planner, provided by the USDA and Colorado State University, is the source for riparian restoration. The following provides a potential breakdown of the projects. Actual acreage and plant totals may change during implementation.

Type	Acres	Trees	Cost (000s)	$MTCO_2e$
Reforestation	1,666	408,000	$11,500	140,518
Wetland	307	43,000	$390	1,485
Riparian	2.2	2,500	$10	20
Total	**1975**	**453,500**	**$11,900**	**142,023**

Note: In the CARB tool, the Region selected is Sierra/Cascades and Productivity Class I, which calculates emissions based on a 60-year time horizon.

Credit: Unsplash

LIDAC Benefits

Implementing this measure may reduce co-pollutants leading to improved health outcomes. Reforestation along with wetland and riparian habitat restoration creates resiliency by reducing heat sinks and improving ecosystem health. Increasing salmon habitat may also lead to better health outcomes by supporting traditional diets and increasing cultural and spiritual benefits.

Implementation Schedule and Milestones

This measure builds on existing programs which allows for implementation to be spread out over the five-year (2025 – 2029) with 20 percent of the work completed each year.

Lapwai Nature Trail Sumac Trail, Lapwai, ID (Copyright: Meadow Wheaton, Nez Perce Tribe)

MEASURE 7

Adopt Biodegradable Packaging for Events, Restaurants, and Schools

Sector	Geographic Scope	Implementing Agencies
Waste & Materials Management	Reservation	Nez Perce Tribe

Potential Funding Sources	Progress Metrics
EPA grant; Nez Perce Tribe	Biodegradable containers purchased vs Styrofoam containers purchased

$MTCO_2e$	Cost	$ / MT
5.8	$96,250	$16,595

Details

The Nez Perce Tribe delivers meals to members on the Reservation. Currently, meals are packaged in Styrofoam containers (or other nonbiodegradable materials) and there is an opportunity to transition to biodegradable packaging. This represents a more sustainable approach to waste management and reduces GHG emissions. Biodegradable packaging could replace all Styrofoam and other nonbiodegradable packaging everywhere they are used on the Reservation. Additionally, durable plates, glasses, and utensils could be used at events to eliminate waste entirely. Dishwashers and durable dishes and flatware may be purchased as part of this measure during implementation.

Approximately 150 meals are delivered every day, or nearly 55,000 per year. A pack of 200 Styrofoam clam shells large enough for a full meal weighs eight pounds, which is .04 pounds per container (0.018 kg). The total weight of packaging for a full year is 990 kg.

According to a 2014 report, Styrofoam containers have 1.16 kg CO_2e per 1 kg of packaging. Over the course of a year, Styrofoam packaging accounts for 1.15 $MTCO_2e$.

The cost of 200 Styrofoam clam shells is about $23, for a total cost of $6,325 per year to package 55,000 meals. The cost of 200 paper-based biodegradable and compostable clamshells of the same size is about $93, for a total cost of $25,575. The cost per year to implement the program would be the difference in the cost of the two types, or $19,250.

Co-Pollutant Reductions by 2030

CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/ton
4.6	--	--	--	--	--	$3,716

Co-pollutants are not readily available for Styrofoam and biodegradable packaging.

LIDAC Benefits

Implementing this measure may lead to reductions in chemical pollutants in soil and groundwater while reducing climate pollution. These reductions may lead to long-term health benefits for humans and non-humans as well as diverted costs from pollution clean-up.

Implementation Schedule and Milestones

This measure builds upon existing solid waste efforts and short-term climate change mitigation measures, so implementation is expected to be spread out over the five-year period (2025 – 2029) with 20 percent of the work completed each year.

MEASURE 8

Divert Food Waste and Biological Materials from Landfill

Sector	Geographic Scope	Implementing Agencies
Waste & Materials Management	Reservation, Field Offices	Nez Perce Tribe

Potential Funding Sources	Progress Metrics
EPA grant; Nez Perce Tribe	Weight of materials sent to recycling and weight of waste to landfill

$MTCO_2e$	Cost	$ / MT
70	$2,450	$35

Details

The Nez Perce Tribe has identified an opportunity to divert organic (food) waste from the landfill and use it as compost. The Clearwater River Casino & Lodge produces 860 tons of waste per year, which includes a substantial amount of food waste from the restaurant and food service.

The following explains the calculation for the annual waste that can be diverted:

- Tribal government waste – 165 tons
- Clearwater River Casino & Lodge – 156 (~3 tons per week)
- Total tons per year – 321
- Estimated food waste – 23 percent (based on a WA State Waste Characterization Study) or approximately 74 tons per year*
- GHG emissions reduction – 14 $MTCO_2e$ per year using the California Air Resources Board benefits calculator tool for organics programs
- Composting could be started in 2025, providing five years of benefits
- Cost of compost collection bins – $2,450
  - $1,800 – One 2 cubic yard commercial size dumpster for Casino
  - $650 – One 95-gallon trash can for each of elder housing facility, Kamiah Community Center, Pi-nee-waus Community Center, Lapwai High School

The cost of transporting and disposing of the compost is assumed to be the same as the current cost of transporting and disposing the corresponding amount at a landfill.

*Idaho does not have a waste characterization study available.

Clearwater Composting is based in Lewiston and is the closest composting facility. However, they currently do not accept food waste. The cost estimate and project assumes that Clearwater Composting will begin accepting food waste at their facility. If they do not accept food waste, the Tribe would need to find an alternative or start their own, which would increase the cost of the measure.

Co-Pollutant Reductions by 2030

CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/ton
70	5	--	5	--	5	$34

Co-pollutants in pounds using the California Air Resources Board Organics Benefit Calculator. The tool does not provide data for all co-pollutants.

LIDAC Benefits

Implementing this measure may lead to reduced costs from waste reduction while increasing health of regional soils. This measure may also increase employment opportunities on the Reservation.

Implementation Schedule and Milestones

This measure requires coordination with other entities, so planning and coordination is expected between 2025 and 2027 with implementation in 2028 and 2029.

Nez Perce Tribe Solid Waste Program staff at Community Recycling Event at Pi-nee-waus Community Center, Lapwai, Idaho. (Copyright: Stefanie Krantz)

LIDAC Benefits Analysis

LIDAC* BENEFITS ANALYSIS

Climate change acts as a threat multiplier compounding health and economic hardships on top of existing inequities. Communities already experiencing economic and health disparities experience greater impacts from climate change. The Nez Perce Tribe is a federally recognized Indian tribe, and, as such, is considered a disadvantaged community for the purposes of the Justice40 Initiative.

The Nez Perce Tribe is experiencing increasing severity and frequency of wildfires, drought, heatwaves, extreme precipitation, floods, and erosion. This cycle of extremes has impacted the health, well-being, and lifeways of the *Nimíipuu* in tangible and intangible ways. In addition, it has had a wide range of social and economic impacts including public health impacts, losses to key subsistence resources (fish, game, wetlands, and native plants), and economic impacts on Tribal enterprises and the regional and local economy.

The Reservation is a series of dissected river canyons with steep slopes and large topographical gradients. Critical infrastructure such as power lines, roads, bridges, fish hatcheries, and housing is located within, adjacent to, or passes through floodplains. In addition, fish acclimation facilities are near the rivers within floodplains. Housing is located in forested areas, in river canyons along steep slopes, and in open areas.

According to the USDA Forest Service Wildfire Risk to Communities, the Nez Perce Reservation is one of the highest risk communities in the United States for wildfire likelihood, exposure, and risk to homes. Wildfire complexes have swept through homes, businesses, and communities on the Reservation, and smoke events have affected public health. Fire risk, and the intensity, duration, and frequency of smoke events, heatwaves, and droughts are projected to increase in the future.

Within the Nez Perce Tribe's area of traditional use, extreme precipitation events have caused exceptional floods, heavy winter snowstorms, mudslides, and landslides. These events have damaged and washed-out roads, culverts, bridges, houses, telecommunications and power infrastructure, farms, and businesses. In addition, extreme events have occurred during salmon spawning seasons, burying salmon eggs in sediment, scouring gravel beds, washing eggs downstream,

*Low-Income Disadvantaged Communities

eroding banks, and destroying riparian habitat, including restoration projects. Events that have been declared federal disasters for the Tribe have been the result of rain on snow events that have caused flooding and landslides.*

Tribal governments are at the forefront of engaging with their communities and providing resources to support the social, environmental, spiritual, and emotional needs of their members. Not only does the Tribe intimately understand the needs of their community, but they also provide services and programs to support the needs of their members.

In 2016, shortly after a devastating drought led to significant fish kills, the Nez Perce Tribe held a climate change retreat, created a climate task force, and officially launched their climate program. Since 2016, Tribal agencies, with the support of the Tribe's climate coordinator, have engaged with all Tribal departments to understand how climate change continues to impact their community. This includes coordination between Tribal Fisheries, Natural Resources, Clean Air, Wildlife, Social Services, and Housing Departments along with Nimiipuu Health and other organizations and individuals working to meet the needs of the Nez Perce People.

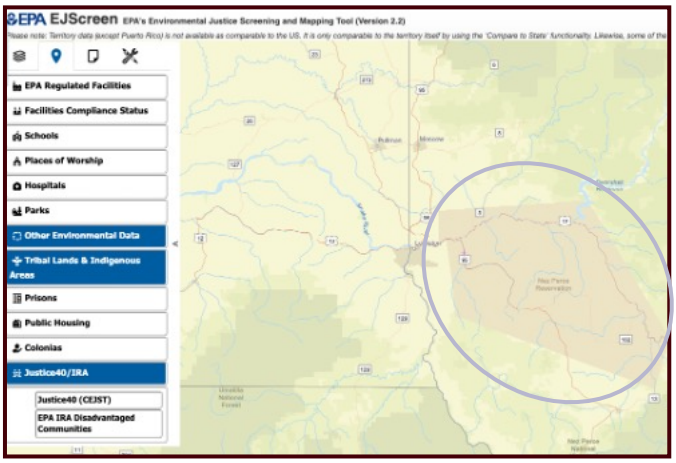
In addition to consistent, meaningful engagement and engagement specifically for this report, the Tribe held a workshop and conducted an on-line survey in January 2024 asking Tribal members to identify the co-benefits associated with taking action to reduce GHG emissions. The community was invited to prioritize measures that both reduce climate pollution and provide additional benefits to the Tribe. As a result, the Tribe conducted a qualitative co-benefits analysis on the GHG reduction measures identified in this PCAP. Preliminary survey results and PCAP planning conversations indicate that Tribal members value cultural and health co-benefits the most, with environmental benefits also scoring high. Economic benefits scored slightly lower than environmental benefits but remain an important consideration. Continual engagement and conversations will further guide the Tribe's climate planning efforts during the CCAP and implementation processes.

The screenshots on the following page show maps from the EPA EJScreen tool indicating the Nez Perce Tribe is in a "disadvantaged" community both by the EPA IRA Disadvantaged Communities and the Justice40 (CEJST) definitions.

Credit: Unsplash

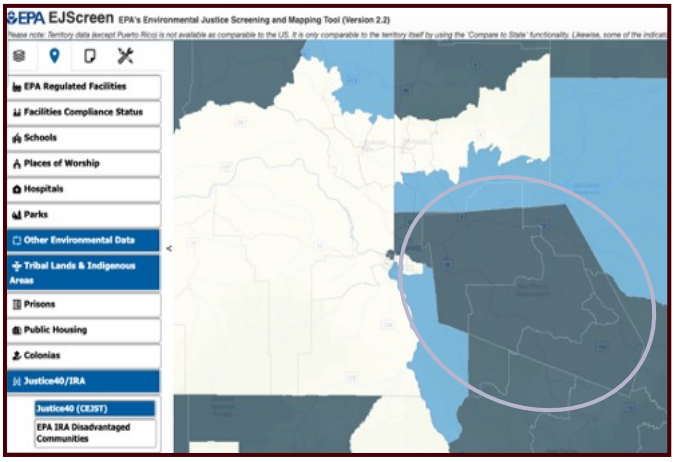
* Climate impact and vulnerability information is from the Tribe's 2024 draft Vulnerability Assessment.

Screenshots from the EPA Environmental Justice Screening and Mapping Tool (EJScreen)



EPA EJScreen

Nez Perce Reservation in orange



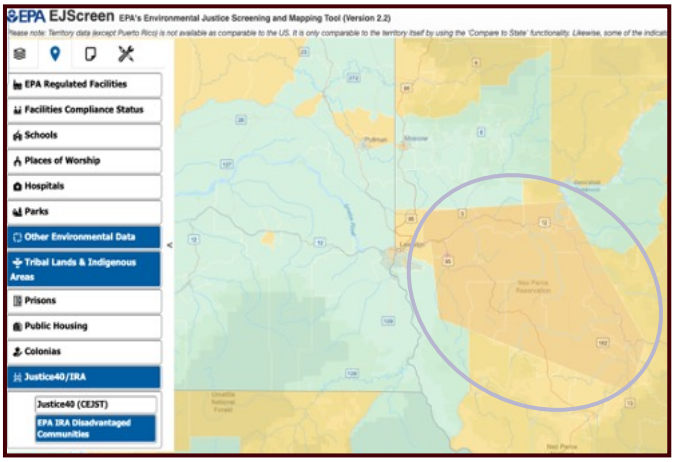
EPA EJScreen with Justice 40 overlay

Nez Perce Reservation in dark gray

Disadvantaged

Partially Disadvantaged

Not Disadvantaged



EPA EJScreen with IRA Disadvantaged Communities overlay

Nez Perce Reservation in dark orange

Disadvantaged

Not Disadvantaged

According to the Climate and Economic Justice Screening Tool (CEJST) all four census tracts within the Nez Perce Reservation are listed as disadvantaged and are above the 65th percentile for people in households where income is less than or equal to twice the federal poverty level, not including students enrolled in higher education.

Additional burdens are listed here for each census track:

Tract Number: **16069940000**
County: Nez Perce County
State: Idaho
Population: 4,866
Low Income: 74th percentile
Projected Flood Risk: 91st percentile

Tract Number: **16035940000**
County: Clearwater County
State: Idaho
Population: 5,742
Low Income: 72nd percentile
Expected Population Loss Rate: 97th percentile
Projected Flood Risk: 92nd percentile

Tract Number: **16061940002**
County: Lewis County
State: Idaho
Population: 2,117
Low Income: 65th percentile

Tract Number: **16049940000**
County: Idaho County
State: Idaho
Population: 4,831
Low Income: 78th percentile
Expected Building Loss Rate: 92nd percentile
Heart Disease: 92nd percentile
Education, Less Than High School Diploma: 11 percent

Bumblebee on a Camas flower (Copyright: Meadow Wheaton, Nez Perce Tribe)

Workforce Planning Analysis

WORKFORCE PLANNING ANALYSIS

The Tribe's energy efficiency and renewable energy programs, led by Nimiipuu Energy, offer opportunities for creating skilled workforce training and employment opportunities for Tribal members. To achieve these benefits, the Tribe intends to develop a job training program to create workforce capacity for energy efficiency retrofits and solar installations on residential, commercial, and government buildings. The Tribe has established relationships with various partner agencies, including the Inland Northwest Workforce Council, RevoluSun, Division of Indian and Native American Programs, Native American Employment and Training Council, Indian Employment Training, Nez Perce Tribe Vocational Rehabilitation Services, Lewis-Clark State College, Office of Indian Energy Policy and Programs, and others to support the increased need to train a Tribal workforce capable of implementing CPRG measures and providing support to the greater region's energy sector.

Nimiipuu Energy is currently in the start-up phase of development, however there is a current and future need for skilled installers and auditors. The current requirements include training for energy efficiency auditors, solar installers, designers, electricians, and sales staff. Each position requires a different level of certification and training.

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One of the primary certifications the Tribe seeks is the North American Board of Certified Energy Practitioners® (NABCEP®). They are one of the most respected, well established, and widely recognized certification organization for professionals in the field of renewable energy. NABCEP offers certifications and credentials for skilled professionals, specialists and those new to working in the areas of photovoltaics, solar heating, and small wind technologies.

Another level of certification stems from the suppliers of PV solar systems that installers and designers require. Tesla has a certification for their battery and inverters that are utilized in PV solar projects. SolarEdge is another significant company that requires certification for installers and technicians (O&M) for their inverters. Any platform utilized for solar system design also requires certification – Aurora, Greenlancer, and SolarEdge. Any other supplier used for inverters, batteries, solar panels, or other portions of the PV solar system is likely to require a certification for installs and services as a technician.

TESLA

Tesla requires a company to have the internal capabilities surrounding business, safety, and electrical to be certified before individual employees of that company can pursue certifications for their batteries or inverters.

The Tribe estimates the training, cost, and time required for a few key workforce roles below:

- Journeyman Electrician: Obtaining a journeyman electrician license in Idaho takes about four years or 6,000 hours of working as an Idaho electrical apprentice. This experience can be obtained through full-time work experience, and in some cases, classroom instruction. Once you reach at least four years of work experience as a licensed journeyman electrician, you can work on achieving your master electrician certification. This is an estimated cost of approximately $120,000 to a business to fully train and certify an employee.

- Certified Solar Designer (developer): Solar Energy System Designers perform site-specific engineering analysis of commercial, industrial, or utility-scale solar projects and design large photovoltaic or solar thermal systems. This position recommends engineering or manufacturing changes to achieve solar design objectives, and objectives and develop the specifications and integration requirements that allow solar power to safely, effectively, and efficiently flow into the nation's power grid. Solar Energy System Designers create electrical three-line diagrams for solar power systems using computer-aided design software. They also run computer simulations of solar PV generation to optimize efficiency and system performance and provide technical direction or support to field teams during installation, start-up, testing, system commissioning, and performance monitoring. Candidates must possess at least a bachelor's degree in science or engineering. To lead large projects, a significant amount of experience in the solar industry and a master's degree may be preferred. This is an estimated cost of approximately $25,000 to a business to fully train and certify a designer. This may take approximately one year, however without an engineering background or degree it is likely around two years.

RevoluSun Tribal solar crew installing solar arrays at Clearwater River Casino in Lewiston, Idaho (Copyright: Tuck Miller)

- Certified Solar Installer: Although installers typically need a high school diploma, some take courses at a technical school or community college. Installers typically receive

on-the-job training lasting up to one year. This is an estimated cost of approximately $20,000 to a business to fully train and certify an employee.

- Solar Sales Rep: Solar Sales Representatives contact prospective customers to determine their solar energy and equipment needs. They evaluate and recommend systems, estimate cost benefits, provide written summaries, and follow up with customers. This position increasingly requires a bachelor's degree. New employees receive product-specific training. PV technical sales certification is a route to advancement. Depending on experience and education, sales careers range from entry-level phone work to senior executives in charge of strategy and sales divisions.

The Tribe has a current crew of approximately 17 installers, among that number includes one journeyman electrician and some 1-4-year apprentices. The Tribe has a need for electricians, designers, installers and sales representatives.

Chinook salmon spawning in the Secesh River in 2009. (Copyright: Wesley Keller)

Authority to Implement

REVIEW OF AUTHORITY TO IMPLEMENT

Collaboration With Non-tribal Partners

The Tribe has authority to implement all the measures outlined in the PCAP. However, to fully realize their climate goals and implement the CCAP, the Tribe will require additional coordination with the following external partners:

- **U.S. General Service Administration** – Centralize coordination of GSA vehicles to align with Tribal climate goals and plans
  - Requires a Tribe-wide process
  - DC level supply decision – determine process to engage with GSA vehicle policy
- **Clearwater Power and Avista –** electricity providers for the Reservation
  - Evaluate long-term solar/storage system Reservation wide to determine which utility provides services at each installation site
  - Work directly with utilities to develop power purchase agreements as the VPP is established
  - Determine maintenance and ownership responsibilities for existing and future EV chargers
- **U.S. Fish & Wildlife Service, U.S. Army Corps of Engineers, and Bonneville Power Administration –** electricity use at hatcheries is high, but those costs are paid by the Federal government. The Tribe must work with the Federal Government to decrease emissions on federally owned and operated facilities.
  - Conversations and engagement is already underway
  - This includes a draft list of adaptation actions for each division

Next Steps

NEXT STEPS

The PCAP process has allowed the Tribe to conduct analyses foundational for their Comprehensive Climate Action Plan. The following timeline is an overview of next steps.

Phase 1

September – December 2023 (Complete)

Phase 2

March – April 2024

- Conduct additional cost-benefit and GHG analysis required for CPRG Implementation Grant applications
- Utilize Draft vulnerability assessment for LIDAC analysis

Phase 3

May – December 2024

- Develop more comprehensive GHG Inventory using primary data where available
- Develop GHG emissions forecasts/projections
- Establish Tribal GHG reduction target
- Initiate Phase 3 of community engagement:
  - Begin outreach to external partners
  - Establish best channels for deeper education (website, social media, etc.)
  - Conduct internal, external engagement to inform CCAP
  - Align with other climate change adaptation planning

Phase 4

January – December 2025

- Review Integrated Resource Management plan (climate solutions, adaptation/resilience, mitigation) for CCAP
- Develop plan to leverage additional funding opportunities
- Conduct comprehensive workforce planning analysis and identify additional funding
- Work through some of the more complex measures that were not included in the PCAP
- Further develop Nimiipuu Energy strategy and ensure coordination into the CCAP

January – May 2026

- Finish Comprehensive Climate Action Plan

Appendix – 2020 Preliminary GHG Emissions Overview

Nez Perce Reservation
2020 Preliminary Greenhouse Gas Emissions Inventory

January 2024

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Executive Summary

Introduction

This 2020 greenhouse gas (GHG) emissions inventory (EI) for the Nez Perce Reservation was developed to identify sources of air pollution that may affect the Nez Perce Reservation air quality. This EI is a preliminary EI and is composed entirely of existing data. This inventory used these available data to analyze what information is already known about sources near and on the reservation. The tribe is using this analysis of existing data to develop a priority climate action plan and to determine what sources on the reservation to focus on when a more in-depth EI is developed.

The following sectors are included in this inventory:

- Transportation
- Industry
- Electricity Generation and Use
- Waste and Materials Management
- Commercial and Residential Buildings
- Agriculture/Land Management
- Other.

The EI is limited to these greenhouse gases:

- Carbon Dioxide (CO2)
- Methane (CH4)
- Nitrous Oxide (N2O)
- Fluorinated Gases (applicable only to the Industry sector).

Results

Several sources were used to compile the data included in this EI. For the Transportation sector, data from the EPA's 2020 National Emissions Inventory (NEI) for the Nez Perce Reservation were used. This data was generated by Idaho Department of Environmental quality at the state level and using population as a surrogate, emissions were split for on- and off Reservations. Nez Perce Reservation emissions were the summation of the on-Reservation portions of emissions estimated for Nez Perce, Clearwater, Lewis, and Idaho counties. Data from the Forestry Fires sector also comes from the 2020 NEI.

For the Electricity Generation and Use, Waste and Materials Management, Commercial and Residential Buildings, and Agriculture/Land Management sectors of this EI, the 2021 greenhouse gas emissions for the state of Idaho from the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State were scaled down to the tribal level. County and state level data include emissions estimates from sources that include portions of reservation land, because in most cases, emissions estimates for these source types do not exclude the portions of the source (e.g., vehicle emissions) on reservation land. Allocations to the Reservation were by population for Electricity Generation and Use, Waste and Materials Management, Commercial and Residential Buildings sectors and allocated by land area for the Agriculture/Land Management sectors of this EI.

Table 1 shows the total greenhouse gas emissions estimated for the Nez Perce Reservation, in metric tons CO2 equivalent, for each sector.

Table 1. Nez Perce Reservation GHG Emissions (metric tons CO2 equivalent)

Sector	CO2	N2O	CH4	Fluorinated Gases	Total GHG
Transportation (Summed)	170,435	764	823		172,022
On-Road Mobile	*147,829*	*764*	*353*		*148,946*
Non-Road Mobile	*22,606*	*NR**	*470*		*23,076*
Industrial Processes and Product Use	34,861	421	3,877	6,037	45,195
Electricity Generation and Use	21,554	129	39	981	22,703
Waste and Materials Management	NR	1,463	7,567		9,030
Commercial and Residential Buildings	34,106	192	1,395		35,693
Commercial	*14,054*	*36*	*228*		*14,318*
Residential	*20,052*	*156*	*1,166*		*21,375*
Agriculture/Land Management	24,212	86,086	151,750		262,048
Agriculture	*11,110*	*79,266*	*132,612*		*222,989*
Land Use, Land-Use Change and Forestry	*13,102*	*6,820*	*19,138*		*39,060*
Forestry Fires (Summed)	111,721	NR	12,164		123,884
Wildfire	92,342	*NR*	10,120		102,462
Prescribed fire	19,379	*NR*	2,043		21,422
Total	**396,889**	**89,055**	**177,615**	**7,018**	**670,575**
***NR=Not Reported**					

- As shown in Table 1, for total GHG and CO2, the Transportation sector accounts for the majority of the emissions. On-road mobile emissions make up most of the emissions within that sector. For N2O and CH4, the Agriculture/Land Management sector accounts for the majority of the emissions. Within this sector, the majority of N2O emissions are the result of agricultural soil management, while the majority of CH4 emissions come from livestock.
- When a more in-depth EI is developed, the tribe plans to calculate emissions at the tribal level using the EPA Tribal Greenhouse Gas Inventory tool and other resources for the Electricity Generation and Use, Waste and Materials Management, Commercial and Residential Buildings, and Agriculture/Land Management sectors in order to increase the accuracy of these emissions estimates. The tribe plans to collect activity data, when possible, for these sectors.
- There are not any industrial facilities on the reservation. This EI identified two industrial facilities within 10 miles of the reservation boundary that have GHG emissions reported in FLIGHT. Due to the proximity of the reservation to these sources, the railroad, and major roads, the tribe should consider setting up an air monitoring station on a section of the reservation that is nearest to these sources.

Introduction

This 2020 greenhouse gas (GHG) emissions inventory (EI) for the Nez Perce Reservation was developed to identify sources of air pollution that may affect the Nez Perce Reservation air quality. It includes emissions from sources on the reservation. This inventory is intended to provide critical information on what sources emit what pollutants, and the relative magnitudes of these pollutants. This is a recommended step toward understanding what is in our air and where it came from.

The following sectors are included in this inventory:

- Transportation
- Industry
- Electricity Generation and Use
- Waste and Materials Management
- Commercial and Residential Buildings
- Agriculture/Land Management
- Forestry and Forest Fires

The EI is limited to these greenhouse gases:

- Carbon Dioxide (CO2)
- Methane (CH4)
- Nitrous Oxide (N2O)
- Fluorinated Gases (applicable only to the Electricity Generation and Industry sectors)

Several sources were used to compile the data included in this EI. Reservation level data from the EPA's National Emissions Inventory (NEI) are included in the Transportation and Forestry Fire (emissions from wildfires and prescribed burns) sectors. Because the NEI only provides GHG emissions for a limited portion of sources, state level data from the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State are included in the Electricity Generation and Use, Waste and Materials Management, Commercial and Residential Buildings, and Agriculture/Land Management sectors to fill in these gaps. The state level data include emissions estimates from sources that include portions of reservation land, because in most cases, emissions estimates for these source types do not exclude the portions of the source (e.g., vehicle emissions) on reservation land. Emissions for sources on the reservation were determined by scaling down these emissions to the Tribal level.

This is the first greenhouse gas EI that has been completed for Nez Perce Reservation and the primary purpose is to review existing emissions data from the EPA National Emissions Inventory (NEI) database, the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State, and the 2020 U.S. Census. This analysis of the existing data can be used to develop a priority climate action plan, to focus attention on what sources should be controlled to improve the Nez Perce Reservation air quality.

Reservation Location and Buffer Zone

The Nez Perce Reservation overlaps five counties in Idaho: Nez Perce, Clearwater, Latah, Lewis, and Idaho County, but the majority of the Reservation is in Nez Perce and Lewis Counties. The reservation is approximately 770,000 acres and has a population of 19,500. The reservation is zoned USDA rural as are all of the surrounding counties and communities. The tribal government seat is in Lapwai, ID. The closest major city is Lewiston, ID approximately 8 miles to the west of the reservation boundary. The majority of Nez Perce tribal members live on the reservation, or in neighboring communities in Idaho, Oregon, and Washington. Figure 1 shows the boundaries from the treaty making era including the reservation.

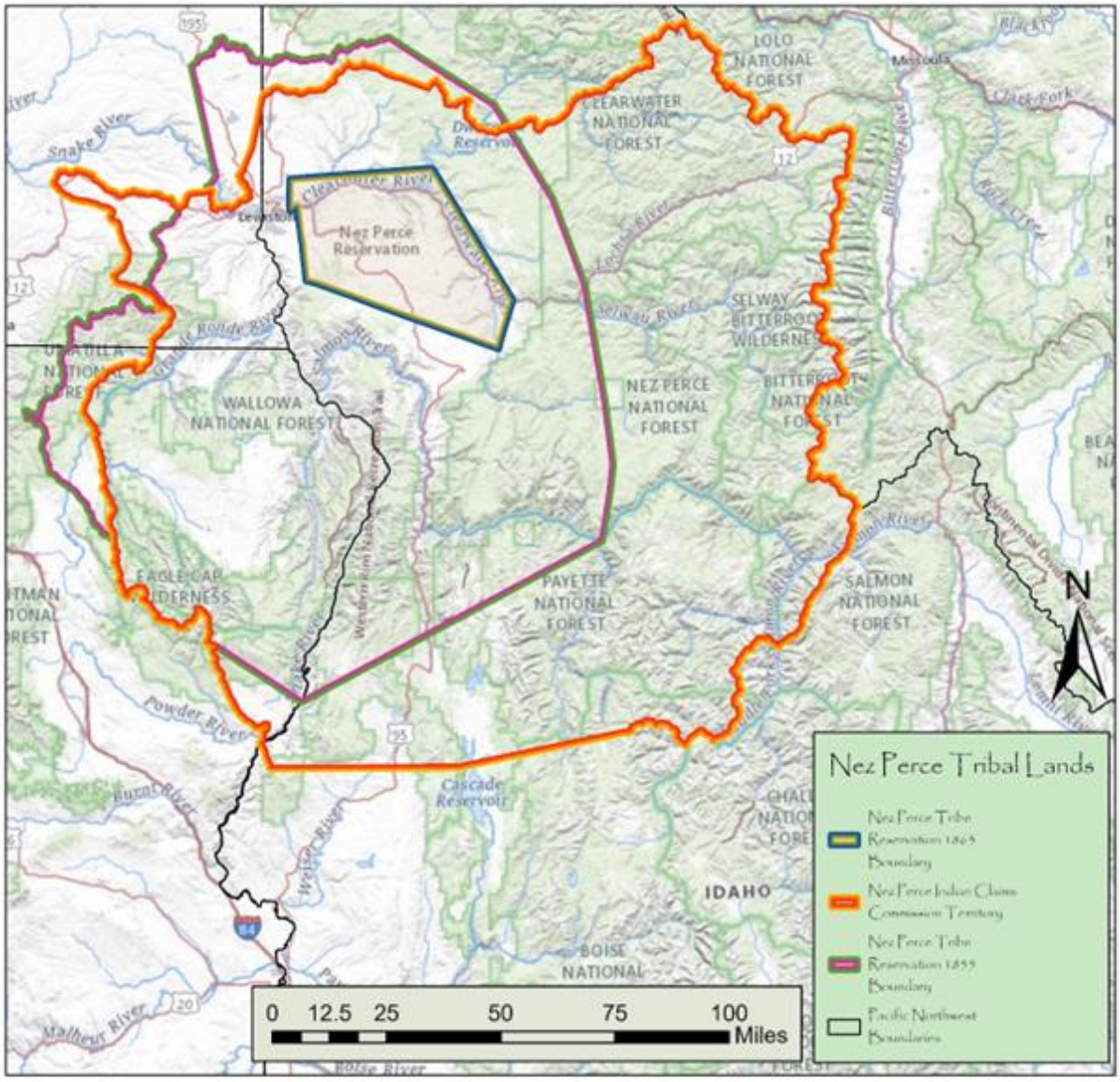


Figure 1. Map of Nez Perce Tribal Lands. GHG emissions were calculated for the reservation.

Data Sources

The 2020 NEI data (https://www.epa.gov/air-emissions-inventories/2020-national-emissions-inventory-nei-data) includes greenhouse gas emissions for some, but not all, of the sources included in the NEI database. For those sources with greenhouse gas emissions, the 2020 NEI data for the Nez Perce Reservation were downloaded and imported into spreadsheets. In the spreadsheets, formulas were applied to convert the values from the NEI in unit of tons to units of metric tons CO2 equivalent. First, the values in tons were converted to metric tons by dividing by the conversion factor of 1.10231. Then, the values in metric tons were multiplied by the global warming potential (GWP) of the gas. The GWP values of 28 for Methane and 265 for Nitrous Oxide are from the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5).

The 2021 greenhouse gas emissions for the state of Idaho were downloaded from the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State (https://www.epa.gov/ghgemissions/state-ghg-emissions-and-removals) and imported into spreadsheets. The Inventory Sectors used in this data set are slightly different than the sectors decided on for this EI. The major difference is that an Energy Inventory sector is included in the data set data from the Energy Inventory Sector were distributed to the Electricity Generation and Use, Transportation, Industry, and Commercial and Residential Buildings sector based on the Category descriptions for the purposes of our EI. Data from the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State make up the entirety of the Electricity Generation and Use, Waste and Materials Management, Commercial and Residential Buildings, and Agriculture/Land Management sectors of this EI.

State Level Emissions

The State of Idaho 2021 greenhouse gas emissions from the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State are presented as total and by gas in Figures 2 through 5. For total GHG the Agriculture and Land Management sector is the largest contribution to emissions at 45% of the total. This sector accounts for 89 and 94% of the methane and nitrous oxide emissions. For carbon dioxide, the Transportation sector is the largest contributor at 50%.

Figure 2. Total GHG emissions by sector for 2021 in Idaho.

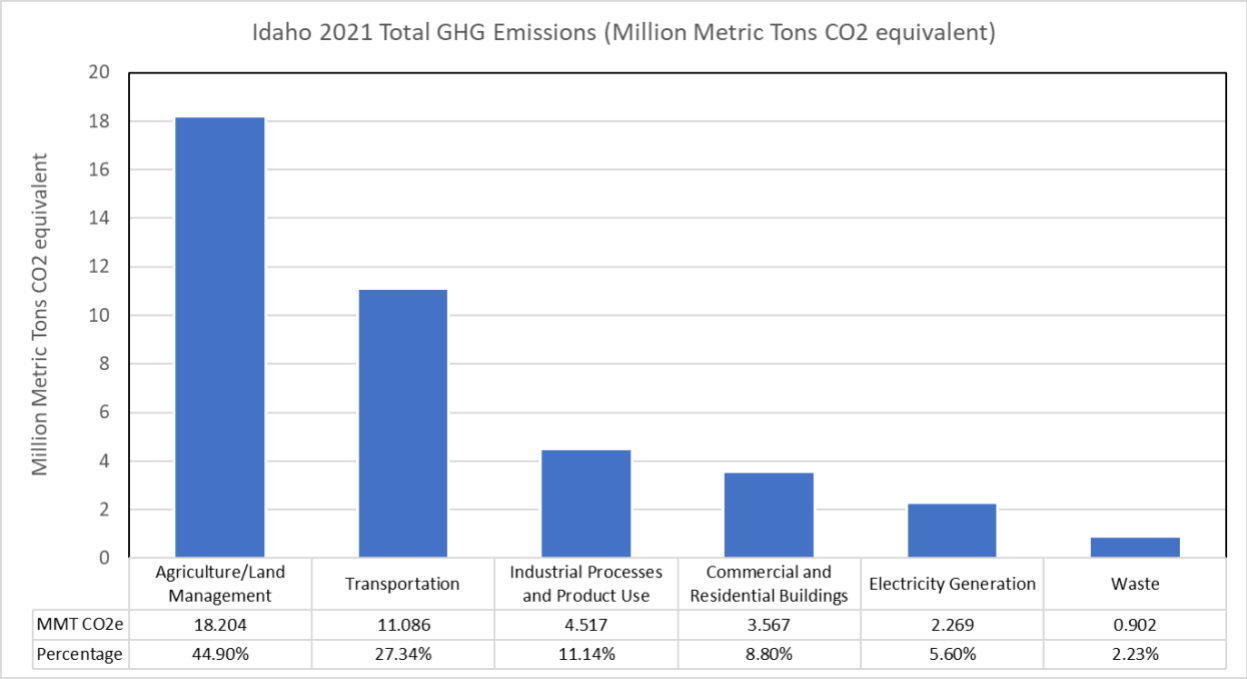


Figure 3. Carbon dioxide emissions by sector for 2021 in Idaho.

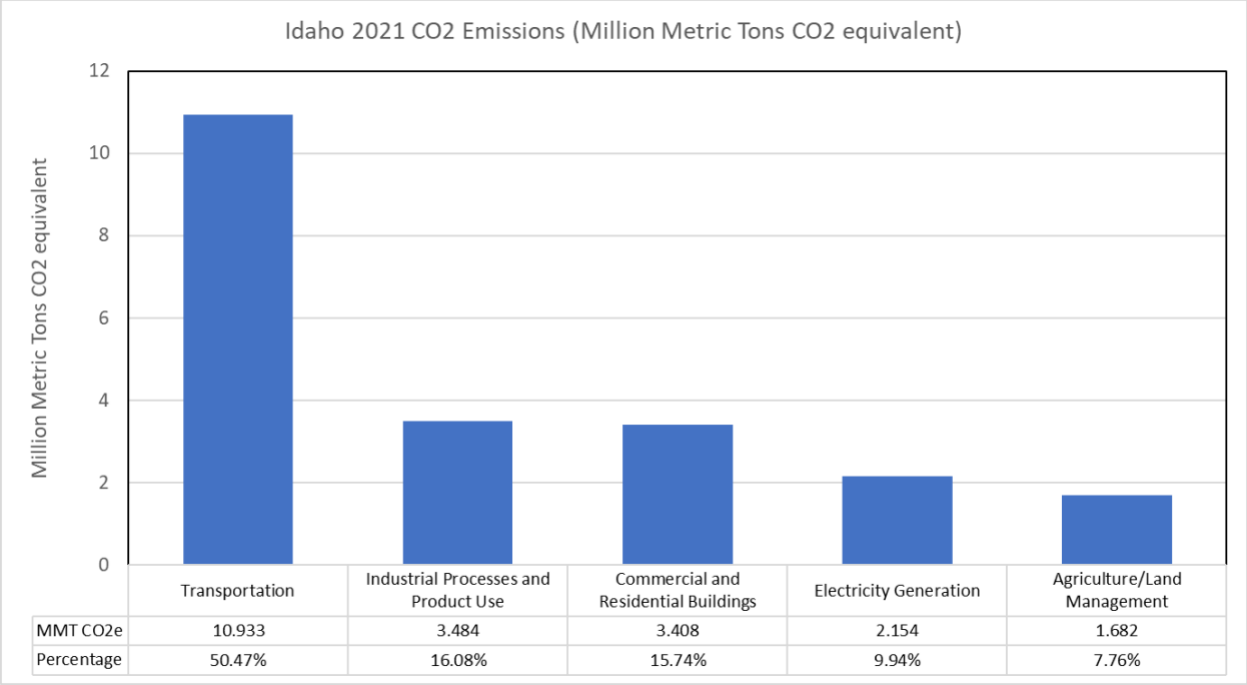
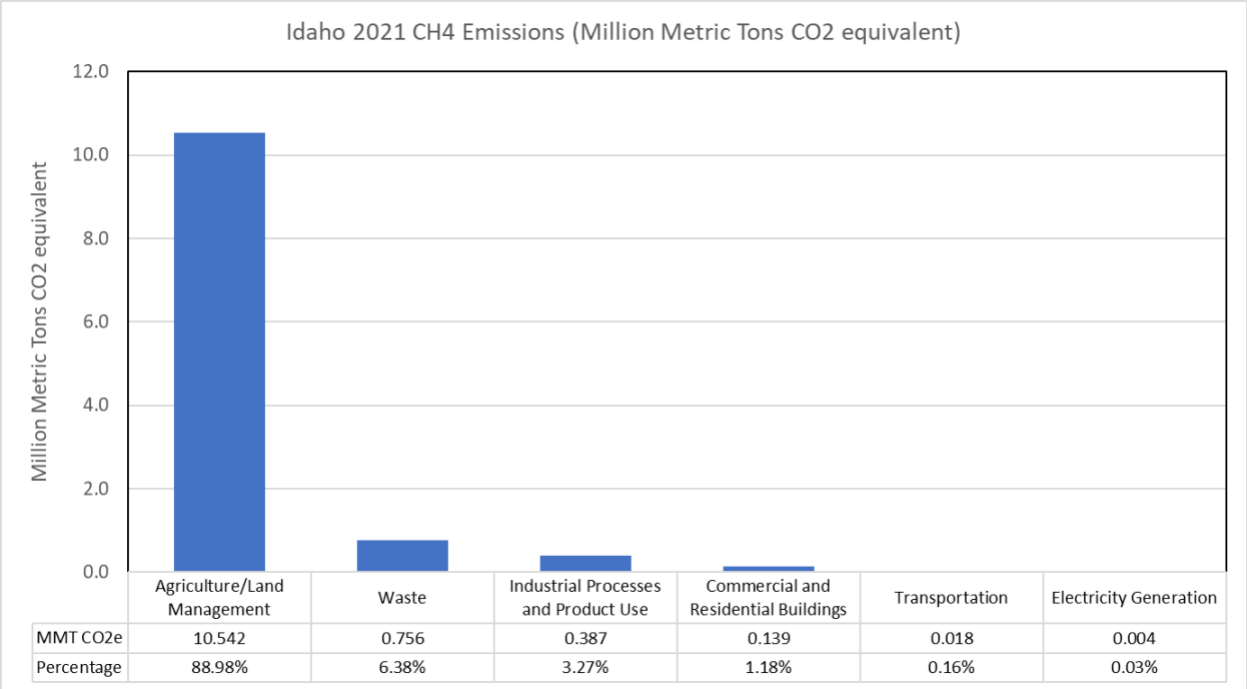
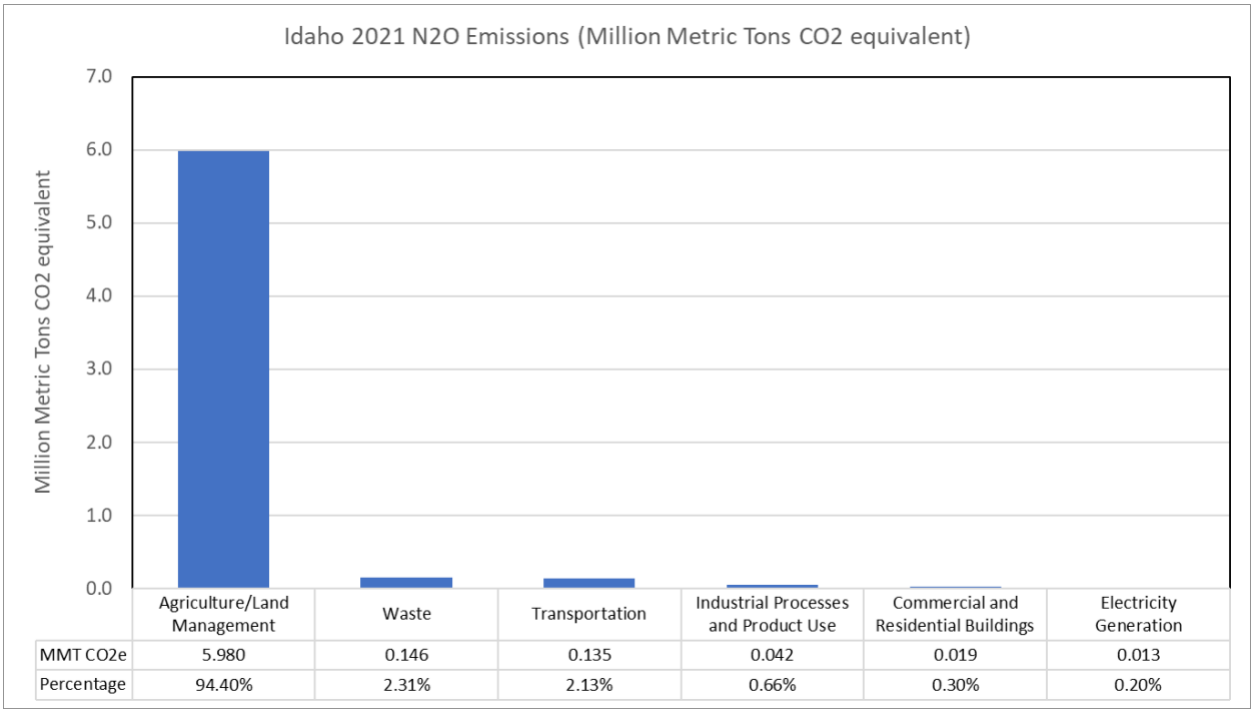


Figure 4. Methane emissions by sector for Idaho in 2021.



	Agriculture/Land Management	Waste	Industrial Processes and Product Use	Commercial and Residential Buildings	Transportation	Electricity Generation
MMT CO2e	10.542	0.756	0.387	0.139	0.018	0.004
Percentage	88.98%	6.38%	3.27%	1.18%	0.16%	0.03%

Figure 5. Nitrous oxide emissions by sector for Idaho in 2021.



	Agriculture/Land Management	Waste	Transportation	Industrial Processes and Product Use	Commercial and Residential Buildings	Electricity Generation
MMT CO2e	5.980	0.146	0.135	0.042	0.019	0.013
Percentage	94.40%	2.31%	2.13%	0.66%	0.30%	0.20%

Nez Perce Reservation Emissions

Reservation scale emissions data are available from the EPA 2020 National Emissions Inventory (NEI) database for the Transportation and Forestry Fires Sectors. To allocate emissions from State level data obtained from the 2021 EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State, the state of Idaho was split by population or land area to allocate emissions to the Reservation. Electricity Generation and Use, Waste and Materials Management, and Commercial and Residential Buildings sectors were allocated based on population. The Agriculture/Land Management sectors was allocated based on land area. The Nez Perce Reservation EI estimates by sector follow. See figures 6 and 7.

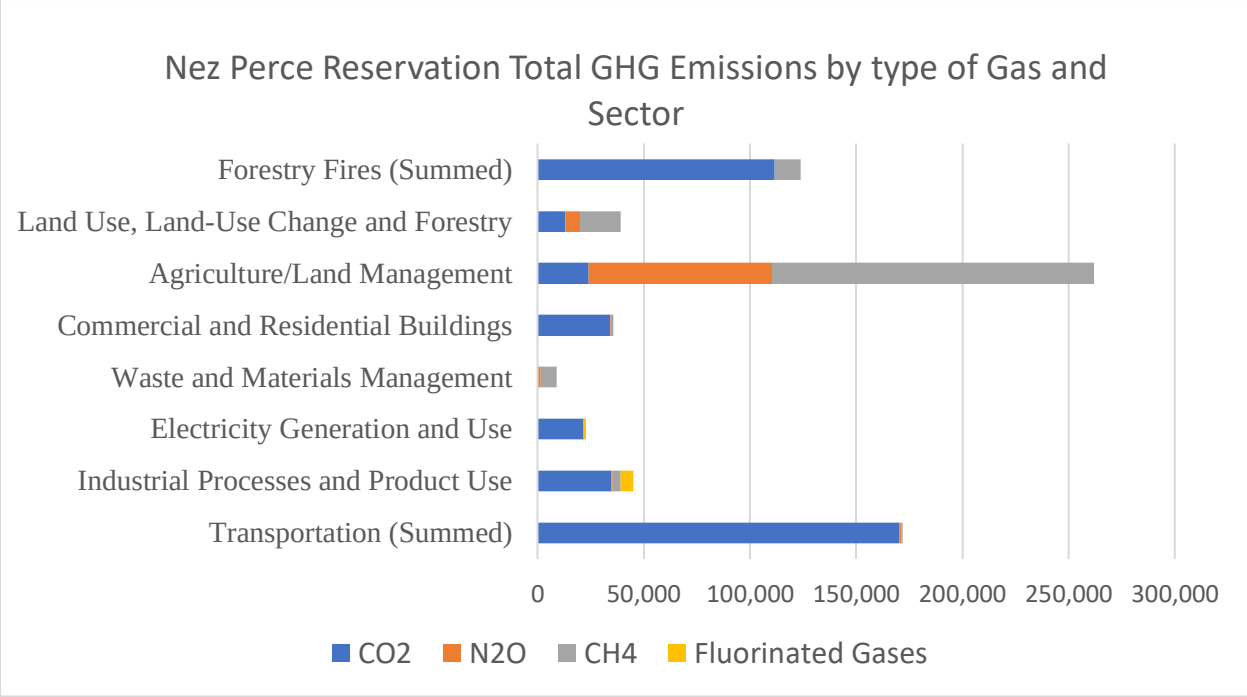


Figure 6. Bar Chart for Table 1 with emissions by sectors and type of greenhouse gas.

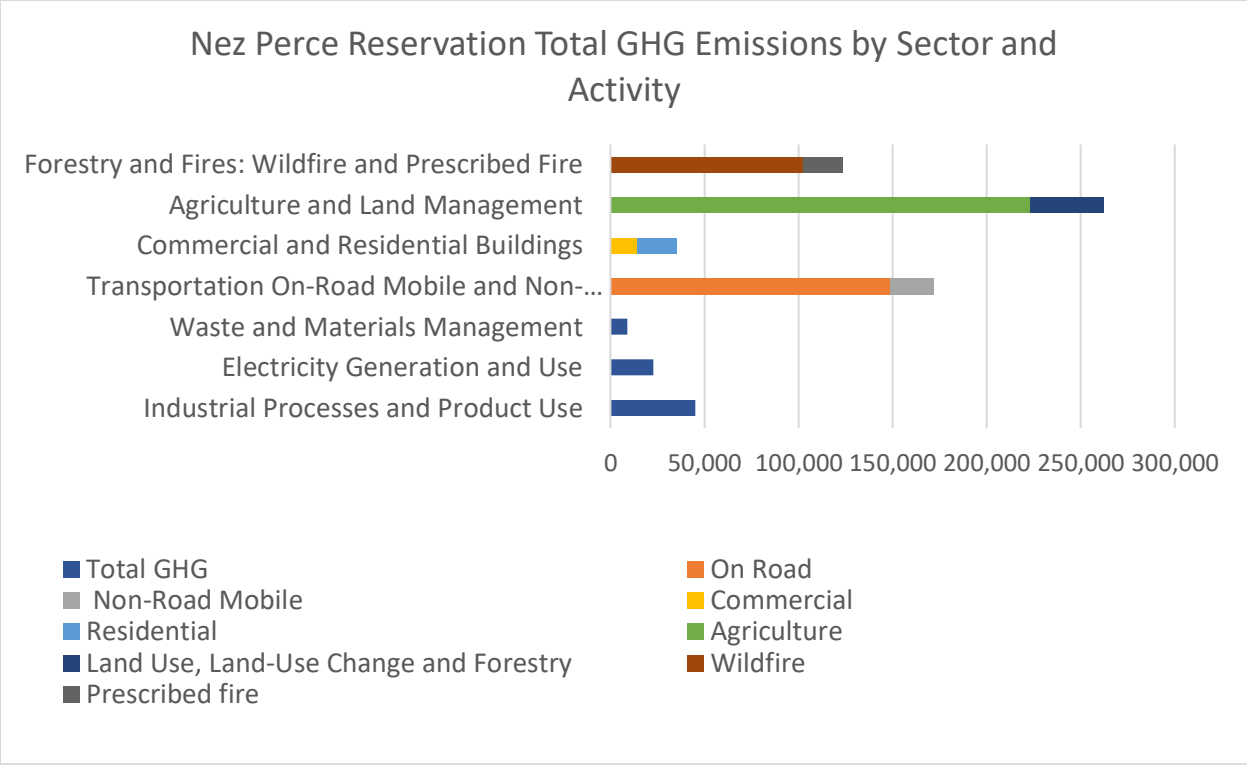


Figure 7. Bar Chart for Table 1 with emissions by sector and activity.

Industry

The 2021 GHG emissions at the facility level from the EPA's Facility Level Information on Greenhouse Gases Tool (FLIGHT) was consulted when preparing this EI. FLIGHT only includes data for those facilities that ae required to submit annual greenhouse gas emissions as part of the Greenhouse Gas Reporting Program (GHGRP). Generally, that is facilities that emit above 25,000 metric tons CO2 equivalent (mt CO2e) of greenhouse gas emissions annually. There were no facilities in FLIGHT within the boundaries of the Nez Perce Reservation (http://ghgdata.epa.gov/ghgp/main.do).

Although there are no large industries on the Nez Perce Reservation, many small businesses operate and emit GHG. Industry emissions were estimated by scaling down (taking a percentage, or fraction, of) the 2021 Idaho GHG emissions to the reservation level based on a population allocation. The population on the reservation is 18,403 and the population of Idaho estimated from the 2020 Census Demographic Data Map Viewer is 1,839,106 (https://maps.geo.census.gov/ddmv/map.html). Therefore, the ratio used to estimate the reservation emissions is 0.01 (18,403/1,839,106).

This ratio of 0.01 was multiplied by the 2021 Idaho GHG electricity use emissions in a spreadsheet. The spreadsheet "REVISED2021IdahoGHGEmissions" is attached as an excel file. The following table summarizes these emissions.

Table 2. Nez Perce Reservation GHG Emissions (metric tons CO2 equivalent) from Industry.

Sector	Carbon Dioxide (CO2)	Nitrous Oxide (N2O)	Methane (CH4)	Fluorinated Gases	Total GHG
Industrial Processes and Product Use	34,861	421	3,877	6,037	45,195

Summary and Recommendations

When a more in-depth EI is developed, the tribe plans on using the EPA Tribal Greenhouse Gas Inventory Tool to estimate GHG emissions from industry on tribal lands in order to more accurately characterize these emissions.

Transportation

For the purposes of this EI, the transportation sector is divided into the sub-sectors of on-road mobile sources and non-road mobile sources. Reservation scale emissions data are from the EPA 2020 National Emissions Inventory (NEI) database. No estimate of GHG emissions from airports are available in the 2020 NEI at either the State or Reservation level. Emissions from locomotives, and commercial marine vessels are available for the counties surrounding the Nez Perce Reservation but are not presented or addressed further.

On-Road Mobile Sources

On-road mobile source emissions estimates for methane and nitrous oxide come from the 2020 NEI Nez Perce Reservation. There are no carbon dioxide emissions for On-Road Mobiles sources for the Nez Perce Reservation in the 2020 NEI. There are County estimates for carbon dioxide in the 2020 NEI. The County carbon dioxide emissions were allocated to the Reservation emissions based on population allocation and then summed. Clearwater, Idaho, Lewis, and Nez Perce Counties were used. The population allocation by county for the Reservation population from the U.S. Census.

The following spreadsheets are attached as excel files to support this EI. The following table summarizes these emissions:

- OnReservation2020NEIOnroadGHG
- OnReservation2020NEIOffroadGHG

Table 3: Population of county residents living on the Nez Perce Reservation.

Clearwater	**65.3%**
Idaho	25.6%
Lewis	91.0%
Nez Perce	11.9%

Table 4: Nez Perce Reservation GHG Emissions (metric tons CO2 equivalent) from On-Road Mobile Sources

Source Category (Tribal Level)	Carbon Dioxide (CO2)	Nitrous Oxide (N2O)	Methane (CH4)	Total GHG
On-Road Mobile	147,829	764	353	148,946

Non-Road Mobile Sources

Non-Road emissions on the reservation were taken from the 2020 NEI and are presented in Table 4. There are no nitrous oxide emissions reported in the 2020 NEI for the non-road inventory. Agricultural equipment is the largest source of CO2 emitting 19,288 metric tons CO2 equivalent in 2020.

Table 5. Nez Perce Reservation GHG Emissions (metric tons CO2 equivalent) from Non-Road Mobile Sources

Non-Road Mobile Equipment Type (Tribal Level)	Carbon Dioxide (CO2)	Methane (CH4)	Total GHG
Agricultural Equipment	19,261	26	19,288
Commercial Equipment	634	14	648
Construction Equipment	644	0.7	644
Industrial Equipment	855	284	1,139
Lawn and Garden Equipment	473	18	492
Logging Equipment	99	1	100
Pleasure Craft	223	56	279
Recreational Equipment	417	69	486
Total	**22,606**	**470**	**23,076**

Summary and Recommendations

When a more in-depth EI is developed, the tribe plans on using the EPA Tribal Greenhouse Gas Inventory Tool to estimate GHG emissions from transportation from the Tribe's fleet and the GSA fleet across the tribe's operations and to identify granular solutions for reducing greenhouse gas emissions from vehicles (on-road and off-road). Included in this analysis will be ATVs, boats, tractors, and other equipment and non-traditional sources of transportation emissions. Notably, upgrades to electric vehicle charging infrastructure will be required regionwide to transition to electric vehicles. Coordination with state and federal entities will be required.

Electricity Generation and Use

The tribe used data for the state of Idaho reported in the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State in this section. Emissions data for 2021 with a category of Electricity Generation were reviewed for this section.

The Tribe realizes that electricity use on tribal lands contributes to GHG emissions, even though these emissions are not originating on tribal lands from non-hydropower electrical generating unit. Electricity use emissions were estimated by scaling down (taking a percentage, or fraction, of) the

2021 Idaho GHG emissions to the reservation level based on a population allocation. The population on the reservation is 18,403 and the population of Idaho estimated from the 2020 Census Demographic Data Map Viewer is 1,839,106 (https://maps.geo.census.gov/ddmv/map.html). Therefore, the ratio used to estimate the reservation emissions is 0.01 (18,403/1,839,106).

This ratio of 0.01 was multiplied by the 2021 Idaho GHG electricity use emissions in a spreadsheet. This spreadsheet, "REVISED2021IdahoGHGEmissions", is attached as an excel file to support this EI. The following table summarizes these emissions.

Table 6. Nez Perce Reservation GHG Emissions (metric tons CO2 equivalent) from Electricity Use

Sector (Tribal Level)	Carbon Dioxide (CO2)	Nitrous Oxide (N2O)	Methane (CH4)	Fluorinated Gases	Total GHG
Electricity Generation and Use	21,554	129	39	981	22,703

Summary and Recommendations – Electricity Generation and Use

When a more in-depth EI is developed, the tribe plans on using the EPA Tribal Greenhouse Gas Inventory Tool to estimate GHG emissions from electricity use on tribal lands in order to more accurately characterize these emissions.

Waste and Materials Management

The tribe used data for the state of Idaho reported in the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State in this section. Emissions data for 2021 with a sector of Waste were reviewed for this section. CO2 emissions were not included for any of the sources within this sector.

Emissions from waste and materials management were estimated by scaling down (taking a percentage, or fraction, of) the 2021 Idaho GHG emissions to the reservation level based on a population allocation. The population on the reservation is 18,403 and the population of Idaho estimated from the 2020 Census Demographic Data Map Viewer is 1,839,106 (https://maps.geo.census.gov/ddmv/map.html). Therefore, the ratio used to estimate the reservation emissions is 0.01 (18,403/1,839,106).

This ratio of 0.01 was multiplied by the 2021 Idaho GHG electricity use emissions in a spreadsheet. This spreadsheet, "REVISED2021IdahoGHGEmissions", is attached as an excel file to support this EI. The following table summarizes these emissions.

Table 7. Nez Perce Reservation GHG Emissions (metric tons CO2 equivalent) from Waste and Materials Management

Sector (Tribal Level)	Nitrous Oxide (N2O)	Methane (CH4)	Total GHG
Waste and Materials Management	1,462	7,561	9,024

Summary and Recommendations – Waste and Materials Management

There is a small landfill that is located on the Reservation that the Tribe plans to estimate GHG emissions for when the more in-depth EI is developed. Also, each municipality has a wastewater treatment facility that will be looked at.

Commercial and Residential Buildings

The tribe used data for the state of Idaho reported in the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State in this section. Emissions data for 2021 with a category of Commercial or Residential were reviewed for this section.

Commercial and residential building fossil fuel combustion emissions were estimated by scaling down (taking a percentage, or fraction, of) the 2021 Idaho GHG emissions to the reservation level based on a population allocation. The population on the reservation is 18,403 and the population of Idaho estimated from the 2020 Census Demographic Data Map Viewer is 1,839,106 (https://maps.geo.census.gov/ddmv/map.html). Therefore, the ratio used to estimate the reservation emissions is 0.01 (18,403/1,839,106).

This ratio of 0.01 was multiplied by the 2021 Idaho GHG electricity use emissions in a spreadsheet. This spreadsheet, "REVISED2021IdahoGHGEmissions", is attached as an excel file to support this EI. The following table summarizes these emissions.

Table 8. Nez Perce Reservation GHG Emissions (metric tons CO2 equivalent) from Commercial and Residential Buildings Fossil Fuel Combustion

Sector (Tribal Level)	Total GHG
Commercial	23,512
Residential Building	22,721
Total	46,233

Summary and Recommendations – Commercial and Residential Buildings

When a more in-depth EI is developed, the tribe plans on using the EPA Tribal Greenhouse Gas Inventory Tool to estimate GHG emissions from fossil fuel use in commercial and residential buildings on tribal lands to more accurately characterize these emissions.

Agriculture/Land Management

The tribe used data for the state of Idaho reported in the EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State in this section. Emissions data for 2021 with a sector of Agriculture or Land-Use Change and Forestry were reviewed for this section. This category includes GHG emissions as well as sinks. The sinks are emissions removal due to existing land management, such as land remaining in forests, as well as land use changes, such as planting trees in urban areas, that result in carbon sequestration. These sinks are shown as negative CO2 emissions in the data set.

Agriculture/land management emissions were estimated by scaling down (taking a percentage, or fraction, of) the 2021 Idaho GHG emissions to the reservation level based on a land area allocation. The land area of the reservation is 1203 square miles and the Idaho land area is 83,569 square miles (U.S. Census). Therefore, the ratio used to estimate the reservation emissions is 0.0144 (1,203/83,569).

When estimating the reservation emissions, the ratio of 0.0144 was multiplied by the 2021 Idaho GHG agriculture and land management emissions in a spreadsheet. The spreadsheet, "REVISED2021IdahoGHGEmissions", is attached as an excel file to support this EI. The following table summarizes these emissions.

Table 9. Nez Perce Reservation GHG Emissions (metric tons CO2 equivalent) from Agriculture/Land Management

Sector (Tribal Level)	Carbon Dioxide (CO2)	Nitrous Oxide (N2O)	Methane (CH4)	Total GHG
Agriculture	11,114	79,292	132,656	223,062
Land use, land change & forestry	13,106	6,822	19,144	39,073
Total	24,220	86,114	151,800	262,135

Summary and Recommendations – Agriculture/Land Management

When a more in-depth EI is developed, the tribe plans on estimating livestock GHG emissions by collecting data on the number of livestock on the reservation and using emissions factors in the Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2021, 2023 Annex 3-Part B (https://www.epa.gov/system/files/documents/2023-04/US-GHG-Inventory-2023-Annex-3-Additional-Source-or-Sink-Categories-Part-B.pdf). The tribe also plans on using the EPA Tribal Greenhouse Gas Inventory Tool to identify CO2 removals from trees on tribal lands.

Forest Fires

Wildfires and prescribed burns are another source of GHG emissions. CO2 and CH4 emissions from these fires were estimated by EPA at the Tribal level and are included in the 2020 (https://www.epa.gov/air-emissions-inventories/2020-nei-supporting-data-and-summaries). Data is converted to metric tons CO2 equivalent in the attached spreadsheet (OnReservation2020NEIFiresGHG).

In the 2020 NEI, the allocated GHG emissions for wildfires and prescribed burns is summarized in the following table.

Table 9: Nez Perce Reservation GHG Emissions (metric tons CO2 equivalent) from Wildfires and Prescribed Burns.

Fire Type	Carbon Dioxide	Methane	Total GHG
Prescribed Burns	19,379	2,043	21,422
Wildfires	92,342	10,120	102,462
Total	**111,721**	**12,164**	**123,884**

The spreadsheet, "OnReservation2020NEIFiresGHG", is attached as an excel file to support this EI.

Summary and Recommendations – Forestry Fires

Emissions from fires can be a challenge to control. Due to the arid conditions in this area, wildfires are common in the summers and prescribed burning is often necessary to keep the forest fuel load in check. However, the tribe plans on investigating alternatives to prescribed burning to minimize these emissions.