

IOWA TRIBE OF KANSAS AND NEBRASKA

2024 PRIORITY CLIMATE ACTION PLAN



Developed by Grey Snow Management Solutions
for the Iowa Tribe of Kansas and Nebraska

U.S. Environmental Protection Agency
Climate Pollution Reduction Grant

MARCH 2024



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Many individuals participated in the development of this Priority Climate Action Plan and contributed invaluable institutional knowledge to inform the performance measures recommended. This project would not have been possible without the countless support and significant time contributions from the following groups and individuals:

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Brandon Roberts – Vice Chairman
Robert Hullman – Treasurer
Tony Fee – Secretary
Brad Campbell – Member

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ICLEI

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Key Definitions and Acronyms

Grey Snow Management Solutions (GSMS)

Iowa Tribe of Kansas and Nebraska (ITKN)

Environmental Protection Agency (EPA)

Tribal Greenhouse Gas Inventory Tool (TGIT)

Climate Pollution Reduction Grant (CPRG)

Priority Climate Action Plan (PCAP)

Comprehensive Climate Action Plan (CCAP)

Greenhouse Gas (GHG)

Battery Energy Storage System (BESS)

Department of Energy (DOE)

Department of Transportation (DOT)

Department of Interior (DOI)

United States Department of Agriculture (USDA)

Electric Vehicles (EV)

Renewable Energy (RE)

Greenhouse Gas Emissions Inventory (GHG EI)

Inflation Reduction Act (IRA)

IPCC 5th Assessment Report (AR5)

Low-Income and Disadvantaged Communities (LIDAC)

Operations and Maintenance (O&M)

Photovoltaic Solar (PV)

Quality Assurance Project Plan (QAPP)

Microgrid (MG)

Intergovernmental Panel on Climate Change (IPCC)

Global Greenhouse Gas Protocol (GGP)

Workforce Innovation and Opportunities Act (WIOA)

Agriculture, Forestry, and Other Land Uses (AFOLU)

Technical Nomenclature and Metrics

Acre (ac)

Carbon Dioxide (CO₂)

Carbon Dioxide Equivalents (CO₂e)

Carbon Monoxide (CO)

Hazardous Air Pollutants (HAP)

Hydrofluorocarbons (HFCs)

Kilowatt (kW)

Kilowatt-hour (kWh)

Methan (CH₄)

Metric Tons of Carbon Dioxide Equivalents (MTCO₂e) emission reductions

Nitrous Oxide (N₂O)

Particulate Matter (PM)

Perfluorocarbon (PFC)

Square Feet (sq ft)

Sulfur Dioxide (SO₂)

Sulfur Hexafluoride (SF₆)

Total Area in Acres (A)

Total Area in Kilometers Squared (km²)

Short Tons; unit of weight measurement equal to 2000 pounds (Tons)

Metric Tons; unit of weight measurement equal to 2204.62 pounds (Tonnes)

Vehicle Miles Traveled (VMT)

Executive Summary

The Environmental Protection Agency's Climate Pollution Reduction Grant program provides \$5B in grants to states, local governments, tribes, and territories to develop and implement plans for reducing greenhouse gas emissions and other harmful air pollution, with funding released in two phases: noncompetitive planning grants and competitive implementation grants.

Under the EPA CPRG planning grants, the Iowa Tribe of Kansas and Nebraska was awarded \$498,000 in federal funding. The tribe partnered with Grey Snow Management Solutions (GSMS), a grant sub awardee and tribally-owned enterprise of the Iowa Tribe of Kansas and Nebraska, to develop a Priority Climate Action Plan (PCAP) and a Comprehensive Climate Action Plan (CCAP). As part of these activities, GSMS assessed GHG emissions sources across key sectors: electric power, transportation, commercial and residential buildings, industry, agriculture, forestry and other land uses, water, and waste and materials management.

This report summarizes the outcome of the planning activities including development of a GHG emissions inventory and proposed priority climate action measures to reduced, sequester, and store GHG emissions. This PCAP first provides context on the ITKN, including background on the Reservation, Tribal government, Tribal membership, Tribal history, sustainability and climate action goals, past studies, and special considerations. After a thorough literature review and background study, the project team worked diligently to collect data from the tribe, including Tribal government and community propane usage, electricity usage, vehicle data, and waste production.

The project team used the EPA's Tribal Greenhouse Gas Inventory Tool (TGIT) to input the data gathered and evaluate the tribe's GHG emissions. The GHG inventory and planning activities for the tribe focus on primarily on four of the six sectors identified by the EPA: transportation; electric power; commercial and residential buildings; agriculture, forestry, and other land uses; industrial waste production; waste water management, and water. This plan includes a summary of the developed GHG inventory, the process for which each priority sector GHG inventory was developed, community engagement, workforce development opportunities, other funding opportunities, and a discussion of implementation-ready measures the tribe can move forward with to reduce near-term GHG emissions. The measures identified in this plan were informed by the GHG emissions inventory, tribal government and infrastructure development priorities, and aim to address the highest emission areas as well as GHG sequestration and carbon storage priority areas, specifically the transportation, electric power, agriculture, forestry, and other land uses, building, and waste sectors.

The project team developed a list of potential measures based on the analysis in the TGIT, community engagement activities, and tribal government priorities. While some of measures that were vetted did not pose significant direct GHG emission reduction, they are still included due to their ability to provide sustainability of the tribe's ability to continue ongoing monitoring, evaluation, and implementation of the tribe's goals beyond the scope of this project.

CPRG Overview

The Tribe applied for and received funding under the Climate Pollution Reduction Grant (CPRG) program to develop plans for reducing greenhouse gas emissions and other harmful air pollutants under the control or influence of the Tribe. The Tribe is utilizing Phase 1 funding to develop a Priority Climate Action Plan (PCAP) which compiles supporting data and a discussion of shovel-ready priority GHG reduction measures which the Tribe may seek out funding for from Phase 2 implementation CPRG grant funding. If awarded, the funding will then be used to implement chosen priority reduction measures as determined by the Tribe's Executive Committee.

The Priority Climate Action Plan (PCAP) is used to identify the sources and sectors of GHG emission within the Iowa Tribe of Kansas and Nebraska reservation, determine the priority measures that can be implemented in the near term to reduce GHG emissions, while simultaneously addressing environmental injustices, empowering community-driven solutions, supporting the health and safety of tribal and community citizens, and a thriving community, ecosystem, and economy.

The Iowa Tribe of Kansas and Nebraska is categorically defined as a disadvantaged community. Therefore, all residents are beneficiaries of GHG reduction measures implemented on the reservation.

The GSMS project staff utilized the EPA's Tribal Greenhouse Gas Inventory tool for the aggregation and development of the ITKN's GHG Emissions Inventory, a critical component of the PCAP. This PCAP also outlines the community benefits, workforce development opportunities, and other funding opportunities that could potentially provide additional resources toward implementation.

The CPRG Planning grant recipients are required to submit three deliverables over the four-year planning period:

1. A Priority Climate Action Plan (PCAP), due April 1, 2024
2. A Comprehensive Climate Action Plan (CCAP), due September 2026
3. A Status Report, due December 2026

This document fulfills the PCAP deliverable for the Iowa Tribe of Kansas and Nebraska under the EPA CPRG Planning Grant program.

PCAP Overview and Definitions

The Iowa Tribe of Kansas and Nebraska reservation covers approximately 12,038 acres across portions in Northeast Kansas and in Southeast Nebraska. The tribe currently controls approximately 4,860 acres of its reservation with most of this land held in trust. Tribal headquarters are west of White Cloud, Kansas. The Tribe has 4,276 enrolled members with approximately 631 of those members living on the reservation or in the service area, which includes Brown and Doniphan Counties in Kansas, and Richardson County, Nebraska. The reservation overlaps three counties, Brown and Doniphan, Kansas and Richardson, Nebraska. The portion of tribal land in each county is identified as disadvantaged. Poverty rates for Doniphan and Brown counties are 12.7% and 14% respectively (Source: U.S. Census Bureau, Small Area Income and Poverty Estimates). The majority of the reservation's land is in Brown County, which is fully identified as disadvantaged based on low income in the 68th percentile, lack of green space in the 90th percentile, and 58th in Overall Climate Vulnerability according to the U.S. Climate Vulnerability Index (Source: [Overall Climate Vulnerability in Highland, KS | The U.S. Climate Vulnerability Index](#)). In Doniphan County, energy costs are in the 93rd percentile, expected population loss from fatalities and injuries resulting from natural hazards due to climate change each year in the 95th percentile and economic loss to agricultural value resulting from natural hazards due to climate change each year in the 90th percentile.

As a Justice 40 Initiative community, the implementation of GHG reduction measures within the project area meets the minimum requirements for Justice40 through the following initiatives:

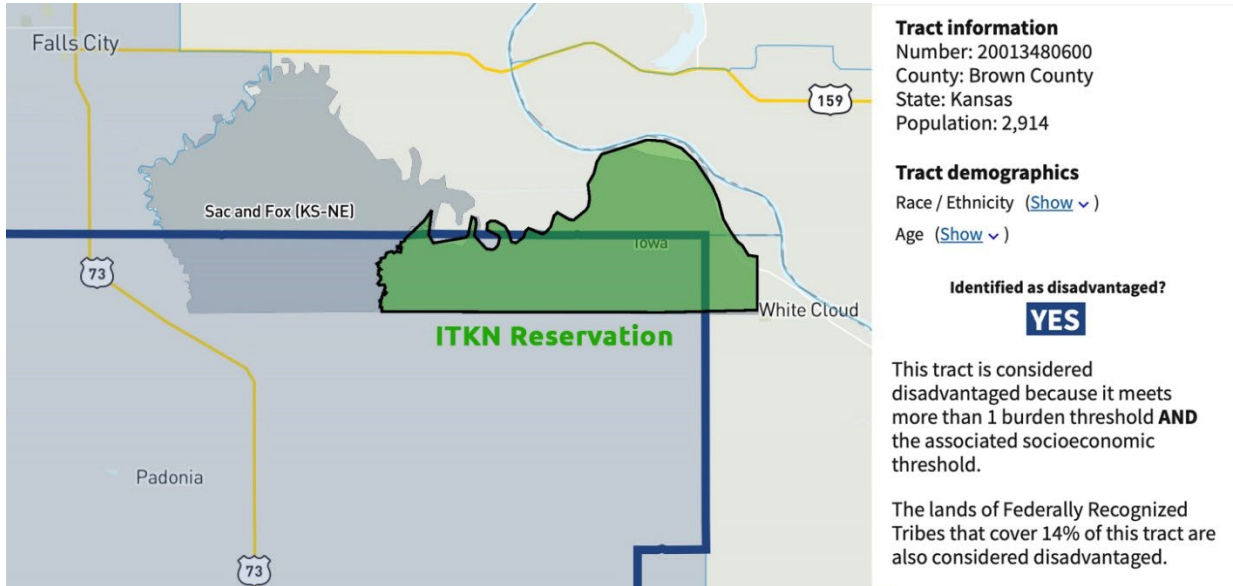
1. **Targeting 100% Benefit Allocation:** the entirety of benefits from these GHG reduction measures will impact a disadvantaged community.
2. **Enhanced Community Engagement:** Community members are and will continue to be in ownership and decision-making roles. By utilizing tribal enterprises and governmental departments wholly owned or managed by the Iowa Tribe of Kansas and Nebraska, these projects will be provided supported from a team of experts that are able to support all aspects of the implementation of these reduction measures including, engineering, design, procurement, project management, construction, training, installation, community engagement, education, financing, and oversight.
3. **Comprehensive Impact Assessment:** Needs and priorities of the communities involved in this project, as well as the negative impacts that they face from the current energy infrastructure were researched as part of the Communities LEAP (C-

LEAP) program funded by the DOE and Sandia National Laboratories in partnership with the Iowa Tribe of Kansas and Nebraska. Through this partnership they performed a social burden assessment which supports community-focused resilience planning. The team attended a training at NREL which included analysis utilizing Sandia's Resilient Node Cluster Analysis Tool (ReNCAT) to calculate social burden. These metrics provide a baseline, specific to the impacts experienced by the community, against which to track meaningful improvements. Their research found that the following critical services will be positively impacted with the implementation of these community-scale microgrids: i) access to medications, ii) fuel, iii) medical service, iv) transportation, and v) security (ranked by greatest impact).

4. **Holistic Approach to Development:** Additional community development aspects – education, health, and economic empowerment will be integrated into the project through educational programs about renewable energy, health improvements due to better air quality, and business opportunities related to the project.
5. **Innovative Solutions and Technologies:** The cutting-edge technologies deployed and the innovative approaches that these projects deploy will provide a myriad of community benefits including clean energy, community resiliency, increase biodiversity, forested land, and nature-based solutions for adapting to climate change, and promote food sovereignty. The solar and energy storage technologies deployed, and energy efficiency upgrades each residence and commercial building will undergo, are state-of-the-art and provide climate resilience today and EV charging capacity that is future-ready. For civic planning, the social burden analysis highlights areas for Tribal Leadership where resources are lacking and where strain has been alleviated due to microgrids, informing infrastructure planning.
6. **Documenting and Sharing Best Practices:** The project team and the Tribe are committed to documenting each project's approaches and outcomes and sharing these insights with other tribal communities or organizations, thereby contributing to broader knowledge and practice in community-driven sustainable development. The Grey Snow Companies, the umbrella of companies owned by ITKN, provide dedicated services to enhance and support tribal sovereignty and sustainable solutions for government and commercial clients throughout Turtle Island (North America). The Tribally owned microgrid test lab, SolarTAC – an integrated, world-class test facility – is available for tribal members from all nations to train on cutting edge solar and storage technologies and practices.
7. The Iowa Tribe of Kansas and Nebraska reservation, which is located in the NE corner of Kansas, SE corner of Nebraska within Brown County and Doniphan County Kansas, and Richardson County, Nebraska, with a geographic area of 18.97 square

miles of diverse terrain, includes land use types characterized as rural urban area, forest, cropland, and other land use types.

Climate and Economic Justice Screening Tool Results



According to the National Oceanic and Atmospheric Administration (NOAA) Climate Explorer tool, this area is projected by 2050 to have an average daily maximum temperature that is 9.3% greater than the average observed daily maximum temperature between the years of 1961 to 1990. This projection is forecasted based on the area continuing to have emissions at or greater than their current state. If the projected areas emissions were to be decreased, the average daily maximum temperature may only see an increase of 7.7% from 64.4 to 69.4 degrees Fahrenheit.

Above and beyond, there exists a need to address the growing vulnerability the Tribe has to impacts of climate change on their culture, community, economy, and ecosystems.

The ITKN PCAP includes the following required elements:

- A **simplified Greenhouse Gas Inventory** for the ITKN reservation gathered utilizing existing data available from the ITKN Tribal Government, National Emissions Inventory, National Agricultural Statistics Service, Department of Transportation, and other state/local sources.
- **Quantified projected GHG reductions** for priority implementation measures identified through Tribal Leadership and various community engagement meetings.
- A **benefits analysis** for co-pollutants (such as criteria air pollutants, hazardous air pollutants, etc.) for project pollutant reductions should the priority measures be implemented.

- A **review of authority to implement** the selected priority measures.

Approach to Developing the PCAP

Quality Assurance Project Plan

Prior to any data collection, GSMS with the assistance of ICLEI and the EPA developed a Quality Assurance Project Plan (QAPP) which defines the handling of environmental information associated with the project. The QAPP, approved January 25, 2024, describes the necessary quality assurance and quality control requirement and technical activities to ensure the baseline GHG inventory and emissions reduction calculations are reliable for the PCAP planning process.

Identifying Reduction Measures

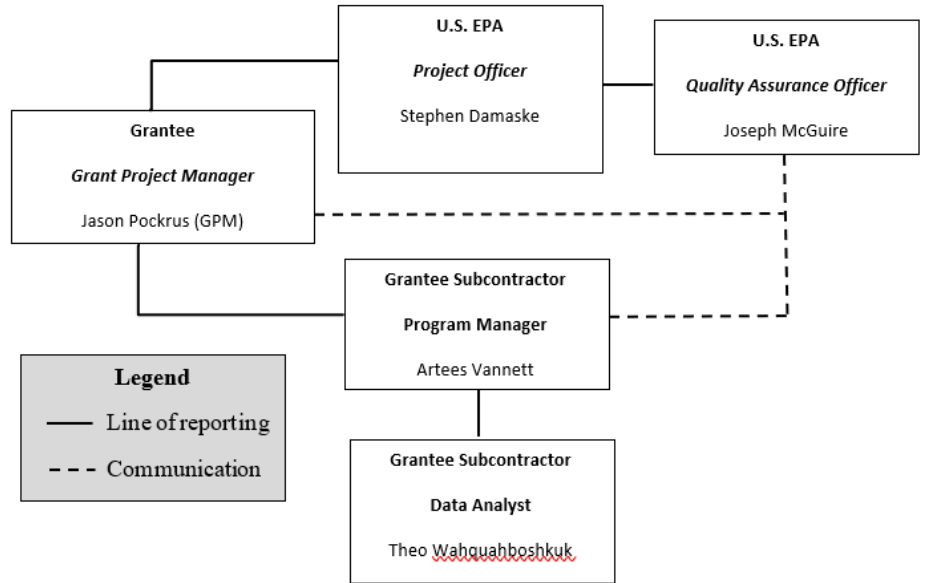
GSMS met several times with various stakeholders of the Iowa Tribe of Kansas and Nebraska, including those mentioned in the section titled *Acknowledgement and Contributions*, to identify feasible, near-term, high priority, and implementation-ready measures which would reduce the Tribe's greenhouse gas emissions and sequester carbon. GSMS then quantified the priority GHG reduction measures for their ability to reduce GHG emissions should the priority measures be successfully implemented.

PCAP Development Team

The primary personnel responsible for implementation of this project are the personnel of the subawardee Grey Snow Management Solutions, an ITKN tribal entity, which include a Program Manager (PM), and Data Analyst (DA). The Iowa Tribe of Kansas and Nebraska provide additional support through their Grant Project Manager (GPM). Their duties are outlined briefly in this section.

Artees Vannett is the PM and will provide senior-level oversight. The PM is responsible for Iowa Tribe of Kansas and Nebraska's CPRG technical and financial performance as well as maintaining communications with the EPA to ensure mutual understanding of grant requirements, EPA expectations, and conformity with EPA quality procedures; managing oversight and conduct of project activities including allocation of resources to specific tasks; ensuring that quality procedures are incorporated into all aspects of the project; developing, conducting, and/or overseeing QA plans as necessary; ensuring that any corrective actions are implemented; operating project activities within the documented and approved QAPP; and ensuring all products delivered to the EPA are of specified type, quantity, and quality.

The Data Analyst, Theo Wahquahboshkuk, is responsible for overseeing the quality system, monitoring and facilitating QA activities on tasks, and generally helping the PM understand and comply with EPA QA requirements. He will be involved in data collection and analyses. At the request of the PM, Mr. Wahquahboshkuk is responsible for conducting periodic independent audits of this project’s QA program, Mr. Wahquahboshkuk will produce written documentation of the audit results and recommendations.



Scope of the PCAP

The PCAP is limited to the geographic boundaries of the Iowa Tribe of Kansas and Nebraska reservation, governed by the Iowa Tribe of Kansas and Nebraska Tribal government. The Tribe owns and operates properties outside of the reservation. For the purposes of this planning process, those properties were excluded due to their presence outside the boundaries of the ITKN reservation.

Priority GHG Reduction Measures

The planning process focused on identifying the GHG emissions within the geographic boundary and reduction measures for the following priority sectors: energy, transportation, stationary combustion, and AFOLU.

Review of Authority to implement GHG Reduction Measures

As a federally recognized tribe, the ITKN and its Tribal council have the authority, recognized through their inherent sovereignty as a tribal nation, to implement the projects recommended in this PCAP. ITKN has its own procedures to develop projects on land within the Reservation boundaries that differ from typical county, city, or state permitting regulations. If the recommended projects are approved by the Tribal Council or are voted on during a General Council meeting, they can be implemented on the Reservation.

Funding Opportunities Beyond PCAP for GHG Reduction Measures

Through various federal, state, philanthropic, and special use funding sources and opportunities ITKN currently utilizes and may in the future look towards these opportunities to fund or supplement the implementation of various GHG Reduction Measures including:

- Workforce Innovation and Opportunity Act (WIOA)
- Inflation Reduction Act (IRA)
- Evidence for Action: Innovative Research to Advance Racial Equity; Culture of Health Prize, Robert Wood Johnson Foundation
- Newman's Own Foundation
- Partnership's for Climate Smart Commodities, USDA
- National Telecommunications and Information Administration (NTIA)
- Tribal Electrification Program (TEP), Department of Interior
- Investment Tax Credits and Low-Income Community Bonus Tax Credits
- Climate Pollution Reduction Implementation Grant
- Advancing Tribal Nature-Based Solutions Grant, First Nations Development Institute
- National Science Foundation
- IRA Forest Landowner Support
- Community Action Fund, NDN Collective
- Community Change Equitable Resilience Technical Assistance, EPA
- IRA Environmental and Climate Justice Community Change, EPA
- Rural Economic Development Loan and Grant Program
- Agriculture and Food Research Initiative (AFRI) Foundational and Applied Science Program
- Clean Water Indian Set-Aside Program, EPA, HIS
- Climate Action Fund, Rainforest Action Network
- Community Facilities Grant Program, USDA
- Environmental Quality Incentives Program (EQIP), USDA, NRCS
- Local Governments Reimbursement Program, EPA
- REAP Energy Audit and Renewable Energy Development Assistance Program, USDA
- Strategic Economic and Community Development (SECD), USDA
- Grid Resilience 40101(d) Formula Grant, DOE, Bipartisan Infrastructure Law (BIL)
- Rural Business Development Grants, USDA
- MIT Solve Challenge opportunities
- Home Electrification and Appliance Rebates Program for Indian Tribes, DOE

- The Green and Resilient Retrofit Program (GRRP), Department of Housing and Urban Development (HUD)
- Energy Efficiency and Conservation Block Grant (EECBG), DOE
- Tribal Climate Resilience, BIA
- Rural Surface Transportation Project, DOT
- Pollution Prevent Program, EPA
- Tribal Transportation Progra, DOT
- State of Good Repair Grants, DOT
- Safe Streets and Roads for All, DOT
- Rebuilding American Infrastructure with Sustainability and Equity (RAISE), DOT
- Greenhouse Gas Reduction Fund financing, EPA
- Environmental and Climate Justice Program, EPA

Workforce Planning Analysis for GHG Reduction Measures

The Iowa Tribe's broader workforce development objectives will be fulfilled through various opportunities and infrastructure capacity building needs to support the ongoing operations and maintenance of infrastructure, programmatic, and policy-based projects. To create a workforce development environment that supports these types of projects, including the priority GHG reduction measures proposed, ITKN and the ITKN-owned enterprises will support the training and employment of tribal and local community residents to be able to construct, operate, and maintain many of the proposed projects. Through the implementation of the GHG reduction measures and other workforce development priority areas current funded or outside the scope of this project, there is the potential for the creation of 32 – 63 jobs. This priority is able to be achieved with the support and partnership of the following organizations:

- Grey Snow Green Energy (GSGE), a wholly owned ITKN company, who will recruit, hire, and provide hands-on paid training for 8 – 10 tribal members as part of the Tribe's strategy to build a strong workforce who can support the continuous maintenance and operations of the proposed electric power reduction measures.
- GSGE will provide direct hands-on paid training for 6 – 18 tribal members and community members through the 40101(d) formula grant through solar installations, training, and operation and maintenance programs.
- Grey Snow Management Solutions, a wholly owned ITKN company will support the training and employment of tribal and local community resident to be able to project manage, administer, and oversee ITKN projects. GSMS will provide employment opportunities for 3 – 5 personnel for various project management roles for the proposed reduction measures if implemented.

- RE7 / Ayittatoba, who will recruit, hire, and provide hands-on training for tribal members as part of the Tribe’s strategy to build a strong workforce who can support the development of an Indigenous-led whole food system which will provide jobs in warehousing, fulfillment services, food and commodity processing, logistics and coordination, and transportation. RE7 will provide employment opportunities for 5 – 10 personnel in various areas of the FTZ’s operations.
- Center of Excellence for Regenerative Native Agriculture (CERNA), who will recruit and hire tribal members and community members as part of the Partnerships for Climate Smart Commodities USDA grant pilot program, which will provide jobs in commodity marketing and trade, marketing and communications, Ag technical assistance providers, data analysis, training and education, and soil test collection and lab testing. In addition, CERNA will recruit and provide hands-on training for producers located within the boundaries of a reservation on the climate-smart regenerative native agricultural (CSRNA) practices, provide incentive payments for CSRNA practice implementation, and support the expansion and adoption of climate-smart commodity markets. CERNA will provide training and employment opportunities to a minimum of 25 producers and 5 – 10 personnel.
- Grey Snow Communications, who will provide hands-on training and technical assistance for broadband communications workforce development areas including: broadband network engineering and design, underground and aerial construction, fiber splicing, and safety. Through the various infrastructure projects implemented by GSCOMMS there exists the potential for 5 – 10 jobs to be created.

These workforce development opportunities fall in line with the DOE’s Community Benefits Plan requirements, as well as the Department of Labor’s Good Jobs Principles by providing employment benefits such as:

- Competitive wage and benefit rates benchmarked against local Davis Bacon prevailing wages,
- Utilization of registered apprentices,
- Worker health and safety risks and hazards training: all trainees will receive OSHA certification,
- Collaborate with labor and trade unions,
- Cover costs of training and PPE,
- Provide transportation reimbursements,
- Health insurance,
- Retirement contributions,
- PTO,

- Paid sick or family leave,
- Maternity/Paternity leave,
- Childcare or transportation assistance,
- Education/tuition reimbursement for FTEs,
- Diversity, Equity, Inclusion, and Accessibility (DEIA) fair and equal employment opportunity,
- Job security and safe working conditions,
- Valued and meaningful organizational work culture, and
- Skills and career advancement opportunities.

Tribal Organization and Considerations

About the Iowa Tribe

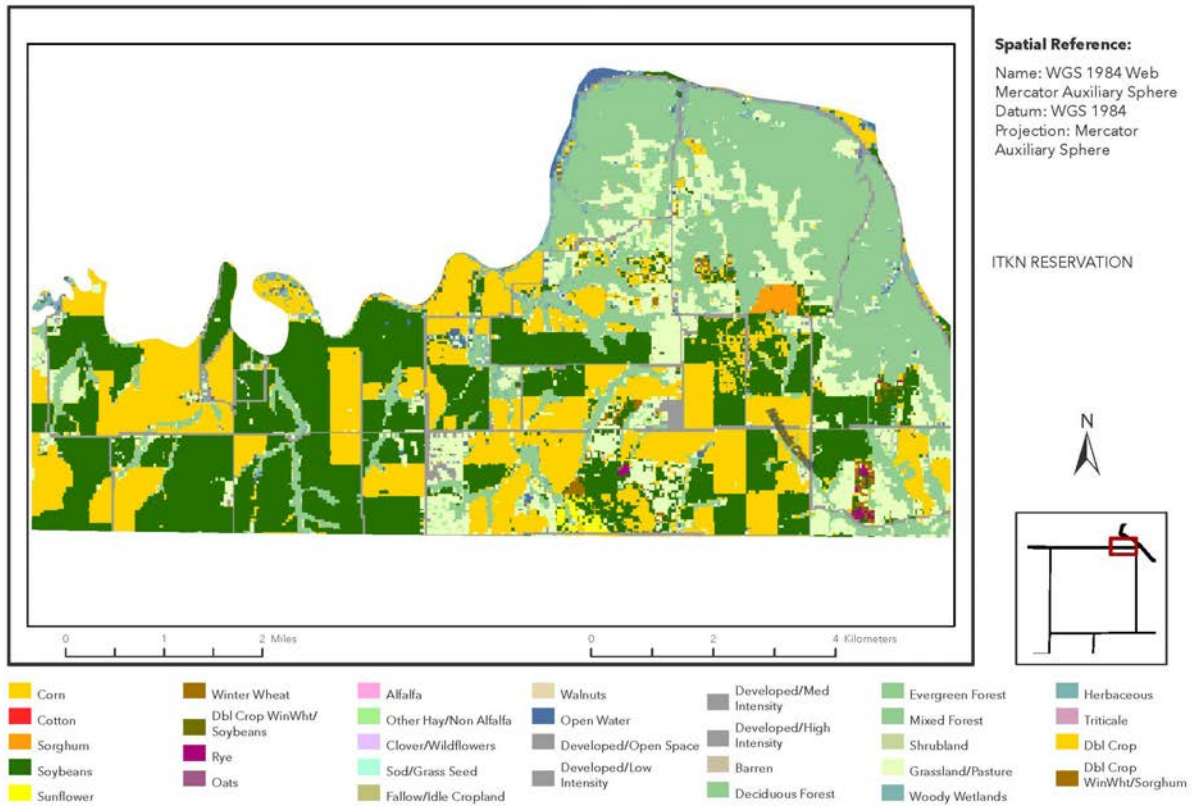
The Iowa Tribe of Kansas and Nebraska is a federally recognized Indian Tribe. The reservation was established and modified pursuant to a series of treaties, with the current boundaries established in the Treaty of March 6, 1861. The reservation straddles the eastern borders of the lands now known as Kansas and Nebraska, along the confluence of the Níamaha (Big Nemaha River) and Nyisoji (Missouri River). The Iowa River and the State of Iowa were named after the Ioway people. The name of the tribe has had dozens of spelling throughout its history but most commonly either as the Iowa or Ioway. The legal name used today by the tribe is the Iowa Tribe of Kansas and Nebraska, due to the tribe being situated in both Kansas and Nebraska. Baxoje (BAH-kho-jeh) is the tribe's name for itself in its own language, which is part of the Siouan language family. Traditionally, the Ioway people have called themselves some variation of Baxoje, with Ba meaning “snow” and Xoje “ashes or ash colored.” From at least AD 1000 to 1838 the Ioway aboriginal territory originally centered in their Iowa homelands and extended into parts of the surrounding states. This midwestern homeland includes Iowa, Wisconsin, Michigan, Illinois, Minnesota, South Dakota, Nebraska, Kansas and Missouri.

Government Structure

The Iowa Tribe of Kansas and Nebraska was organized under a constitution and bylaws approved February 26, 1937 pursuant to the Indian Reorganization Act of June 18, 1934. The tribe is governed by two bodies, 1) The General Council, which is composed of all enrolled members who are at least eighteen (18) years of age and 2) The Executive Committee, composed of five (5) members (Chairperson, Vice-Chairperson, Secretary, Treasurer, and Member) elected at large from the General Council for four-year terms of office. Both governing bodies shall exercise those governing authorities specifically set out for its use in the tribe's constitution and bylaws.

The operations of the ITKN are based on its federally established reservation covering approximately 12,038 acres across portions of Brown County and Doniphan County in Northeast Kansas and Richardson County in Southeast Nebraska. The reservation was established and modified according to a series of treaties, with the current boundaries established in the Treaty of March 6, 1861.

Map 1. Iowa Tribe of Kansas and Nebraska Reservation Boundaries (2023)



Produced By: Artees V

Date: 3/28/2024

Special Considerations

Electrification Needs / Priorities: While all homes in these communities are currently electrified, they lack any zero-emission energy sources. In addition, these communities face systemic outage issues with the local utility which burdens the community when they seek to obtain services provided through the local infrastructure, which represents opportunities to acquire goods and services, access food, water, healthcare, financial services, education, and results in the population experiencing hardship and social burden.

Justice40 Impact: Sandia Labs conducted a social impact study between 2022-2023 on behalf of the ITKN, which concluded that the overall social burden on the community is significantly improved with the implementation of microgrids (MG). According to the study, MG projects have the potential to reduce the community's social burden five to tenfold. Through the implementation of MG GHG reduction measures, the Iowa Tribe will have resilience through the ability to maintain critical loads with an uninterrupted supply of power from solar arrays (PVs) and battery energy storage systems (BESS). Due to the energy

regulatory climate and power prices in the region, there is limited potential to implement zero-emissions Tribal electrification projects without additional funding support. The implementation and funding of MG GHG reduction measures will create transformational change for the Tribe that otherwise would not occur. Tangible improvements for the community include but are not limited to:

- Improved reliability, easing the social burden metrics identified in the Comprehensive Impact Assessment study,
- Lower energy costs for community members, easing households energy burden,
- Reduced dependence on fossil fuels,
- Reduction of emissions on the pathway to zero-emissions residences,
- Transformation of residential communities into sustainable, energy-efficient neighborhoods,
- Household energy efficiency upgrades, improving health metrics,
- Community ownership of energy-producing systems,
- Microgrid capabilities that provide energy sovereignty and security while meeting current and emerging energy needs,
- Forward-looking capabilities for easy integration of Electric Vehicle Charging Infrastructure, and
- Workforce development opportunities and meaningful job creation for community members.

In addition, the local community will benefit from significantly reduced utility bills, added energy security, and reduced energy consumption through the adoption of energy efficient household upgrades such as air-source heat pumps, mini-splits, electric hot water heater, attic and roof air-sealing and insulation, as well as replacing main breaker panels with SPAN smart panels.

Reinvigorating Traditional Food Ways: Through our agricultural efforts, the Iowa Tribes aims to feed their community, support feeding the larger society, enhance their food sovereignty, improve their soil health, create food system related jobs, promote cultural education, support sustainable economic development, and contribute to biodiversity, clean water, clean air, and climate change mitigation efforts. These efforts are exemplified through these Agriculture priority initiative including:

- **loway Farms** – a 2400 acre row crop and 2500 acre pasture regenerative agriculture operation focused on food sovereignty, supporting soil health, and ensuring a healthier, more vibrant landscape for future generations through large-scale food and feed production. lowayFarms.com

- **loway Seed Company (ISC)** is currently under construction. ISC will be focused on regeneratively produced cover crops and specialty seed, ISC will provide high-quality seed cleaning, bagging, and logistics services for food manufacturers and seed companies. Committed to supporting indigenous farmers, ISC will help provide premium value commodities for regenerative food pathways.
- **Center of Excellence in Regenerative Native Agriculture (CERNA)** - CERNA will become a national center of education for regenerative agriculture. Students will enjoy multi-classroom and in-field training where they'll learn about the newest smart farm technologies and best practices for regenerative agriculture. Using precision agriculture and current market business trends will ensure we create the next generation of regenerative farmers utilizing the best of class technologies. The center is supported by a diverse group of partners including: John Deere, Understanding Ag, Terramera, Proximity Malt, Central Soyfoods, Intertribal Ag Council, and many others.
- **loway Bee Farm** is the largest tribal apiary in North America. loway Bee Farm sells raw, unfiltered honey for food processing and manufacturing, retail, and home consumption. Visit lowayBeeFarm.com.
- **Soje and Hemp Farm** - We were the 4th tribe in the nation to receive a USDA industrial hemp license. We grow and sell SOJE, a Native American hemp cigarette featuring traditional native smoking herbs and regeneratively produced hemp flower. SOJE.co
- **Senior meal site services** provide to create a space in which elders can congregate and share a meal. They also offer meal delivery services for our homebound elders.
- **Commodity food distributions** provide monthly food boxes to our low-income tribal members in the service area utilizing federal funds. The Iowa Tribe would like to expand the foods offered in those boxes for more Indigenous and Tribal produced foods despite current regulatory barriers.
- **Food as Medicine** programming will be launched in the upcoming months at the White Cloud Health Center. Patients who visit the clinic with a diagnosis, such as hypertension, diabetes, or who report food insecurity, will be eligible to receive a prescription from the healthcare provider for tribal-grown healthy foods and other traditional medicines that they can fill either at the pharmacy or at a food distribution site. Current funding is anticipated to allow this program to be in place through December 2024.
- **Tribal and local food distributions** will also expected be launched in the upcoming months. This is a 2 year federally funded program that will allow the Tribe for the first time to distribute our tribally grown foods, supplemented by other local producers

to distribute food to our tribal members at no cost to them or to the Tribe. This will have an immediate and direct impact, and support the Tribe in learning how to best sustain the program after the federal funds are no longer available.

- **Access to wild spaces** for the Tribe's tribal members to allow for hunting, fishing, foraging, and other traditional harvesting of wild foods facilitates other avenues to food access in addition to grocery stores and food distribution points. Tribal leaders have preserved these spaces and written tribal fish, wildlife, and foraging code to support tribal member access while preventing over harvesting.
- **Grandview Oil** is the ITKN's tribally-owned convenience store that has tribal grown foods for sale. It is the main source for on-reservation sales of ITKN-produced foods to consumers. ITKN plans to expand Grandview Oil to allow for more healthy food options to be sold on the reservation.

Financial Constraints: Financial barriers play a large role in how and whether sustainability projects can be pursued in a timely manner. Distributed energy projects, energy efficiency improvements, land improvements, transportation, and infrastructure projects are still costly, and pursuit of larger projects often require extensive upfront equipment costs that are challenging to fund without grants, partnerships, or federal assistance. Furthermore, the introduction of more complex projects that require maintenance may be financially cost prohibitive as specialized full-time staffing will be required on the Reservation and without development costs being funded, their implementation is challenging. To achieve energy independence and improve the tribe's economic quality of life, the ITKN has considered large- and small-scale clean energy projects, updates energy efficiency on the Reservation, climate-smart agriculture and forest management projects, large- and small-scale transportation projects, as well as waste production, waste management, and water treatment systems which would afford the tribe the ability to further reduce the GHG emissions from the Reservation and increase the quality of life for all residents and ecosystems. The Iowa Tribe of Kansas and Nebraska anticipates needing continued collaboration and support to meaningfully fulfill the implementation of these priority GHG reduction measures and special consideration projects.

PCAP Elements

GHG Inventory

GREENHOUSE GAS INVENTORY APPROACH

GSMS Project Manager and Data Analyst diligently worked with the ITKN multi-departmental tribal government in the process of collecting, analyzing and calculating the applicable GHG data. Where appropriate, GSMS sought out and acquired additional relevant data from federal agencies to gather supplementary information regarding the sectors covered under the PCAP. The data for the relevant sectors covered in the PCAP were collected, analyzed and calculated utilizing the TGIT.

GSMS engaged with key participants and priority stakeholders from ITKN tribal departments to engage in collaborative conversations to discuss the CPRG overview regarding the development of the PCAP and gathering of the greenhouse gas inventory data. GSMS and key ITKN environmental leaders and stakeholders organized a hybrid kickoff meeting on February 13, 2024 at the George Ogden Community Center to engage in GHG sector relevant conversations to highlight and discuss implementation ready priority actions. Throughout the remainder of the timeline prior to the PCAP deadline, the Data Analyst and Project Manager continued further engagement with key ITKN governmental and environmental leaders and stakeholders to highlight past, current and future priority actions and GHG reducing measures relevant to the ITKN GHG reduction goals and the individual tribal departments priorities.

For the GHG emissions assessment to be most effective in identifying the highest GHG emitters and establishing impactful reduction measures, the data used in the emissions inventory analysis needed to be as detailed and accurate as possible. While many barriers were identified in the pursuit of accessing high-quality data, the project team utilized data from the Highest and Second highest quality tiers which are:

- *Highest:* Federal, state, tribal, and local government agencies,
- *Second Highest:* Consultant reports for state, tribal, and local government agencies.

Accordingly the project team worked diligently to collect data for and from the following sources:

- Tribal population
- Tribal government departments
- Inventory of Tribal government and tribally-owned buildings and building characteristics

- 2020 propane consumption for residential and commercial buildings
- Gasoline consumption for residential vehicles
- Sources of stationary combustion
- Vehicle miles travelled for ITKN registered vehicles
- 2015 electricity consumption for all tribe-owned buildings
- Sample of residential electricity consumption data from Sandia Labs and DOE's Communities LEAP project
- Waste production data from Grey Snow Sanitation
- Kansas state fertilizer usage
- Reservation acreage, land use types, and acreage for land use types

GREENHOUSE GAS EMISSIONS INVENTORY

Emissions Inventory Summary:

Through the use of the various data sources and resources made available to GSMS throughout their data collection process and entering that data into the TGIT provided by the EPA, data was divided into three scopes and ten source types:

Scope Types:

1. Scope 1: All direct emissions made on-site and controlled by the Tribal government
2. Scope 2: All indirect emission purchased from external sources by Tribal government
3. Scope 3: All other emissions associated with the Tribal government.

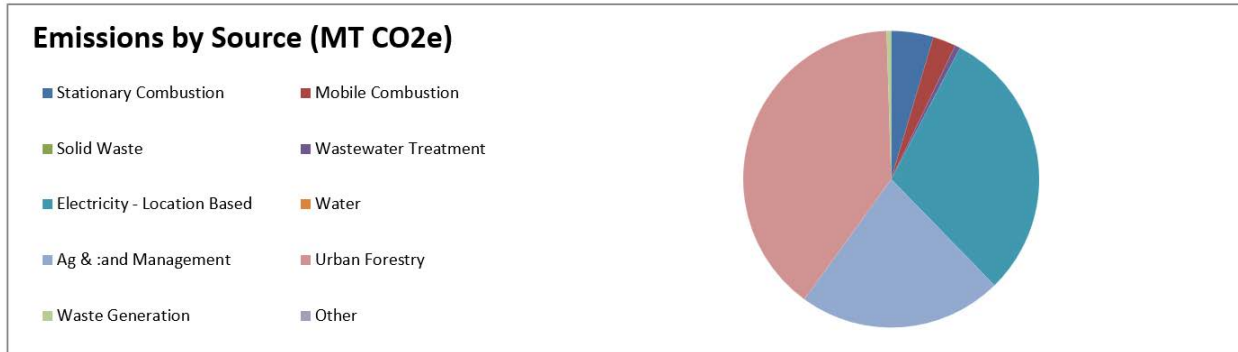
Source Types:

1. **Stationary Combustion**
2. **Mobile Combustion**
3. **Solid Waste**
4. **Wastewater Treatment**
5. **Electricity**
6. **Water**
7. **Ag and Land Management**
8. **Urban Forestry**
9. **Waste Generation, and**
10. **Other.**

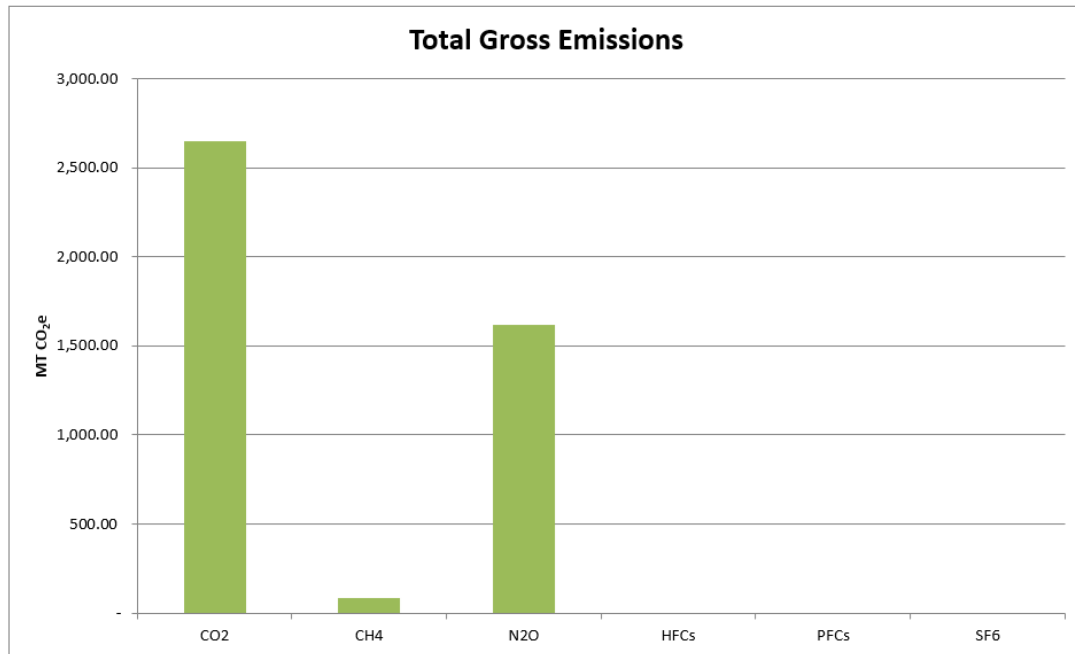
The results of the study shows that collectively the Tribal government is estimated to have emitted 4,351.9 MTCO₂e (Metric Tons of CO₂ equivalent) gases. For context, this is

equivalent to the CO₂e of 568 homes' energy use for one year, 23.9 railcars' worth of coal burned, 10,076 barrels of oil consumed, or 489,693 gallons of gasoline consumed.

The majority of the CO₂e emission were from three main sources: electricity (50%), AFOLU (37%), and stationary combustion (8%).

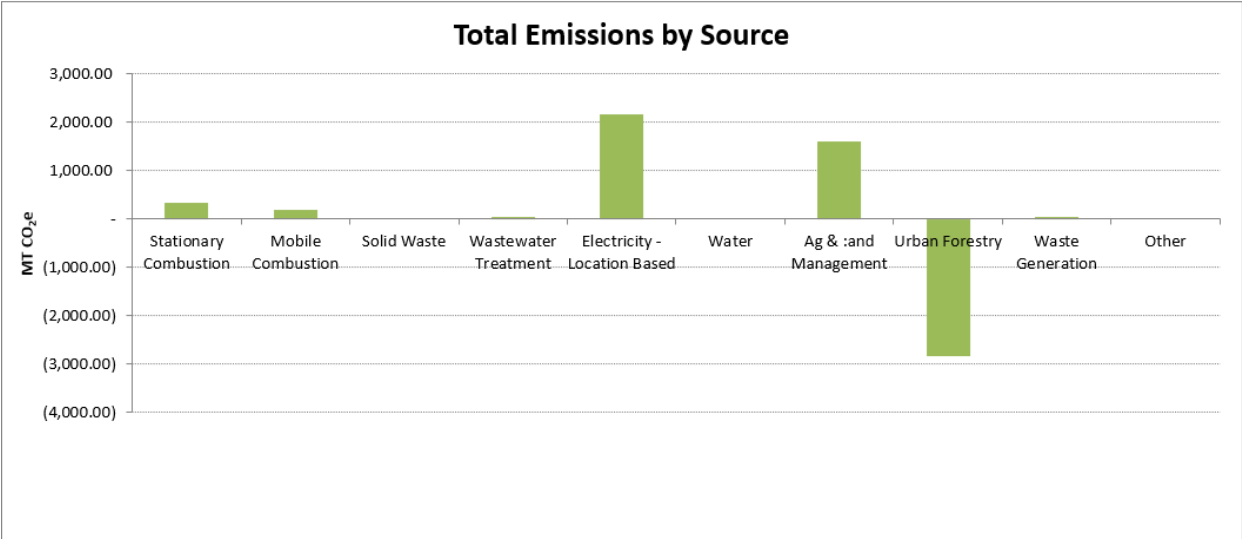


Based on the available information and barriers to retrieving source specific data, we were unable to gather data for: Other, Water, Wastewater Treatment, or Solid Waste.



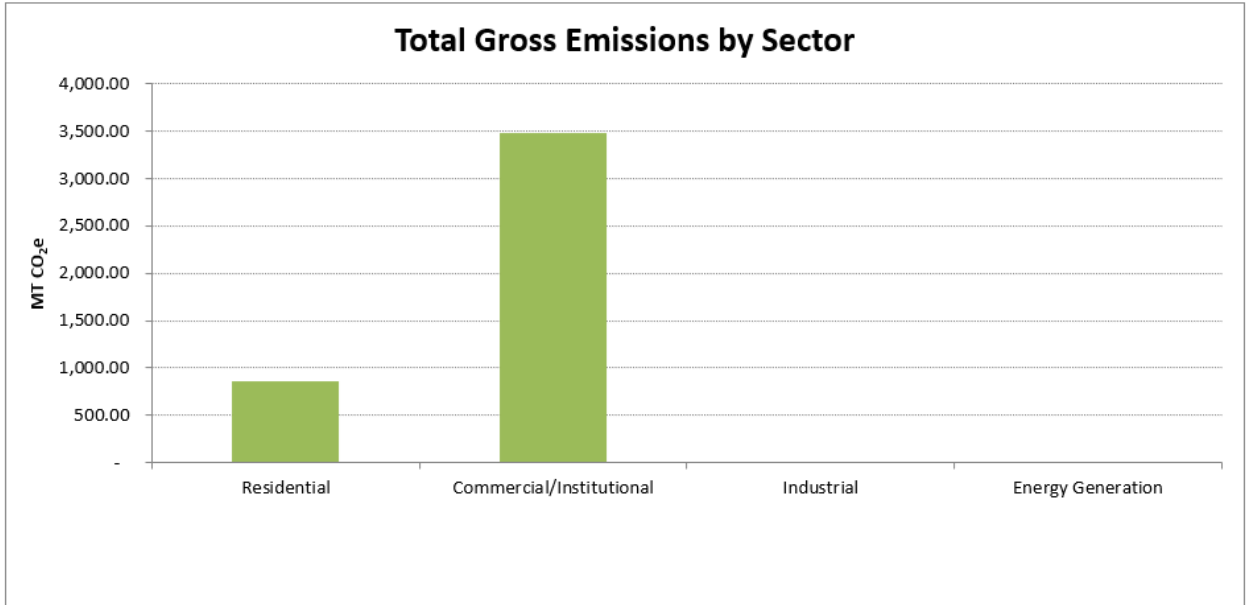
Total Iowa Tribe of Kansas and Nebraska Emissions (MT CO ₂ e)								
	CO ₂	CH ₄	N ₂ O	HF Cs	PF Cs	S F ₆	Total MT CO ₂ e	Percent of Total
		4						

Scope 1	504.69	42.57	7.12	-	-	-	554.39	13%
Scope 2 - Location Based	2,142.26	6.48	8.97	-	-	-	2,157.72	50%
<i>Scope 2 - Market Based (for informational purposes only)</i>	2,142.26	6.48	8.97				2,157.72	
Scope 3	-	-	-	-	-	-	-	0%
Total Gross Emissions	2,646.95	85.06	1,619.89	-	-	-	4,351.90	62%
Total Net Emissions	(195.76)	85.06	1,619.89	-	-	-	1,509.19	62%



Emissions by Source (MT CO ₂ e)								
Source	CO ₂	CH ₄	N ₂ O	HF Cs	PF Cs	S F ₆	Total	Percent of Total
Stationary Combustion	329.88	0.44	0.83	-	-	-	331.16	8%
Mobile Combustion	174.81	0.71	6.29	-	-	-	181.81	4%
Solid Waste	-	-	-	-	-	-	-	0%
Wastewater Treatment	-	41.42	-	-	-	-	41.42	1%
Electricity - Location Based	2,142.26	6.48	8.97	-	-	-	2,157.72	50%
<i>Electricity - Market Based</i>	2,142.26	6.48	8.97				2,157.72	

<i>(for informational purposes only)</i>								
Water	-	-	-	-	-	-	-	0%
Ag & Land Management	-	-	1,603.80				1,603.80	37%
Urban Forestry	(2,842.72)	-	-				(2,842.72)	-65%
Waste Generation	-	36.00	-				36.00	1%
Total (Gross Emissions)	2,646.95	85.06	1,619.89	-	-	-	4,351.90	100%
Total (Net Emissions)	(195.76)	85.06	1,619.89	-	-	-	1,509.19	35%



Total Emissions by Sector and Source (MT CO ₂ e)											
Sector	Stationary	Electricity	Mobile	Solid Waste	Wastewater	Water	Agriculture & Land Management	Urban Forestry	Other	TOTAL GROSS	TOTAL NET

Residential	176.09	477.63	181.81	28.80	-	-	-	-	-	864.33	864.33
Commercial/Institutional	155.07	1,680.08	-	7.20	41.42	-	1,603.80	(2,842.72)	-	3,487.57	644.86
Industrial	-	-	-	-	-	-	-	-	-	-	-
Energy Generation	-	-	-	-	-	-	-	-	-	-	-
Total	331.16	2,157.72	181.81	36.00	41.42	-	1,603.80	(2,842.72)	-	4,351.90	1,509.19

Stationary Combustion:

Scope 1 emissions are largely attributable to the propane consumption of both residential and commercial buildings. The tribal government’s casino, which is owned and operated by the ITKN, as well as an accounting of 42 residents on the reservation, all serviced by Berwick Oil Company. The total propane usage by the casino on average is 27,000 gallons, with residential single-family houses consuming on average 730 gallons. Energy bills for the casion as well as sample residential energy bills for 2020 were measured in gallons.

Emissions by Sector (MT CO₂e)				
Sector	CO₂	CH₄	N₂O	Total
Residential	175	0	0	176
Commercial/Institutional	154	0	0	155
Industrial	-	-	-	-
Energy Generation	-	-	-	-
Total Stationary Combustion Emissions	330	0	1	331

Transportation:

The transportation mobile data collected included a focused timeline for base year 2005. The greenhouse inventory approach for this sector was utilized direction from the ‘Global Protocol for Community-Scale Greenhouse Gas Emissions Inventories’ transportation section. In the process of obtaining relevant transportation sector data for the focus year

2005, there were some minor adjustments that needed to be made regarding the baseline year. The adjustments were in response to the ITKN department of motor vehicles not yet being established during the targeted year to gather relevant data for the inventory. Establishment of the ITKN DMV would take place in the spring of 2010. This prompted the Data Analyst covering the transportation sector to adjust the timeline to 2011, the next available full calendar year of motor vehicle registration data.

As of December 31, 2017 there were 23,083 miles of roads, streets, and highways on the Iowa Tribe of Kansas and Nebraska's reservation based on data available from the Kansas Department of Transportation's 2017 report "Mileage and Travel in Kansas" (KDOT: Mileage and Travel in Kansas - 2013 (ksdot.org)). Average daily travel in the state of Kansas was 88,248,910 vehicle-miles traveled per day. There were 145,054 miles of roads, streets, and highways in Kansas as a whole. To calculate the average daily vehicle miles traveled for the state of Kansas, we divided 88,248,910 by 145,045 to get 32.68 average daily vehicle miles traveled per vehicle. To get annual vehicle miles traveled we multiplied by 365 (calendar days) to get 11,928.2 VMT per vehicle.

To complete the vehicle emissions calculation, we used a list of 38 vehicles that were compiled from the ITKN DMV. The included registered vehicles under the categories of: Passenger Car, Light Truck, Motorcycle/UTV and Recreational Vehicles. This was the only data source we had access to that we could get immediate assistance and receive raw data from within the time given. This will be a major highlighted roadblock to expand on during the CCAP in creating more elaborate databases for the transportation sector in relation to near future ITKN greenhouse gas emissions goals and priorities.

Next steps, get better data, GSMS will collaborate with the ITKN DMV to collect overall data throughout the entire reservation's borders to better calculate all transportation data categories relevant to creating a sufficient and more accurate GHG inventory. This will include a continuing inventory effort of collecting and updating transportation data from tribal, local, state and national databases. This process will be focused on within the CCAP portion as we found these roadblocks and shortfalls in the data collection process to hinder our ability to gather a more comprehensive GHG emissions inventory.

Based upon the data collection analysis for Transportation using the EPA's Tribal Greenhouse Gas Inventory Tool (TGIT) it has been assessed that the total GHG emissions for the sector account for 182 MTCO_{2e}, which includes 175 MTCO₂. This was determined by calculating the energy use by sector and fuel type which accounted for 2,489 MMBtu emitted primarily from Gasoline which had a total fuel consumption of 19,910 gallons. Non-CO₂ emissions for Transportation accounted for .71 MT CH₄ and 6.29 MT N₂O.

Agriculture, Forestry and Other Land Uses:

Agriculture:

As of 2021 there was a total of 12,142 acres of land on the Iowa Tribe of Kansas and Nebraska's reservation. To gather our inventory for the AFOLU sector, we utilized the USDA's National Agricultural Statistics Service (NASS) Cropland Collaborative Research Outcome System (CroplandCROS (CroplandCROS (usda.gov)) map to get a detailed dataset of the AFOLU profile for the ITKN reservation. The CroplandCROS application explores, derives, and compares agricultural commodities and Cropland Data Layers (CDL) within the continental United States. Accurate acreage for the defined area came from a shapefile for the boundary of the ITKN reservation, our area of interest. We then exported and downloaded the data layers and results for the area of interest for the year 2021.

The data for 2021 showed that the majority of the AFOLU acres on the ITKN reservation are in agriculture and worked as managed cropland acres. The total acres of managed crop land for 2021 was 6,438 acres. To calculate the total acres of managed cropland we took the sum of the following reported managed crop acres for 2021, which included: Corn, soybeans, other hay/non alfalfa, winter wheat, alfalfa, sorghum, rye, double crop and sod/grass seed.

Fertilizer usage was determined by taking the average fertilizer used per acre for corn according to the *2021 Kansas Agricultural Chemical Use Survey* conducted by the Agricultural Chemical Use Program of USDA's National Agricultural Statistics Service. By utilizing the data provided from the survey and calculating the number of acres of cropland for 2021 provided by the CroplandCROS area of interest data, we were able to multiply the amount of acres in heavy fertilizer demanding crops (corn), by the average rate of 150 lbs. of Nitrogen for corn to calculate 235,000 lbs. of fertilizer applied in our area of interest. The number of short tons would then be calculated at a 95% rate of application in response to the survey's data collected on overall corn acres fertilized. This equation gave us a fertilizer application rate in the amount of 223.44 short tons per acre for the 2021 year within our area of interest.

Forestry and Other Land Use:

The total acres of forestry was 3,230 acres. To calculate the total acres of forested land we summed the following categories of land types in accordance with the CroplandCROS data provided: Deciduous forest, woody wetlands, mixed forest and evergreen forest. The amount of forested acres was divided by the amount of total acres within the reservation boundaries, then multiplied by 100 to get the 27% for the '% Urban Area with Tree Cover' in accordance with the TGIT data logging protocols. The Total Urban Area (km²) data was

calculated by taking the total number of forested acres and dividing by 247.1, in accordance with the conversion chart provided in the Urban Forestry section of the TGIT.

The total acres of land with other land uses is 2,474 acres. This acreage is made up of the following land use types:

- Grassland/Pasture: 1,619 acres
- Developed Lands (Open Space, Low/Med/High Intensity): 591 acres
- Other (Open Water, Wetlands, Barren, Shrubland): 264 acres

Electricity:

Electricity consumption data was gathered through a collaborative effort with the GSMS, GSGE, and the Department of Energy’s Communities LEAP project which focused on compiling electricity consumption data for on-reservation residential and commercial building energy usage. This project provided a comprehensive overview of the Tribe’s overall energy consumption and contained all tribal owned buildings, as well as energy consumption for residents living on the reservation. Energy usage was quantified as kilowatts per house (kWh) and was gathered from energy bills from the Brown-Atchison Energy Cooperative, the primary electricity provider for the reservation. This section of inventory includes Scope 2 emissions from electricity consumption, which are emissions derived from electricity that is consumed within the geographical scope of this inventory but generated elsewhere. Due to a lack of sufficient energy use data for a more current baseline year, the inventory was developed using energy consumption rates from 2015. This data was then gathered and entered into the TGIT and provided an analysis which showed that the Commercial sector, which contained energy consumption from all tribal-owned buildings, as the primary source of CO₂e emissions based upon the total kWh of electricity consumed.

Emissions by Sector (in MT CO₂e)				
	CO₂	CH₄	N₂O	Total
Residential	474.21	1.43	1.99	477.63
Commercial/Institutional	1,668.05	5.05	6.99	1,680.08
Industrial	-	-	-	-
Energy Generation	-	-	-	-
Total Emissions from Electricity Use	2,142.26	6.48	8.97	2,157.72

Sector	SPNO eGRID subregion	TOTAL
Residential	699,924	699,924
Commercial/Institutional	2,462,003	2,462,003
Industrial	-	-
Energy Generation	-	-
Total	3,161,927	3,161,927

The cumulative annual electricity consumption for the commercial sector amounted to 2,462,003 kWh, resulting in 1,680.08 MTCO₂e emissions. The cumulative annual electricity consumption for the residential sector amounted to 699,924 kWh, resulting in 477.63 MTCO₂e emissions.

47% of the emissions for the commercial sector were primarily concentrated at the tribe’s casino which had an annual electricity consumption of 1,902,880 kWh, resulting in 793 MTCO₂e emissions.

Tribes have an inherent right to exercise eminent domain as a sovereign entity, therefore, personal property, such as utility infrastructure, on trust lands is subject to Tribal condemnation under tribally approved laws and procedures.

GHG Reduction Measures

ID #	Applicable Sector	Priority GHG Reduction Measure Project Title	Project Summary	Project Description	Annual Estimated GHG Emission Reductions	Implementing Agency	Milestones for Obtaining Authority to Implement	Implementation Schedule	Benefits Analysis	Metrics Tracking Progress
1	AFOLU	ITKN Smart Farm Initiative	The ITKN Smart Farm Initiative's goal is the establishment of data-driven and data-enabling agriculture sector. Through enhanced connectivity integration, IoT infrastructure and system implementation, the Smart Farm Initiative will allow producers across the reservation to access and fully utilize precision agriculture technologies. These technologies promote generational sustainability and the protection of natural resources by enabling producers to make data driven decisions for their farm as well as reduce the use of harmful and GHG emitting agricultural chemicals. The data that will be gathered through this technology will enable the tribal government to be able to educate the broader community on the importance of climate-friendly agricultural practices and their impact on the environment.	A GHG emissions reduction project which will create the infrastructure required for community-scale implementation of precision agriculture technologies, sensor and data-driven decision making, and an IoT communications network. Through the use of technologies such as Variable-Rate fertilizer application, which is estimated by the USDA to reduce corn fertilizer usage by 13%, if adopted across all ITKN corn cropland, could reduced GHG emissions directly attributable to synthetic fertilizer usage.	208.16 MTCO ₂ e	Iowa Tribe of Kansas and Nebraska	Obtain approval for project through tribal council resolution	0 - 18 months: planning, design, procurement, construction, and implementation; 12 - 18 months: communication and education to community.	<ul style="list-style-type: none"> Direct GHG benefits: Reduction in synthetic fertilizer use, enhanced precision in agricultural practices, decrease in GHG emissions from farming operations. Co-benefits: Improvement in soil health, education and empowerment of farmers through data-driven agriculture, potential yield increases, conservation of natural resources, and long-term sustainability of farming practices. 	Planning and design of IoT communications infrastructure completed, Construction of communications infrastructure, Implementation and adoption of communications infrastructure and precision agriculture technology by producers on ITKN reservation.

2	Waste	Community-Scale Adoption of Climate-Smart Waste Systems: Establishing a composting, recycling, and waste center	The ITKN community does not have the ability to easily recycle metals, cardboard, plastics, or glass due to the lack of recycling services. In order for their to be widespread adoption of recycling, the tribe will establish a recycling and composting center that community members and refuse companies may use to dispose of recyclable waste products including: food waste, metals, plastics, glass, and cardboard. At the recycling center these individual waste products will be categorized and separated to better allow for the sale of recycled raw materials. In addition, the recycling center will provide access to community-scale composting that all households and businesses may dispose of their food and agricultural waste which will be used for the creation of compost that community members may utilize for their own gardens or farms. Utilize mobile trailers for collection of each of the different waste streams enabling	A GHG emissions reduction project which will reduce CO2 and CH4 emissions attributable to solid waste landfills. By diverting recycleable and compostable materials from the waste stream we can reduce the total volume of waste going into landfills.	41.42 MTCO2e.	Iowa Tribe of Kansas and Nebraska	Obtain approval for project through tribal council resolution	0 - 6 months, planning, feasibility, and coordinating with stakeholders and, tribal communities, as well as buyers of waste stream products, 6 - 18 months, procurement, construction of phased projects starting with composting, recycling, and finally other waste stream coordination	<ul style="list-style-type: none"> • Direct GHG benefits: Decrease in methane emissions from landfills, reduced energy consumption in waste management • Co-benefits: Increased recycling and composting rates, improved local waste management, reduction in pollution, creation of jobs in recycling and composting sectors, and a cleaner environment for the community. 	Feasibility study completed, Tribal council resolution passed approving next steps to implement proposed project from feasibility study. 50% of waste stream products diverted from status quo waste stream lifecycle.
3	AFOLU / Mobile Combustion	Solar Powered Adaptive Grazing	The Solar Powered Adaptive Grazing project will provide producers with access to critically needing funding used to install solar-powered well pumps for livestock watering systems. Adaptive Grazing promotes the grazing of livestock across all croplands through the use of rotational grazing systems. In order for producers to provide water to their	A GHG emissions reduction project which will reduce emissions attributable to fuel combustion from the transportation of water for livestock. Pasturelands are able to be, Land Use conversion	8 MTCO2e.	Iowa Tribe of Kansas and Nebraska	Obtain approval for project through tribal council resolution	Summer 2024 (1 - 6 months): Procurement, construction; Winter 2025: Implementation	<ul style="list-style-type: none"> • Direct GHG benefits: Reduction of fossil fuel use associated with water transportation for livestock. 	Procurement of 20 solar powered well pumps completed. 20 solar powered well pumps installed. Implementation

			livestock though wherever their cattle might be within the system they must ensure they have access to water. Due to the lack of water infrastructure on most of the agricultural lands of the reservation, producers must truck in thousands of gallons of water multiple times a week. The reliance upon trucking in water exposes producers to excess burdens attributed to time spent transporting water, additional fuel costs for hauling water, and increase vehicle wear and tear. By installing solar powered well pumps and wells throughout a rotational grazing system, producers will no longer have to haul in water for their cattle. Are not able to implement livestock integration on all cropland due to lack of infrastrcture which will enable full scale implementation on all land	potential is created by devleoping the infrastructure to better allow for pastureland conversion and livestock integration. Community benefits: increases volume of water for community to access through diversion of water to livestock from community water to water from wells					<ul style="list-style-type: none"> Co-benefits: Enhanced water resources management , decreased reliance on trucked water, improved animal welfare, and preservation of pasture quality. 	and use of solar powered well pumps across pasture land. 100% reduction is transportation of water for livestock.
4	Electricity - Residential	Solar For All: Tribal Residence Electrification Program	This project will provide funding for the local community to sign up their household for the installation of independent solar and battery backup systems. There are many households throughout the reservation which are not near any of the major microgrid sites located on the reservation. In order to ensure equitable access for all households to have solar the tribal government deems it a priority that no matter where a home is located they will still have access to renewable net-zero energy. Each home has an estimated 14,400 kWh of energy usage.	A CO2 emissions reduction project which will reduce Scope 2 emissions attributable to the purchase of power from the grid. Through the installation of independent solar and battery backup systems, each household will be able to reduce or eliminate the purchase of energy from GHG emitting power sources by accessing power from solar panels. The project would implement PV and	294.78 MTCO2e. Based on the replacement of energy consumption from the grid for 30 homes through PV and BESS systems.	Iowa Tribe of Kansas and Nebraska	Obtain approval for project through tribal council resolution; Obtain approval from each household to install and renovate.	2024 (1 - 12 months): Planning and procurement; 2025 (12 - 24 months): Program launch and implementation	<ul style="list-style-type: none"> Direct GHG benefits: Displacement of grid electricity with renewable solar energy, reduced emissions from residential electricity consumption . Co-benefits: Energy independence, potential for energy 	Community outreach and Solar for All marketing campaign begins within three months of project implementation. Solar for All program has 30 homes express interest in participating. 30 homes have PV and BESS systems

				BESS systems on 30 homes throughout the reservation.					cost savings for residents, increased local employment in solar installation, and education on renewable energy.	designed. 30 homes have PV and BESS systems installed.
5	Stationary Emissions	Community-Scale Modernization of Household Appliances and Residential/Commercial HVAC Systems	This project will provide funding for the local community to modernize and electrify household appliances and HVAC systems. Propane is the main source of fuel for all buildings throughout the reservation. By electrifying each household's HVAC system and appliances we will be able to reduce the Scope 1 emissions attributed to the burning of propane. Due to a lack of programs providing access to these upgrades as well as due to the financial constraints of each household, the ability to ensure all households have access to these upgrades has been difficult. Through this program we will allow for households to apply for financial support to purchase energy efficient appliances. In addition, applicants will be able to sign up their household for HVAC renovations which will install electric water heaters, heating and cooling systems, and water-use efficient faucets, toilets, washers, dryers, dishwashers, and other standard household appliances.	A CO2 emissions reduction project which eliminates the Scope 1 emissions attributable to the burning of propane for household heating, cooling, and cooking, as well as reduce CO2 emissions attributable to the purchase of power for household appliances by equipping each household with modern energy efficient appliances.	176 MTCO2e. Based on the replacement of propane as the main fuel source for residential single-family homes on the reservation.	Iowa Tribe of Kansas and Nebraska	Obtain approval for project through tribal council resolution; Obtain approval from each household to install and renovate.	2024 (1 - 12 months): Planning and procurement; 2025 (12 - 24 months): Program launch and implementation	<ul style="list-style-type: none"> • Direct GHG benefits: Reduction in propane use and associated emissions, lower energy consumption through efficient appliances. • Co-benefits: Improved indoor air quality, reduced household energy expenditures, enhanced comfort in homes, and job creation in HVAC and appliance sectors. 	Community outreach and marketing campaign begins within three months of project implementation. Program has 47 homes express interest in participating. 47 homes have energy audits conducted. 47 homes are approved for installation of energy efficiency appliances and home improvements. 47 homes have energy efficiency appliances installed.

6	AFOLU	Forested Lands 3R Project: Restore, Restock, Replenish Forested and Non-Forested Lands	Historically forested areas of the reservation have undergone land-use changes as cropland has expanded. The removal of forest and trees throughout the reservation has led to an increase in wind erosion due to lack of wind break on producer's fields, in addition, it has removed the habitat for a myriad of species which require forested tree canopy. In areas where there are established forests, they are in desperate need of better forest management to thin lower canopy, remove invasive species, promote establishment of native species, increase planting of trees and other native plants, promote establishment and increase in ecosystem biodiversity, establish a forest management plan for all forested areas to ensure sustainability and implementation of forest management over time. This project would be implemented across 555 acres of land and would result in a land-use conversion from Open Space, Low-Intensity Development, Barren, and Sod land-use types.	A carbon sink/sequestration project which promotes better forest management, habitat restoration, tree planting on non-forested and forested lands, and re-establishment of native plant species through managed planting	488.4 MTCO2e. Based on the conversion of 555 acres to forested land.	Iowa Tribe of Kansas and Nebraska	Obtain approval for project through tribal council resolution	Year 1 - 5; Year 1: Planning, inventory of all land use types, development of management plan, development of resourcing schedule to support implementation, Year 2: implementation, Year 3 - 5 ongoing maintenance and continuous planting, and refinement of management plan overtime.	<ul style="list-style-type: none"> • Direct GHG benefits: Enhanced carbon sequestration through afforestation and improved forest management • Co-benefits: Increased biodiversity, habitat restoration, improved soil and water quality, and opportunities for community engagement in forest management 	Forest management plan developed for ITKN reservation. Resourcing and Implementation team determined for full scale implementation. Hiring of staff for implementation. 555 acres of land covered to forested land.
7	AFOLU	Tribal Pond Restoration: Restoring Historic Dupuis Hollow Pond Site	A potential carbon sequestration project which will provide the local community and ecosystem with multiple benefits through the restoration, replenishment, and restocking of Pauline's Pond. By completing this project it will re-establish native flora/fauna to the area, provide access to fresh fish through the stocking of the pond which will further the tribe's food sovereignty efforts, as	Pond site restoration project which will act as a carbon sink through habitat re-establishment	12.25 MTCO2e. Based on the conversion of 13.93 acres to forested land.	Iowa Tribe Fish and Wildlife Department / Iowa Tribe of Kansas and Nebraska	Obtain approval for project through tribal council resolution	Start 2024: hydrologist planning of construction work and pond hydrology; 2025 - Construction, Replenishment, Restock, and Restored prior to community	<ul style="list-style-type: none"> • Direct GHG benefits: Creation of carbon sink through re-established pond ecosystem. • Co-benefits: Enhanced local biodiversity, 	Planning and design of pond site completed, Construction of pond site completed. 13.93 acres of land converted to forest.

			well as reduce erosion and sediment build up. The site is approximately 13.93 acres.						improved recreational opportunities , strengthened food sovereignty through fish stock enhancement.	
8	Mobile	EV Charging Station Infrastructure for ITKN Reservation	Installing EV charging stations throughout the reservation at all main areas of government, commerce, and community areas. These areas include: Casino White Cloud, United Tribes, ITKN Government Administrative Office, White Cloud Health Center, Farm Equipment Storage Warehouses, Farm Shop, Greenhouse and Grain Bin Site, Boys and Girls Club, Grandview Oil, Tribal National Park, Cabins, Police/Fire/Courthouse Multi-Use Building, and Ioway Bee Farm Production Building	Installation of EV chargers to establish infrastructure required for the public's transition to electric vehicles.	182 MTCO2e. Based on the replacement of ITKN Government owned vehicles and residential vehicles with EVs which are charged through the tribe's MGs.	Iowa Tribe of Kansas and Nebraska	Obtain approval for project through tribal council resolution	See GSGE; Casino: charging station near sign*	<ul style="list-style-type: none"> • Direct GHG benefits: Facilitation of transition to electric vehicles, reduced emissions from transportation. • Co-benefits: Improved air quality, encouragement of electric vehicle adoption, reduction in fuel costs for users, and support for sustainable transportation infrastructure. 	Design and engineering of installation of 100 EV charging stations completed. 100 EV charging stations procured. 100 EV charging station installed across ITKN reservation.

9	Mobile Combustion / Transportation	Tribal Walkability Enhancement Project	The project seeks to improve the walkability of the reservation, promoting active transport and reducing reliance on motor vehicles. By conducting a walkability study and constructing trails and pathways, the initiative will cut mobile combustion emissions, bolster community health, and improve safety for pedestrians. These enhancements will connect key areas within the reservation, currently accessible only by vehicle or walking along roadways, fostering a greener and more cohesive community environment.	A sustainable transportation project that aims to improve reservation walkability through the development and construction of trails and pathways. This will reduce emissions from mobile combustion by decreasing vehicle use and promote physical activity among community members.	Not directly quantifiable; Supports projects that indirectly contribute GHG reduction	Iowa Tribe of Kansas and Nebraska	Securing tribal council resolution for the walkability study and subsequent developments, consultation with the Tribal Historic Preservation Office for any new construction, ensuring protection of cultural and historical sites.	Year 1: Conducting walkability study and planning; Designing trails/pathways and beginning construction. Year 3: Completion of construction and community engagement campaigns to promote pathway use.	<ul style="list-style-type: none"> • Direct GHG benefits: Not quantifiable; however, expected reduction in mobile combustion emissions. • Co-benefits: Improved public health from increased physical activity, enhanced safety for pedestrians, and reduced dependency on vehicles. 	Completion of the walkability study, percentage of pathways constructed, reduction in vehicle miles traveled, community engagement rates, and health impact assessments.
10	Mobile Combustion / Transportation	Tribal Electric Vehicle Fleet Transition Initiative	The initiative aims to transition the current fleet of tribal government and business enterprise vehicles to electric alternatives. This will encompass UTVs, ATVs, emergency vehicles, tractors, farm equipment, semis, refrigerated vans, light-duty and heavy-duty trucks, and passenger cars. The widespread adoption of EVs is anticipated to reduce greenhouse gas emissions significantly, cut operational costs, and demonstrate the tribe's commitment to sustainable practices.	This project involves transitioning the tribe's vehicle fleet to electric power, encompassing a wide range of vehicles used across tribal departments and enterprises. The shift aims to reduce GHG emissions, fuel costs, and maintenance expenses.	182 MTCO _{2e} . Based on the replacement of ITKN Government owned vehicles and residential vehicles with Evs which are charged through	Iowa Tribe of Kansas and Nebraska	Tribal council approval, securing funding or grants, vendor selection for EVs, and potential training for vehicle maintenance and operation.	Initial Phase (0-6 months): Secure funding, select EV models, and initiate purchase orders. Roll-out Phase (7-18 months): Gradual replacement of existing vehicles with electric ones and installation of necessary charging infrastructure. Full Integration (19-24 months): Complete the transition, assess the electrification	<ul style="list-style-type: none"> • Direct GHG benefits: Reduction in emissions from the transition to electric fleet vehicles. • Co-benefits: Reduced operational and maintenance costs, promotion of clean technology, and reduced air pollution. 	Number of electric vehicles purchased, reduction in fuel consumption, decreased maintenance costs, increased vehicle uptime, and annual GHG emission reductions.

					the tribe's MGs.			impact, and optimize operational practices for the new fleet.		
11	AFOLU	Climate Smart Agriculture through Milo Production	This project promotes the cultivation of milo (sorghum) on 25% of ITKN reservation, a nitrogen-fixing crop, as part of the tribe's agricultural practices. Milo's ability to fix atmospheric nitrogen reduces reliance on synthetic fertilizers, enhances soil health, and conserves water. As a cover crop, milo prevents erosion and improves soil structure. The crop's rising popularity in consumer goods and regenerative agriculture practices positions it as a profitable addition to crop rotations, offering financial and environmental benefits to local producers.	An agricultural sustainability project promoting the cultivation of milo due to its nitrogen-fixing properties. This practice is expected to lower synthetic fertilizer use, enhance soil health, and reduce erosion while providing economic benefits to farmers through premium crop pricing.	400.95 MTCO ₂ e. Based on the adoption of Milo on 25% of cropland on ITKN reservation and the potential of Milo to fix greater than 150 lbs of N per acre.	Iowa Tribe of Kansas and Nebraska	Tribal council approval	Season 1 (1-12 Months): Educational outreach to farmers, incorporation of milo into crop rotations, and initial planting. Season 2-3 (12-24 Months): Expansion of milo cultivation based on demand and feedback, evaluation of soil health improvements, and adjustment of agricultural practices.	<ul style="list-style-type: none"> Direct GHG benefits: Lowered use of synthetic nitrogen fertilizers, enhanced carbon capture in soils. Co-benefits: Diversification of agricultural production, potential for higher-value crops, and promotion of regenerative farming practices. 	Acres of milo planted, reduction in nitrogen fertilizer purchases, improvements in soil infiltration rates and structure, market prices received for milo crops, and feedback from local farmers on crop rotation benefits.
12	AFOLU	Climate Resiliency Project Funding Enhancement	This measure is to secure additional funding for the ongoing Tribal Climate Resiliency Project. The increased financial support will ensure that the project can sustain its operations and meet its established goals of enhancing the tribe's resilience to climate change. This could involve adaptation strategies, community engagement, research, and implementation of specific climate resilience measures. Integration of TEK into Climate Resiliency Project and	A project funding initiative aimed at boosting the tribe's ability to address climate change through the Tribal Climate Resiliency Project. Additional funds will ensure the continuation and success of crucial climate adaptation and resiliency activities.	Not directly quantifiable; Supports projects that indirectly contribute GHG reduction	Iowa Tribe of Kansas and Nebraska	Obtain tribal council approval for increased funding, submit grant applications, and initiate budget reallocations as required.	0-3 months: Identify funding gaps and submit proposals for additional funds. 4-6 months: Receive funding approvals and allocate resources to prioritized project areas. 7-12 months: Implement funded initiatives and begin	<ul style="list-style-type: none"> Direct GHG benefits: Supports indirect GHG reduction through various sustainability initiatives. Co-benefits: Strengthened community resilience to climate change, enhanced 	Funds acquired, number and scope of projects implemented, milestones achieved within the funded projects, and assessments of community and ecological benefits.

			incorporation of TEK as component of all future implementation projects.					monitoring and evaluation processes.	adaptation measures, and potential for increased funding for sustainability projects.	
13	AFOLU	Community Food Forests for Food Sovereignty	This project aims to establish community food forests that will enhance food sovereignty, reduce travel for groceries, provide fresh produce, and contribute to carbon sequestration. By adopting silvopasture, agroforestry, and biodiverse forest approaches, these food forests will also increase canopy cover, offer educational opportunities, and foster traditional land stewardship practices.	An initiative to develop biodiverse food forests using agroforestry and silvopasture techniques. These forests will provide fresh produce, reduce food-related travel emissions, increase shade, and sequester carbon, while also serving as educational and traditional stewardship spaces.	801 MTCO _{2e} . Based on the conversion of 50% of the annual synthetic fertilizer usage replaced with fish emulsions.	Iowa Tribe of Kansas and Nebraska	Obtain tribal council approval	0-12 months: Planning and community engagement, securing land, and beginning the design of food forests. Planting initial trees and plants, establishing infrastructure for agroforestry and silvopasture systems. 12-24 months: Ongoing planting and development of the food forest layers, starting educational programs, and engagement in traditional stewardship practices.	<ul style="list-style-type: none"> Direct GHG benefits: Reduced reliance on external food sources and associated transport emissions, carbon sequestration in perennial food systems. Co-benefits: Local food security, educational opportunities in sustainable agriculture, and promotion of biodiversity. 	Acres of food forest established, number and variety of plants/trees planted, estimated pounds of produce harvested, community engagement metrics, and the amount of carbon sequestered as estimated by forest growth models.
14	AFOLU / Solid Waste / Water	Carpe Diem: Invasive Carp Utilization as	The project involves establishing a facility to produce nitrogen-rich fish emulsions from invasive carp species proliferating in local waterways. By converting these detrimental invaders into valuable fertilizer, the initiative will reduce the	A sustainable agriculture project converting invasive carp into nitrogen-rich fish emulsion fertilizer. This initiative aims to reduce	1,000 MTCO _{2e} .	Iowa Tribe of Kansas and Nebraska	Obtain tribal council approval; Obtain permits for commercial	0-3 months: Conduct feasibility study for the fish emulsion production process and facility. 4-9 months: Design	<ul style="list-style-type: none"> Direct GHG benefits: Reduced production and use of synthetic fertilizers, 	Volume of invasive carp processed, quantity of fish emulsion produced,

		Alternative to Agricultural Chemical Fertilizer Use	usage of synthetic fertilizers, cut GHG emissions associated with their production and application, and mitigate nitrate runoff into community drinking water.	synthetic fertilizer use, lower GHG emissions, and protect water quality.			fishing of invasive carp	and construct the production facility, obtain necessary equipment, and train personnel. 10-12 months: Begin production, establish supply chains for carp collection and emulsion distribution.	<ul style="list-style-type: none"> lowered nitrous oxide emissions from agriculture. Co-benefits: Water quality improvement, creation of a local circular economy, and mitigation of invasive species impacts. 	reduction in synthetic fertilizer usage, nitrate levels in local water sources, and feedback from agricultural users on product efficacy.
15	AFOLU	Industrial Hemp: A tool for sequestering greenhouse gases	The project aims to launch and develop a market for industrial hemp products and by-products, employing regenerative agricultural practices. Hemp's roles in phytoremediation, acting as a buffer crop, and soil health as a cover crop will be leveraged. The initiative will focus on precision agriculture with minimal soil disturbance, starting with the procurement of no-till drills and other necessary equipment for planting hemp.	This initiative adopts precision agriculture and regenerative farming techniques for the cultivation of industrial hemp, significantly reducing the need for soil tillage and thereby minimizing soil disturbance. By employing no-till drills and sophisticated farming software, the project aims to enhance soil carbon sequestration, leverage hemp's phytoremediation benefits to cleanse soils of contaminants, and establish hemp as a versatile cover crop to improve soil health and water retention. The	37,500 MTCO ₂ e. Based on an estimated average carbon sequestration per acre of 15 MTCO ₂ e, the adoption of industrial hemp as cover crop and cash crop across 2,500 acres on the	Iowa Tribe of Kansas and Nebraska	Obtain tribal council approval	0-2 months: Secure funding for equipment and finalize market development strategy. 3-5 months: Purchase no-till drill and precision agriculture systems, begin training for personnel. 6-12 months: Initiate hemp planting and establish phytoremediation and buffer zone areas	<ul style="list-style-type: none"> Direct GHG benefits: Carbon sequestration in biomass and soils, reduced need for soil tillage. Co-benefits: Development of a new agricultural market, promotion of soil health, and the potential for industrial by-products. 	Equipment acquired, acreage planted with hemp, improvements in soil health indicators, quantity and quality of harvest, market penetration and development metrics, and changes in GHG emissions from baseline measurements

				reduced tillage and enhanced soil health are key strategies for lowering GHG emissions in agricultural practices.	reservation.					
16	AFOLU	Expansion of Greenhouse Infrastructure for Local Food Production; Enhancing Local Food Marketing Promotion	This project aims to purchase additional gutter-connected greenhouses to bolster the tribe's capacity for producing locally sourced foods. By enhancing local food production, the initiative seeks to reduce dependency on external food sources, minimize travel to stores, and streamline the transport of produce to processing facilities. The addition of two greenhouses will increase plant density and operational efficiencies, contributing to the sustainability and resilience of the community's food system	An infrastructure enhancement project involving the purchase of two gutter-connected greenhouses to boost local food production. This measure aims to reduce greenhouse gas emissions by decreasing the community's reliance on externally sourced food and associated transportation	53 MTCO _{2e} .	Iowa Tribe of Kansas and Nebraska	Obtain tribal council approval	0-3 months: Finalize funding sources and complete the purchase of greenhouse technology. 4-6 months: Construct and install gutter-connected greenhouses, including setup of efficient product transport systems to processing facilities. 7-12 months: Begin intensive production cycles within the greenhouses, establish monitoring and evaluation protocols for production efficiency and GHG emission reductions.	<ul style="list-style-type: none"> Direct GHG benefits: Reduced emissions from food transport due to increased local production. Co-benefits: Year-round food production capability, increased self-reliance, and job creation in local food systems. 	Number of greenhouses operational, increase in plant density and production yield, reduction in miles traveled for food sourcing, and quantification of GHG emission reductions from enhanced local food systems.
17	AFOLU	Promoting and Expanding the Adoption of Cover Crops through	This project focuses on securing additional funding for the loway Seed Company to enhance its facility operations, including the processing, storage, and regional distribution of cover crop seeds. By promoting the adoption of cover crops among local and regional producers, the initiative aims to support	A facility operation enhancement and market expansion project for the loway Seed Company, focusing on increasing the adoption of locally produced cover crops. By processing, storing, and	13,584 MTCO _{2e} . Based on the USDA's General Assessment of the	Iowa Tribe of Kansas and Nebraska	Obtain tribal council approval	0-6 months: Secure funding and begin facility upgrades for enhanced seed processing capabilities. 7-12 months: Implement	<ul style="list-style-type: none"> Direct GHG benefits: Enhanced soil carbon stocks through widespread use of cover crops. 	Funding secured, capacity upgrades completed, quantity of cover crop seeds processed and

		the loway Seed Company	carbon sequestration and establish carbon sinks, contributing to greenhouse gas reduction efforts. The facility's expansion will ensure a steady supply of locally produced cover crops, fostering sustainable agricultural practices.	distributing cover crop seeds, the project promotes practices that sequester carbon and serve as a carbon sink, contributing to GHG reduction.	Role of Agriculture and Forestry in U.S. Carbon Markets, it estimates that cover crops, when integrated with other cash crops, have the potential to reduce GHG emissions by 2.11 MTCO ₂ e per acre. If all cropland on the reservation adopted cover crops it would have an annual estimated GHG emission			marketing and outreach strategies to promote cover crop adoption; begin processing and distributing the new season's cover crop seeds. 13-18 months: Evaluate the impact on cover crop adoption rates and adjust strategies accordingly; continue promotion and distribution efforts.	<ul style="list-style-type: none"> Co-benefits: Improved soil health, reduced erosion, and water retention, as well as support for sustainable agricultural practices. 	distributed, increase in cover crop adoption among producers, estimated carbon sequestration achieved through expanded cover crop usage.
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					reduction of 13,584 MTCO2e. This is based on the 6,438 acres of cropland on the reservation.					
18	Electricity	Tribal Owned Building Microgrid	This microgrid is designed to provide uninterrupted high-quality renewable power to all of the Tribal facilities for a period of no less than 30 years. For at least the last 10 years the Tribe has been experiencing power outages, brown-outs, and poor quality power several times per month and sometimes several times per week. This has caused a large amount of damage to all of the electronic equipment that is being used in all of the facilities. The Tribe has a record of spending at least \$200,000.00 per year to fix and/or replace damaged and destroyed equipment. This does not include all the damages the Tribal Members are having at their homes. These expenses, ongoing electric rate increases, as well as the problems associated with power outages during inclement weather have had a huge impact on the quality of life of all Tribal members. This project is designed to solve these issues and have a long-lasting effect on the quality of life of everyone on the Reservation by providing	This is a GHG emissions reduction measure project which will reduce emissions attributable to the Scope 2 electricity consumption of Tribal owned commercial buildings located on the reservation.	1,684 MTCO2e	Iowa Tribe of Kansas and Nebraska	Obtain tribal council approval	Final Engineering completed no later than July 30th, 2024 Procurement of long-lead items to be completed no later than August 15th, 2024 Site work to start no later than October 30th, 2024 Construction to be completed no later than September 30th, 2025 Commissioning and full operation no later than December 15th, 2025	<ul style="list-style-type: none"> • Direct GHG benefits: Reduced reliance on grid power, integration of renewable energy sources. • Co-benefits: Improved energy resilience and reliability, local job creation in renewable energy sector, potential for reduced electricity costs, and enhanced power quality. 	Funding secured, 2.75 MW of ground-mounted solar PV installed, 2 MW of power and 8MW-hrs of power storage from a BESS installed, High-voltage underground distribution equipment installed, New Service entrance equipment installed at each building location, Smart Electrical Service Panels installed at appropriate locations, a minimum of

			clean, continuous, high-quality, and low-cost power for generations.							twelve Level 2 EV charging stations installed, Workforce development training provided for a minimum of 5 individuals.
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Review of Authority to Implement

The Iowa Tribe of Kansas and Nebraska, as a sovereign, federally recognized Indian nation has the authority, to enact GHG reduction measures on the ITKN reservation for the benefit of the Tribe's members. The ITKN Tribal Council, is empowered under the Tribe's constitution to enact GHG reduction measures for the benefit of the Tribe's members and the future of the ITKN reservation. The Tribal Council was included in the development of the PCAP and helped to develop the GHG reduction measures through key stakeholders' meetings, so it is reasonable to assume that the Council would pass resolutions to carry out these measures as many of the measures were identified at the Council's discretion.

Additionally, the Tribe has broad authority to engage in issuance of environmental permits on lands beneficially owned by the Tribe. In furtherance of this authority, the ITKN and many of the ITKN governmental departments have the authority to carry out the specific GHG reduction measures identified in this PCAP. Where a project occurs within the ITKN reservation for the benefit of the Tribe's members, its Council, and its governmental departments, have the broad authority to carry out these measures.