# Western Oklahoma Native Nations'
# PRIORITY CLIMATE ACTION PLAN

Final
April 2024

By the Native Nations Climate Program

## PREPARED FOR

The Native Nation's Climate Program of Oklahoma

Kiowa Tribe

Delaware Nation

Apache Tribe

Caddo Nation

Comanche Nation

Cheyenne & Arapaho Tribes

## AUTHORS

Kiowa Tribe – Climate Program

## CONTACT INFORMATION

It is our hope that our partner agencies, local stakeholders, and community find this useful. Should you have questions about the program, document, data, or topics included here, please do not hesitate to reach out:

*Contact person + Agency:*

Atah Cocker, MS (Kiowa Tribe Climate Resilience Director) – acocker@kiowatribe.org

Kiowa Tribe Natural Resource Department – ktep@kiowatribe.org

# EXECUTIVE SUMMARY

The Native Nations Climate Program (N2CP) represents a new beginning for climate action planning, mitigation, and adaptation in Native Lands and territories of Oklahoma. Founded by the Kiowa Tribe in partnership with the Delaware Nation, Caddo Nation, Apache Tribe, Comanche Nation, and Cheyenne and Arapaho Tribes, this cohort jointly represents all native lands in Western Oklahoma. The N2CP seeks to better understand specific climate impacts and feedback systems in our territories that will enable holistic, whole system strategic planning for the sustainable development and well-being of our lands and communities. Though this is uniquely situated as an intertribal program, the lessons learned, and subsequent benefits of implementation will be for the benefit of all those we share our territory with.

This priority climate action plan (PCAP) falls in line with these practices and understandings. Developed through the N2CP's participation in the Climate Pollution Reduction Grant (CPRG) program funded by the US Environmental Protection Agency (EPA); grant number 02F41701. It is the first of two reports aimed towards climate action planning in tribal territories of western Oklahoma. The second output, comprehensive climate action plan (CCAP), will build on the findings here, prioritizing direct data collection for finer statistical representation of emissions as well as prioritize stakeholder engagement and community education. CCAP development will begin May 2024 with reports published Fall 2025. Notably, unlike many of our submitted counterparts under CPRG, language and graphics, and contents of this PCAP prioritizes accessibility and is intended to be useful, useable, and digestible by our tribal communities and young people; the ones we do this for.

The Climate Action Plans (both priority and comprehensive) specifically address greenhouse gas (GHG) emissions within the territories of N2CP participating tribes (Figure 1). This PCAP considers GHG emissions from 6 sectors, broken down into 5 tiers (Table 1). The modular / nested nature of the scopes indicated above are indicative of and responsive to the operational structure, interests, and communities of the tribal nations' in N2CP. While this PCAP's scope is limited to the N2CP member jurisdictional boundaries, the CCAP will include consideration and relevant sections addressing measures below to include our entire territories. 'Territory' here means traditional lands, waters, and spaces where our peoples have and will continue caretaking and occupying outside of the imposed boundaries seen in figure 1 (see appendix 1 for example).

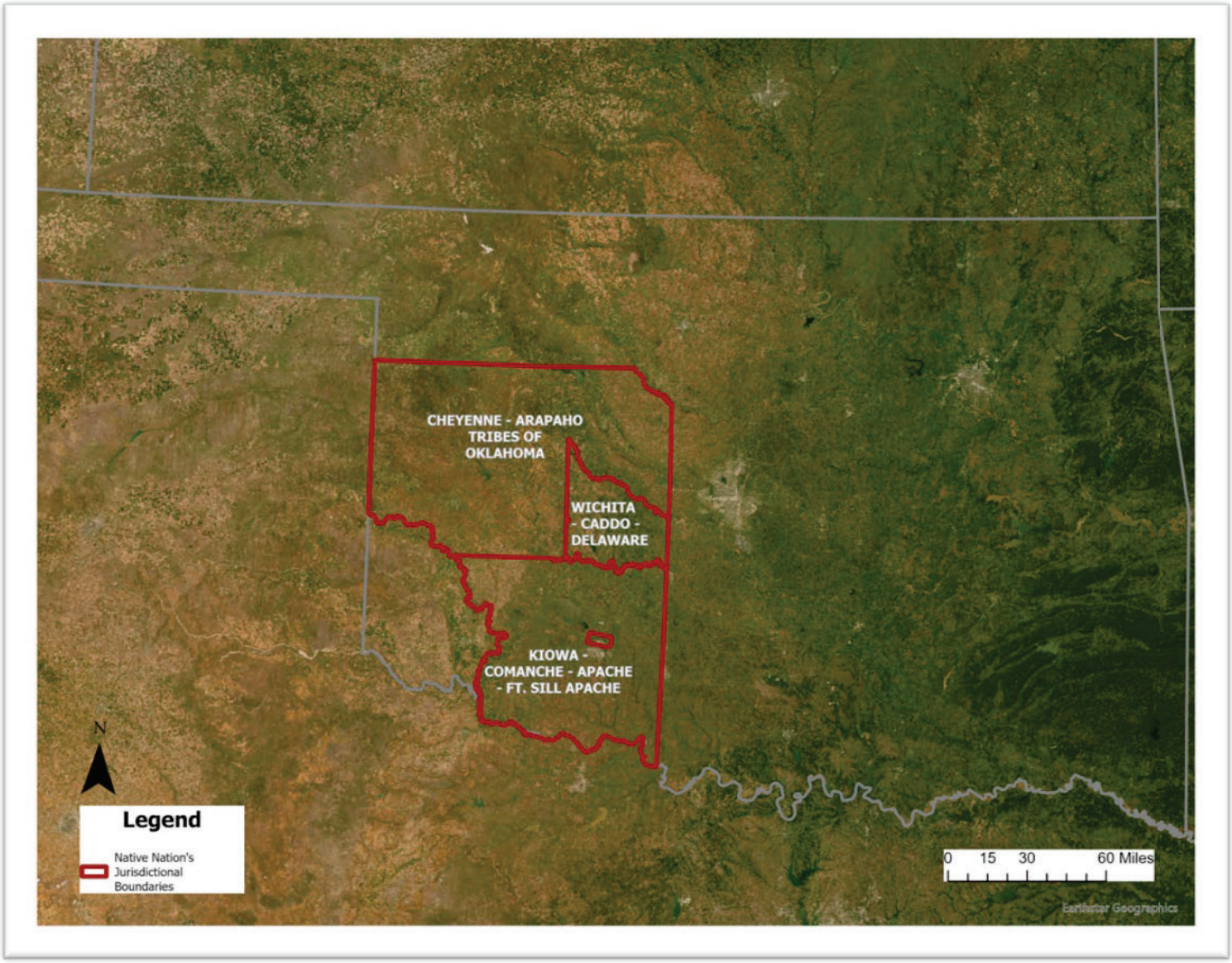
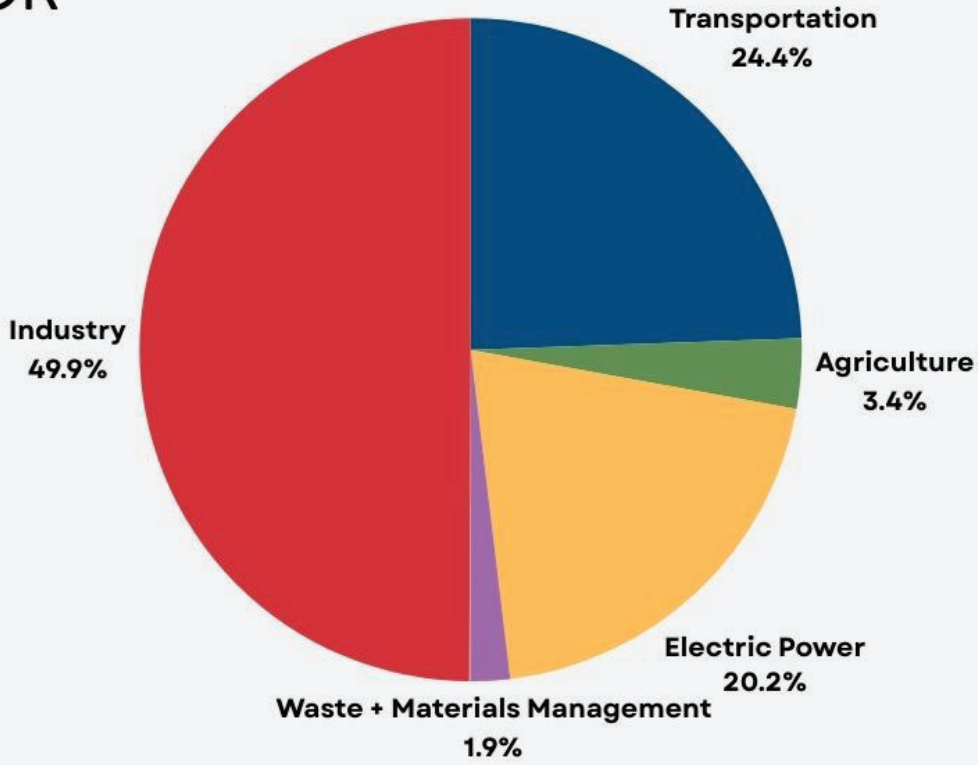



**Figure 1.** Map of the scope of work for consideration in the PCAP and the Native Nations Climate Program. This includes the tribal lands + jurisdictional boundaries of the involved participating tribes: the Kiowa Comanche Apache Reservation, the Wichita, Caddo, Delaware Reservation, and the Cheyenne & Arapaho Tribes of Oklahoma Reservation.

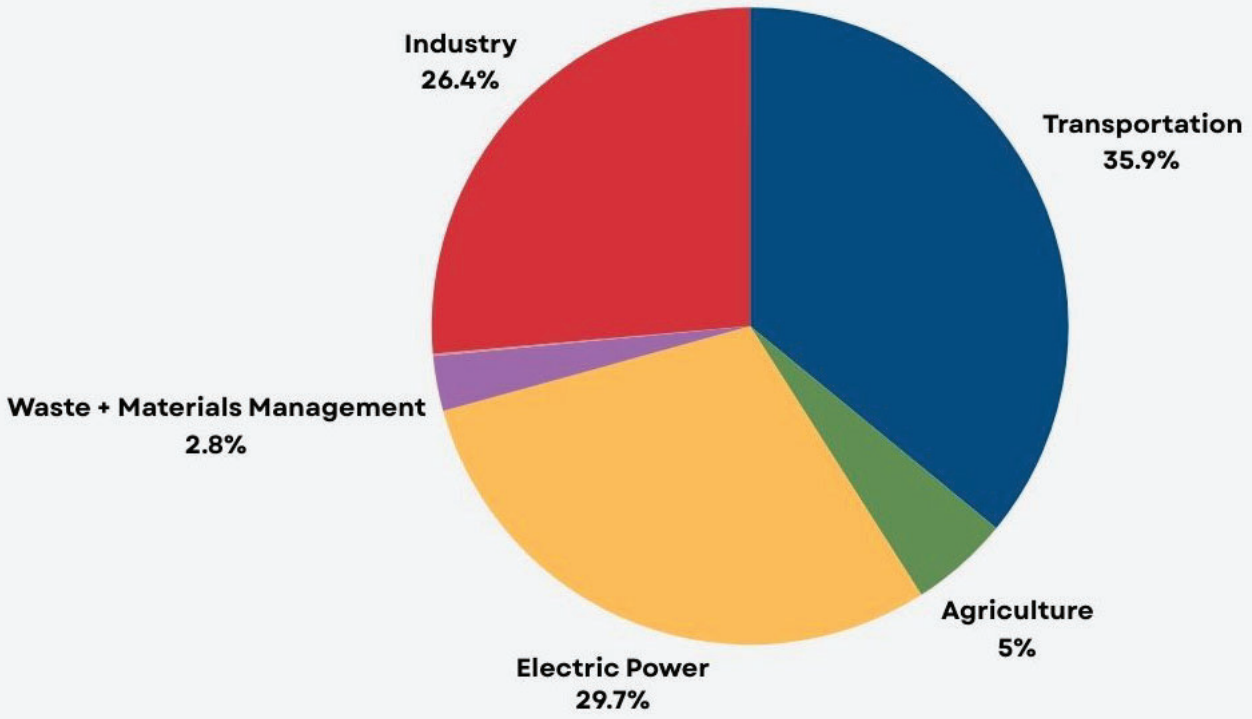
This PCAP is part of the N2CP's understanding and practice of generational stewardship practices, caretaking responsibilities, and reciprocal management for lands, water, and communities (both human and non) in Tribal Territories. The program and implementation measures will stand as a repeatable example to other Native Nations, here in Oklahoma and across Turtle Island (also called the United States); as well as non-native communities, states, and municipalities who seek to join us in caretaking for their lands and communities in the face of climate change.

# PCAP PROCESS


# GHG EMISSIONS BY SECTOR



# GHG EMISSIONS BY SECTOR (OIL + GAS REMOVED




## SUMMARY OF REDUCTION MEASURES BY SECTOR

| | | | | |
|---|---|---|---|---|
| TRANSPORTATION | Fleet Electrification | Decrease materials distance | Travel Efficiency Strategies | Increase avenues for alternative transport |
| AGRICULTURE | Cover + Multicropping | Bison + Prairie Restoration | Incentivize Regenerative Practices | Increase sequestration capacity |
| ELECTRIC POWER | Solar Farm | Battery Storage | | |
| WASTE + MATERIAL MANAGEMENT | Commercial + Residential Composting | Zero Waste Rez 2030 | Circular Economy for Materials management | Decrease 'necessities' miles |
| RESIDENTIAL + COMMERCIAL | Solar on homes + businesses | Increase energy efficiency in structures and appliances | Energy, water, and waste efficiency upgrades and all new builds | Alternative cooling methods |
| INDUSTRY | Orphan well capping and monitoring | Air monitoring programs and partnerships with non-tribal producers | Strategic sinks and buffer implementation | |

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# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| BIA | Bureau of Indian Affairs |
| BIL | Bipartisan Infrastructure Law |
| CCAP | Comprehensive Climate Action Plan |
| CH4 | Methane |
| CO2 | Carbon dioxide |
| CPRG | Climate Pollution Reduction Grant |
| DoE | Department of Energy |
| EPA | Environmental Protection Agency |
| FlG | Fluorinated gases |
| FSAB | Ft Sill Army Base |
| FTA | Federal Transit Administration |
| GHG | Greenhouse Gas |
| GHGEI | Greenhouse Gas |
| IRA | Inflation Reduction Act |
| LIDAC | Low-income and disadvantaged community |
| LuF | Land use and forestry carbon stock change |
| N2CP | Native Nations Climate Program |
| N2O | Nitrous oxide |
| ODoC | Oklahoma Department of Commerce |
| ODoT | Oklahoma Department of Transportation |
| OSU | Oklahoma State University |
| OU | University of Oklahoma |
| USDA | United States Department of Agriculture |
| WOK | Western Oklahoma |

# 1. INTRODUCTION

## 1.1 GETTING STARTED

The Native Nations Climate Program (N2CP) was Founded in 2023 by the Kiowa Tribe in partnership with the Delaware Nation, Caddo Nation, Comanche Nation, Apache Tribe, and Cheyenne and Arapaho Tribes, through the support funding of the US EPA under the CPRG program. N2CP seeks to better understand specific climate impacts and feedback systems in the territories of the participating Tribal Nations as well as their interactions with GHG emissions. This understanding enables specifically applied holistic, whole system strategic planning for the sustainable development responsive the well-being of our lands and communities, both human and non.

Though there are multiple distinct native nations under N2CP, we share mirrored histories and experiences of adaptation and resilience in changing homescapes. Whether it be through forced relocation and assimilation masked genocidal projects, or the epistemological violence intended to squash ties to land and each other, our peoples are resilient, innately. With cultures and protocol that wrap our communities in protection from external harm, we are well prepared and adept for the environmental changes our communities are being faced with. Climate change and its affects are simply another type of shift that. The N2CP is a method for modality to prepare for and proactively meet those changes to ensure and safeguard the wellbeing and continuity of our communities and caretake for our lands, waters, and non-human kin.

This is the intent for participation in the US, EPA, Climate Pollution Reduction Grant program (CPRG). As we utilize both western science (WS) and traditional ecological knowledge (TEK), the intent is to generate an understanding and accounting system for emissions, design reductions, implement those, evaluate efficacy, and repeat, creating a downward spiral of net emissions (Figure 1). This means not only decreasing emission sources (in number and intensity) but also increasing emissions sinks, opting for environmentally restorative interventions as often as possible.

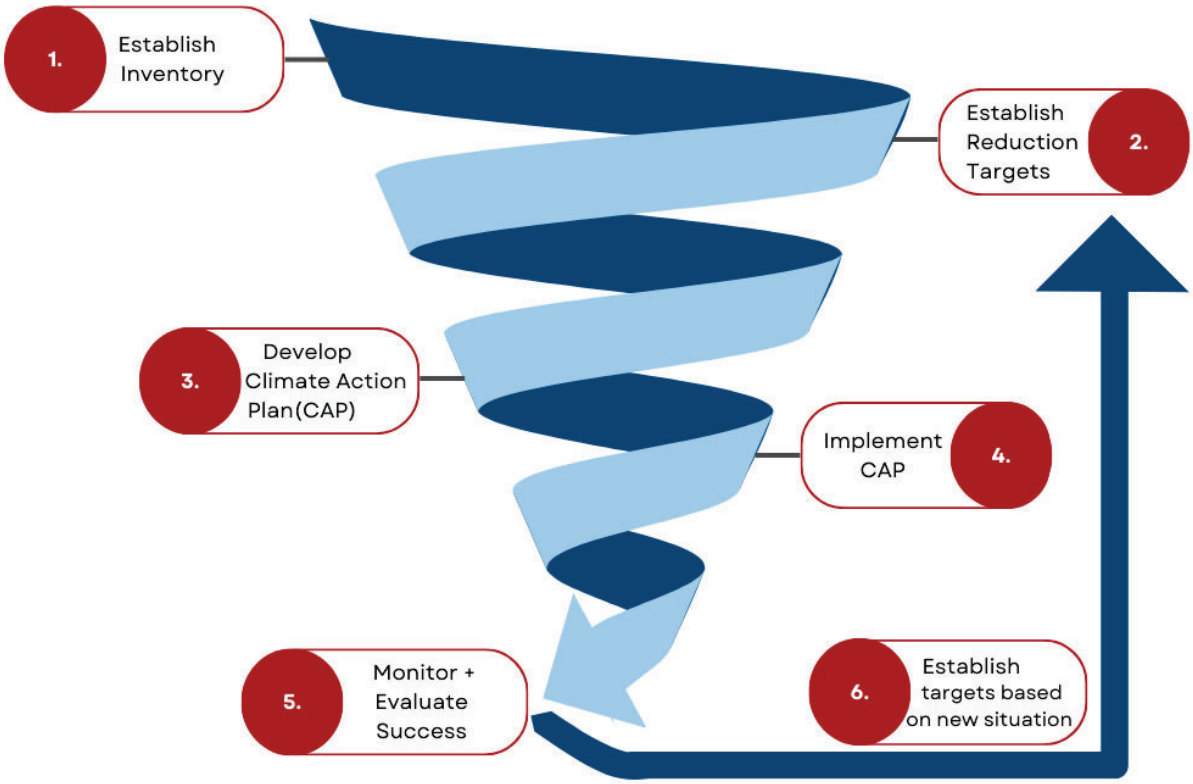



**Figure 2.** Steps to assess and implement GHG emissions reduction and climate mitigation.

This is 'step one' in our joint walk toward a more resilient future. The PCAP ha 5 main sections:

(1) greenhouse gas emissions inventory (GHGEI),
(2) associated quantified GHG reduction measures aimed at creating the most comprehensive and significant emissions reductions,
(3) a low income and disadvantaged community benefits section,
(4) interagency and intergovernmental coordination,
(5) an outline for future community and stakeholder engagement.

We encourage the reuse of the images, figures, and tables found in this document. If used, please use either the reference attached for external citations or (Kiowa Tribe, Western Oklahoma Native Nations' Priority Climate Action Plan, 2024).

## 1.2 THE NATIVE NATIONS CLIMATE PROGRAM

The Native Nations Climate Program is a joint effort intended to design and encourage concurrent land management practices, share resources, and apply an interdisciplinary response to climate change in our territory and for our communities jointly and strategically. With climate in mind, this includes health, education, individual and community wellbeing, and sustainable development through assertion of sovereignty and self-determination.

The current tribal nations under N2CP are the:

Kiowa Tribe

Caddo Nation

Delaware Nation

Comanche Nation

Apache Tribe

Cheyenne & Arapaho Tribes

This document will deal solely with the joint jurisdictional boundaries outlined in Figure 1. However, the subsequent Nation Level PCAPs and individual and joint CCAPs, areas and populations for consideration will extend to tribal nations territories (as they define them). This is inline with the historical and current presence, rights, and caretaking responsibilities differing participating tribes hold. This allows us each, independently to fulfil caretaking responsibilities to our lands and peoples. This is not a flowery nor romanticized notion as the much popular narrative of who and what indigenous peoples are, but a living, grounded, felt, context filled, specific relationship to the inherently tied to identity. As an organization, it is our responsibility to hold space for those rights.

Before diving into the specifics of the CPRG program, it is important that readers and community members understand the general topics. The following section briefly outlines these.

## 1.3 CLIMATE CHANGE 101

Climate change refers to significant changes in global temperatures and weather patterns over time. While climate change is a natural part of Earth's history, recent trends have been driven largely by human activities, especially the release of large amounts of greenhouse gases (GHGs) into the atmosphere. These gases, such as carbon dioxide and methane, trap heat from the sun, causing the Earth's average temperature to rise. This process is often referred to as human induced climate change, a major aspect

of climate change. The graphic below explains this and is encouraged to be used as a standalone were useful.

General effects of Climate Change:

1. *Warmer Temperatures*: The most direct effect is the increase in global temperatures, leading to heatwaves and extreme heat events becoming more common.
2. *Changing Weather Patterns*: Climate change can lead to altered rainfall patterns, causing more intense storms and floods in some areas and droughts in others.
3. *Rising Sea Levels*: As global temperatures rise, polar ice melts and causes sea levels to rise. This can lead to flooding of coastal areas, threatening communities and ecosystems.
4. *Impact on Wildlife:* Many species struggle to adapt to the rapid changes in their habitats, leading to shifts in populations, migration patterns, and, in some cases, extinctions.
5. *Human Health Risks:* Extreme weather, air pollution, and spreading diseases due to climate change pose significant risks to human health.
6. *Economic Impacts:* From damaged infrastructure due to extreme weather to lost agricultural productivity due to droughts or floods, climate change can have profound economic consequences.

These are just some of the broadest impacts of climate change. It is a complex issue that affects every corner of the globe. Its impacts are wide-ranging, affecting everything from our environment and health to our economies and daily lives. Addressing climate change requires global cooperation and concerted efforts to reduce greenhouse gas emissions and adapt to changes that are already underway.

## 1.4 OKLAHOMA PROJECTIONS

While there are general global features climate change, its effects and altered conditions will be varied. For example, sea level rise, while occurring, will not be ubiquitous across all coasts. And for the territories in this PCAP, is not a consideration at all as it does not directly affect our territory. The primary effects we will see in our region is generally warmer and drier conditions. Here, drier means less moisture content held. However, precipitation frequency, intensity, seasonality, and other factors will also likely shift. Below are several illustrative projections from the South-Central Climate Adaptation Science Center (SCCASC). This CASC specifically researches and develops tools, information, and imagery for our region that show downscaled effects of global climate projections over differing scenarios and periods.

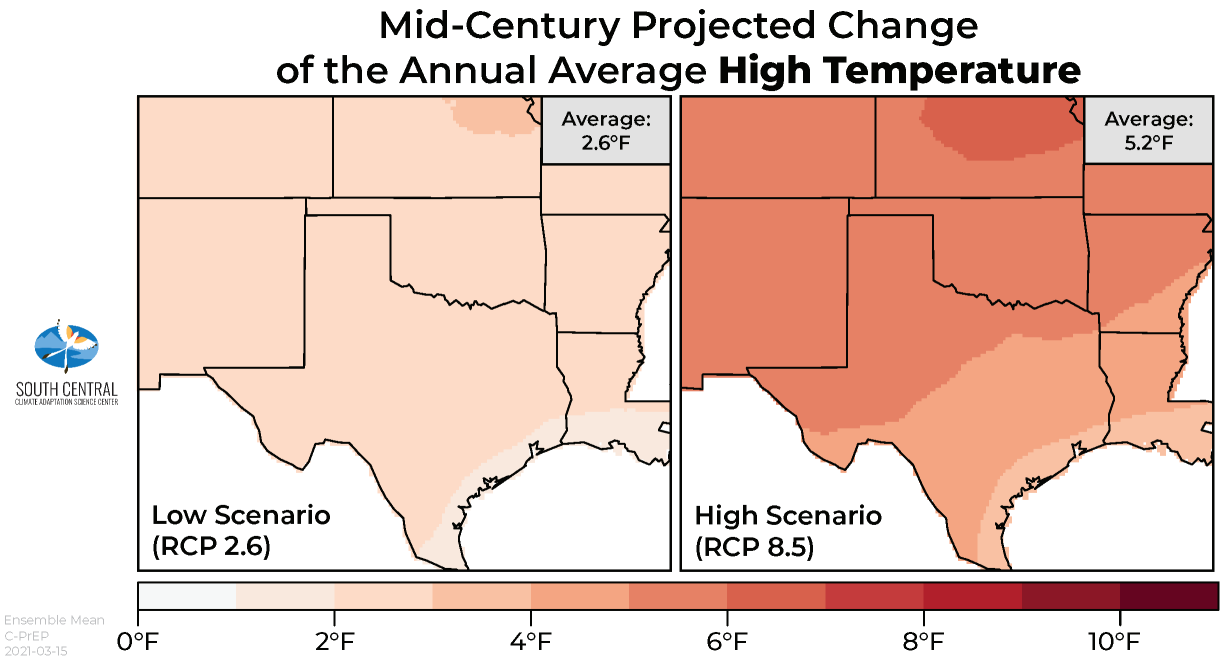



**Figure 3. (Left) Low Scenario: with a significant reduction in greenhouse gas emissions, we expect average high temperatures to generally increase by more than 2 degrees (F) by mid-century. (Right) High Scenario): Without a significant reduction in greenhouse gas emissions, we expect a larger increase of high temperature. In general, average high temperatures are projected to be more than 5 degrees (F) warmer by mid-century.**

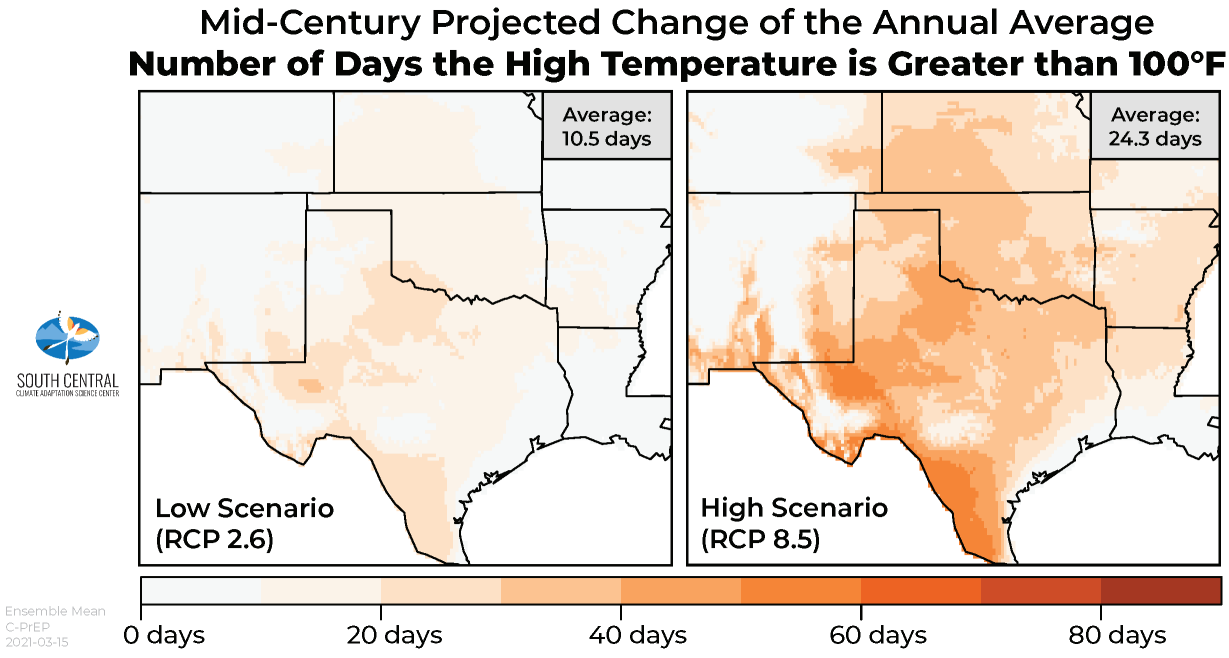



**Figure 4. (Left) Low Scenario: with a significant reduction in greenhouse gas emissions, we expect to experience an increase of 11 very hot days annually, on average, by mid-century. (Right) High Scenario: without a significant reduction in greenhouse gas emissions, we expect an average of 24 more 100-degree days annually by mid-century.**

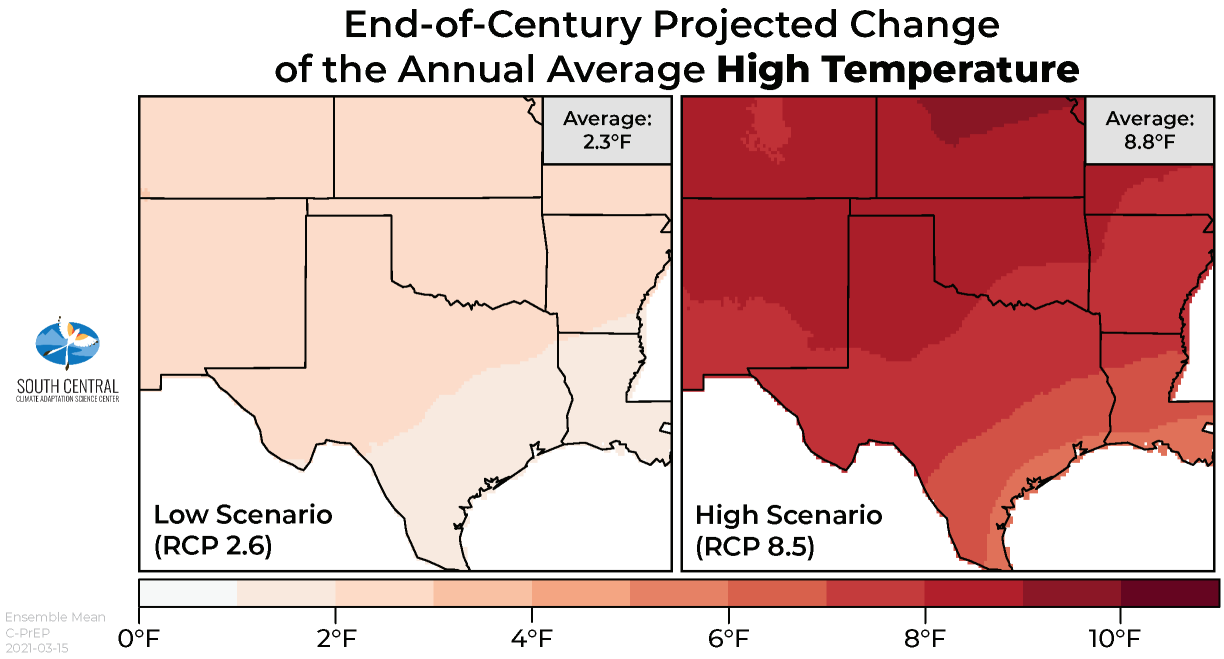



**Figure 5. (Left) Low Scenario: with a significant reduction in greenhouse gas emissions, we expect an increase in the average high temperatures by generally more than 2 degrees (F) by end-of-century. (Right) High Scenario: without a significant reduction in greenhouse gas emissions, we expect a larger increase of high temperature. In general, average high temperatures are projected to to be more than 8 degrees (F) warmer by end-of-century.**

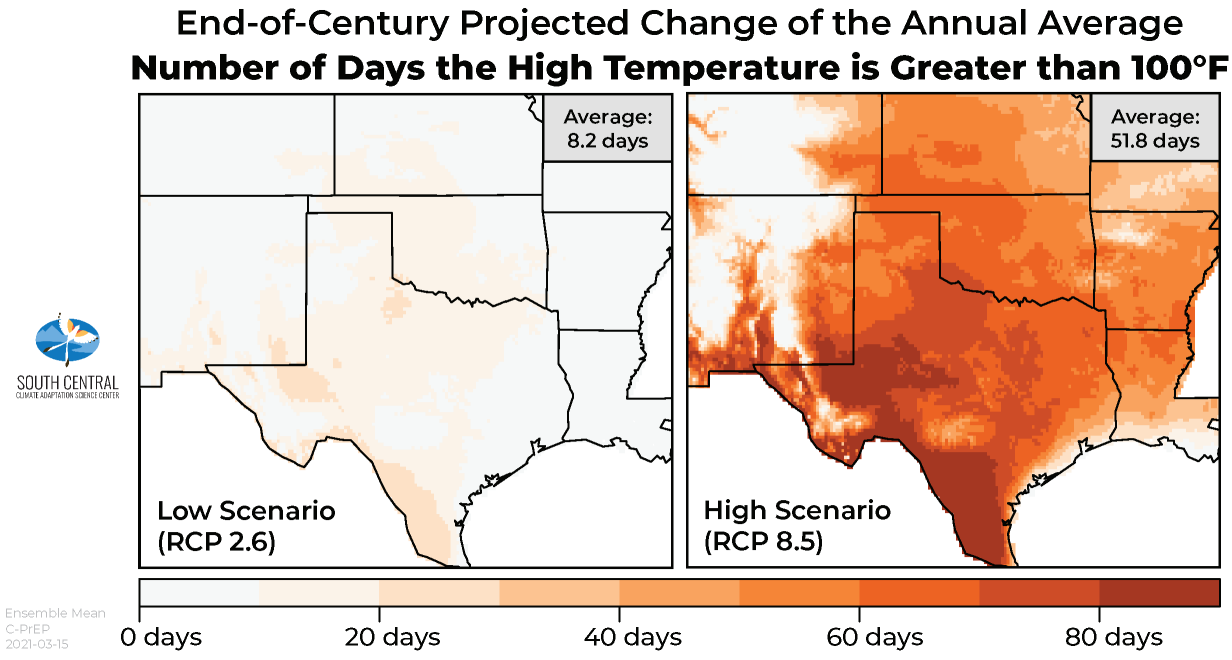



**Figure 6. (Left) Low Scenario: with a significant reduction in greenhouse gas emissions, we expect to experience an increase of 8 very hot days annually, on average, by end-of-century. (Right) High Scenario: without a significant reduction in greenhouse gas emissions, the expected increase of very hot days to be greater, with 52 more days annually, on average, by end-of-century.**

The images above show that there will be a general increase of at least two degrees and an increase in the number of days temperatures reach over 100. Figure 6 high scenario suggests this could be as much as 51 more days at 100+ degrees Fahrenheit. Altered precipitation and hydrology is anticipated in near- and long-term projections show only primary effects. From this we can anticipate that certain plant and animal species may shift their range, occurrence, and timing, as well as the introduction of more arid type species.

## 1.5 GREENHOUSE GASES (GHG)

Now why does this happen? Science indicate that this is a human induced shift from a significantly increased release of greenhouse gases (GHGs). GHGs are certain types of gases in Earth's atmosphere that trap heat. They let sunlight in but prevent some of the heat that the sunlight brings from escaping back into space. This process is known as the "greenhouse effect" because it's similar to how a greenhouse for plants works: it lets in light and keeps the warmth inside. This effect is crucial for life as we know it, keeping our planet warm enough to support life. However, too much of these gases can warm the planet more than usual, leading to changes in climate that can disrupt ecosystems and human societies[1]. While this release and gas cycle of GHGs is a naturally occurring event, what has changed is human activity which, since the industrial revolution, has been responsible for 2.3 trillion tons of CO2 into the atmosphere. When compared to naturally occurring GHG release (Figure 4.) we see that this amount is significant. This origin of emissions from human activity is both why it is called 'human-induced climate change' *and* why it is our (as humankind) responsibility to alter our behavior in a way that reduces this GHG dumping. However, it is also imperative to note that not all of humankind contributed to climate change equally nor will all be equally impacted by its effects[2].

GHG emissions reduction helps to dampen these affects. Examples include increasing energy efficiency, transitioning to renewable energy sources, and improving land use practices are crucial steps. Additionally, enhancing the capacity of sinks through reforestation and innovative agricultural practices like the use of cover crops can help mitigate climate change.

# 2. GHG EMISSIONS INVENTORY (GHGEI)

[1] For more information see https://www.epa.gov/ghgemissions/overview-greenhouse-gases.

[2] While this document does not address this topic of environmental equity and justice, the coming CCAP will have a dedicated section speaking to this. For more general information please visit https://www.mobilizegreen.org/blog/2018/9/30/environmental-equity-vs-environmental-justice-whats-the-difference and/ or https://dtsc.ca.gov/office-of-environmental-equity/#:~:text=An%20environmental%20equity%20approach%20recognizes,meet%20individual%20and%20community%20needs.

The Kiowa Tribe CPRG Program developed an area wide inventory of major GHG sources and sinks within the joint tribal jurisdictional areas of the N2CP members. This GHGEI follow the US EPA's structure assessing the six sectors and GHGs below:

| ***Sectors*** | ***Greenhouse Gasses (all sectors)*** |
|---|---|
| *Industry* | Carbon dioxide (CO2) |
| *Transportation* | Methane (CH4) |
| *Electric Power Industry* | Nitrous oxide (N2O): |
| *Agriculture* | Fluorinated gases: Hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SHFs), and nitrogen trifluoride (NTFs) |
| *Commercial + Residential* | |
| *Waste + Wastewater Management* | |

**Data Collection: Reporting and Data Analysis:**

Data considered was done via direct collection, estimated, and aggregated data based on open data sources (see Appendix 2).

**Baseline Year:**

The inventory utilizes a simplified GHG inventory using the baseline year of 2022. This provides a reference point for measuring emission reductions and progress and excluded non-representative years interrupted by covid.

**Populations:** This PCAP accounts for a joint tribal population of 40,233 and a general population of around 585,000 (OK Demographics, 2024)

**Location:** The scope of this PCAP covers all the tribal lands in western Oklahoma and includes 21 counties. Counties included are:

- Beckham County
- Blaine County
- Caddo County
- Canadian County
- Comanche County

- Cotton County
- Custer County
- Dewey County
- Ellis County
- Grady County
- Greer County
- Jackson County
- Jefferson County
- Kingfisher County
- Kiowa County
- Major County
- Roger Mills County
- Stephens County
- Tillman County
- Washita County
- Woodward County

## 2.1 INVENTORY TIERS:

The GHGEI can be broken down into 3 primary tiers with 2 overarching subsets (shown below).

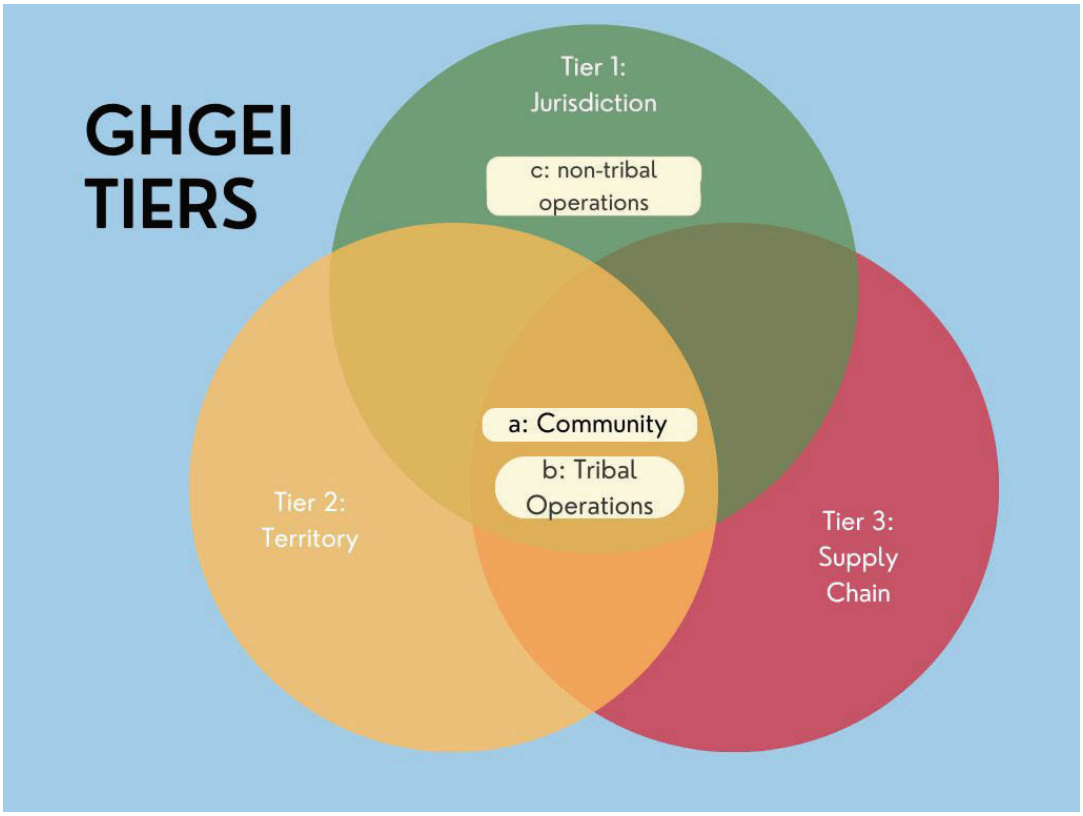



**Figure 7.** **Image showing the nested form of the GHGEI Tiers**

| Tier and Title | Description |
|---|---|
| Tier 1: Jurisdictional | This considers *all* emissions within jurisdictional boundaries |
| Tier 2: Territory | This tier considers each Native Nation's entire territory as dictated by themselves responsive to pre-reservation occupation and land stewardship relationship responsibility. It also includes 'peoples' of each nation who do not live in current jurisdictional boundaries and/or within the identified territory (ie. Each nations' global population) |
| Tier 4: Supply Chain | This considers emissions generated throughout the entire supply chain. This includes nation's operations, residential, and 'living needs' Living needs refers to emissions generated from tribal nations' population needs (eg. Food miles, ceremonial travel, and import needs, etc) |
| A. Community | This considers community emissions of that of enrolled tribal members' properties on and off of Tribal jurisdictional land. This is a subset and can be considered in their the population whole of in that tribal area. |
| B. Tribal Operations | This considers emissions of tribal governmental operations. This includes administrative and legislative buildings and operations. It is also a |

As this PCAP deals with multiple native nations with varied, home places, population structures, areas of interest, and histories, this nested / overlapping tier system is responsive to addressing emissions from various levels across our tribal people individually. The three main levels for assessment are community, operations, and supply chain. The other sections are to represent where those groups operate while also displaying various ways that our operational and community levels engage with one another.

## 2.2 EMISSIONS SCOPES

The GHGEI considered three scopes of emissions as defined by the GHG Protocol.

- Scope 1: Direct Emissions - This scope covers direct emissions from sources such as vehicles, power plants, factories, etc.
- Scope 2: Indirect Emissions - Indirect emissions result from the consumption of purchased electricity and heating.
- Scope 3: Other Indirect Emissions - Scope 3 emissions encompass additional indirect emissions related to waste breakdown, production or purchased materials, and travel outside boundaries.

As this document is the only 'P'CAP, it is assumed and understood that the data collected and represented is true, full, and accurate to the best of abilities. In this short time period data collection included aggregated or downscaled data via state and federal reporting sources. It is assumed and understood that the data is generally representative and presents an overview of the emissions landscape within the target area. The outline estimates for emissions by sector, gas, and scope can be found in the appendix. These outcomes will serve as a foundation for the subsequent steps of the Primary Priority Climate Action Plan.

## 2.3 FINDINGS

Below are the findings for the greenhouse gas emissions inventory broken down into the 6 sectors of transportation agriculture electric power waste and material management residential and commercial and industry. Our findings below indicated that our largest emitting sector was industry with oil and gas production and refineries accounting for 75% of that (see Appendix B). This is likely for two reasons. First, we do have a high occurrence of primary industry in western Oklahoma. Second, and likely heavily weighing on this accounting scheme, is that most of the openly available data the includes regulatory reporting systems is for the industry sector. N2CP tribes and tribal entities proportionally participate in oil and gas (extraction and refineries) in the industry sector at a very minimal rate. Accordingly, it became clear that to reflect N2CP agency capacity over emissions from our territory, and more closely display controllable contributions within our jurisdiction, that data also be represented in the GHGEI with oil and gas emissions in the industry sector be removed. While we do hope to engage partners in the private oil and gas industry moving forward, it is helpful to view this data in both forms. This separation allows us to investigate emissions in the area and respond to them as well as mindfully understanding private sector industry emissions from the oil and gas operations in our area. To demonstrate and maintain this data and findings we created GHGEI- V1, and GHGEI-V2, demonstrating emissions with and without oil and gas in industry contribution, respectively.

Findings under GHGEI-V1 were somewhat similar to the of the OKDEQs with slight differences (see below). While industry was also our highest / largest sector (Figure 8). Mining, oil and gas, and manufacturing account for most current shown emissions. The second highest sector for emissions, as anticipated, is transportation. This is also for several reasons. Most of our territory is heavily rural with large amounts of logistics both coming in to service the local population and out to move goods from the 'industry sector'. Our territory also surrounds Ft. Sill Army Base which has a logistics and emissions scheme of its own. FSAB is not included intentionally within this PCAP but still likely influences emissions results as both N2CP and FSAB share all roads, air, and waters. What is important to note, here, is that this considers all emissions from the entire territory, including operations neither owned, operated nor on tribal property. Considering this, it is imperative to understand, however, in this framework, N2CP tribes are only then directly able to impact the largest general emissions via increasing sinks (measure 1) as we do not directly control the oil, gas, or manufacturing rates and/or methods in our territory[3]

[3] It is important to note here that all N2CP tribes and indicated a desire to collaborate with both the state and operators in our region. It is our hope that we build report and a working relationship that benefits all parties environmentally, economically, and in workforce development.

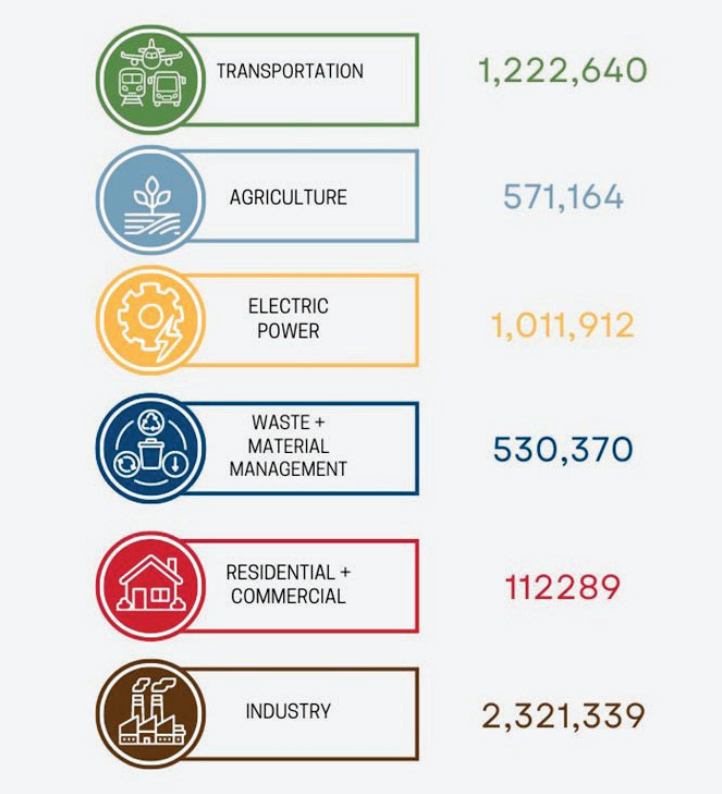
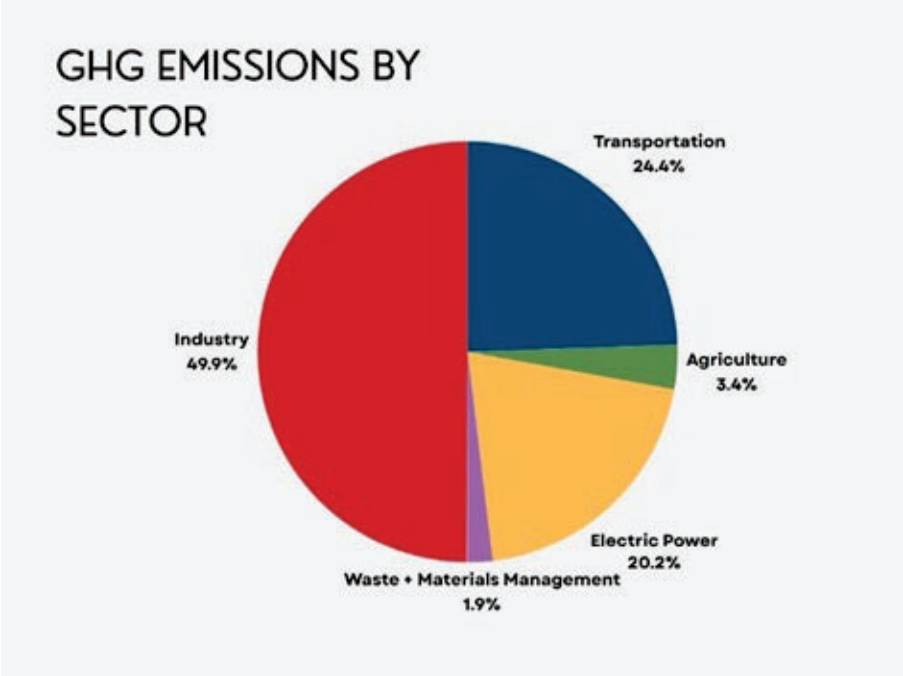
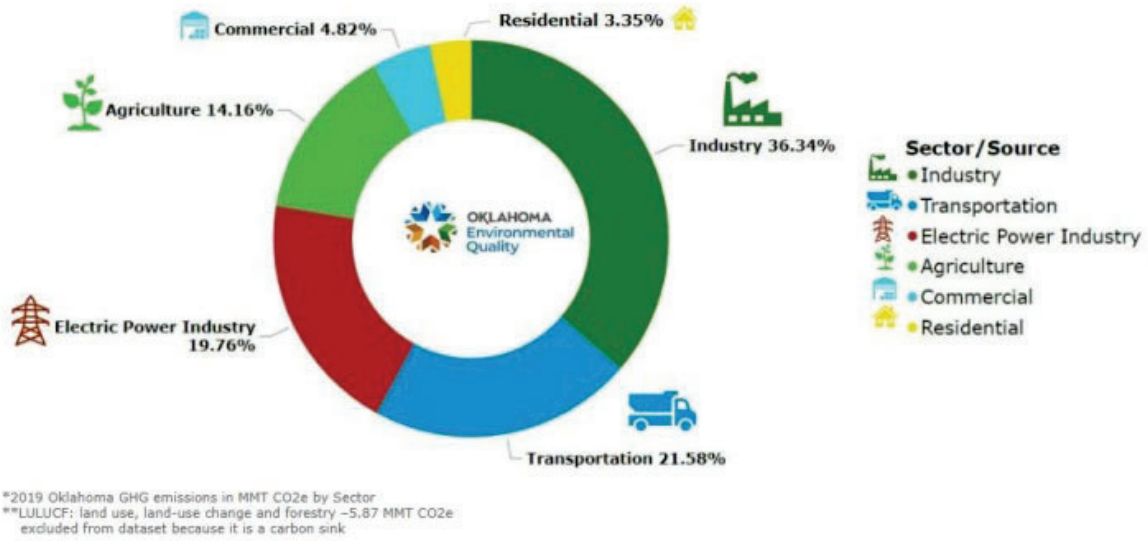



**Figure 8. GHG Emissions (Tons) by GHGEI Sector**




*2019 Oklahoma GHG emissions in MMT CO2e by Sector
**LULUCF: land use, land-use change and forestry –5.87 MMT CO2e excluded from dataset because it is a carbon sink

**Figure 9.** **(9.a: Top) N2CP GHGEI 2024 (V1) compared to (9.b: bottom) OKDEQ GHGEI 2024**

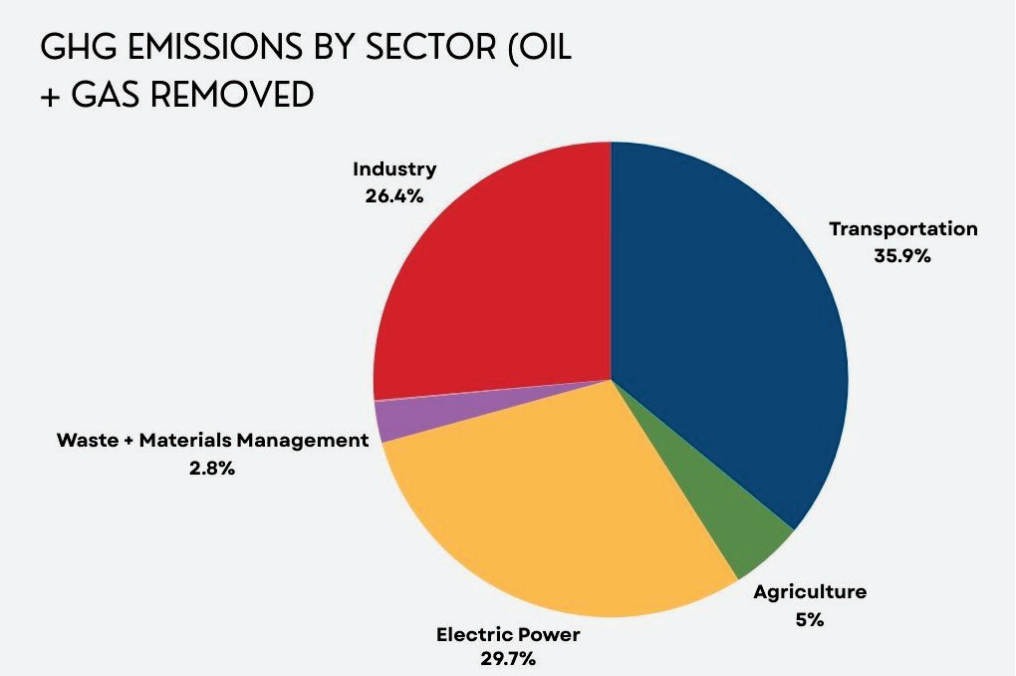



**Figure 10.** Graph of GHG emissions (GHGEI V2) in CO2e by GHGEI sector with Oil and Gas production removed from the industry sector.

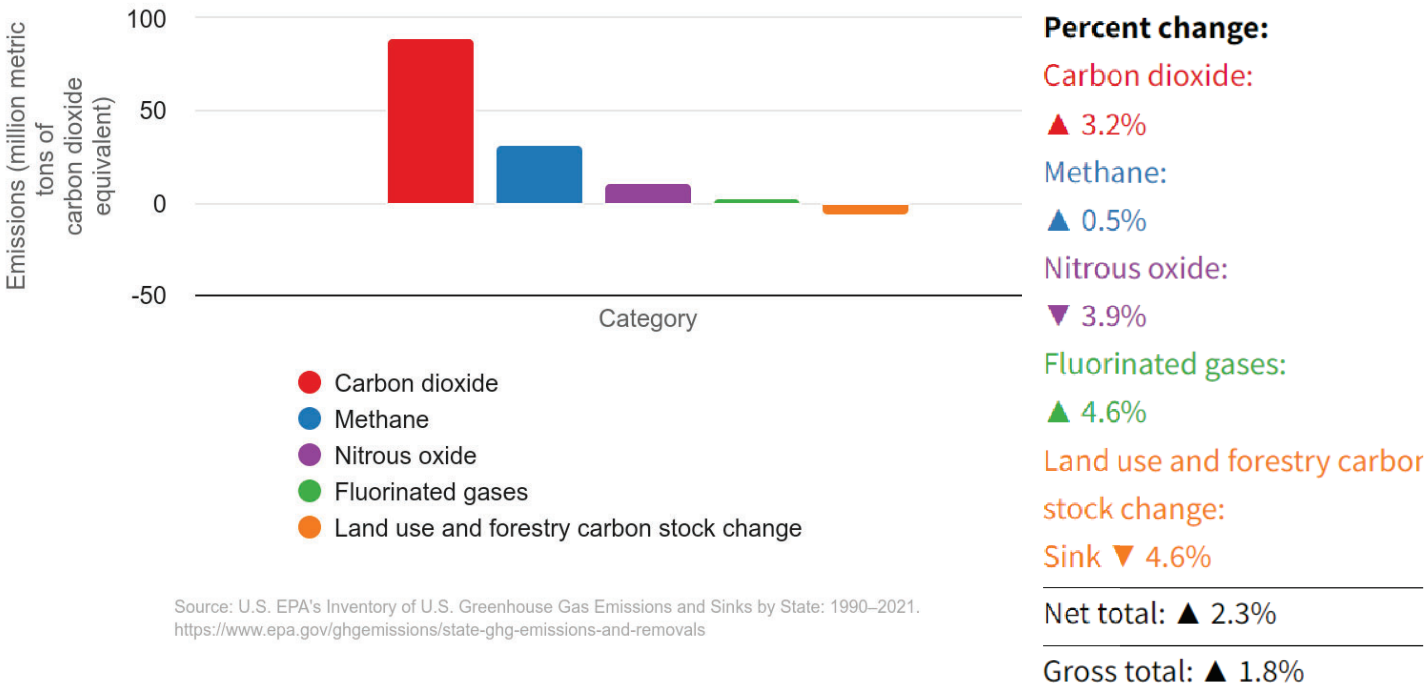



**Figure 11. Oklahoma GHG emissions by Gas (EPA GHGEI, 2021)**

Figure 10 shows GHG emissions by GHGEI sector with one notable difference. Here, emissions from oil and gas production and refinement have been removed. As we share our territory with a number of non-tribal entities who operate heavily in the oil and gas sector, the statistically low level of direct involvement from N2CP tribes means that figure 10 is a closer representation of proportional GHG emissions by sector. Notably, when compared with figure 10 we see that transportation becomes our largest emitting sector as well as an increase 10 5% from agriculture. It is also important to note that the GHGEI in the PCAP only accounts for GHG *sources* (ie. places and / or operations releasing GHGs). This does not actively account for sinks (places and/or operations that sequester or remove GHGs from the atmosphere). This will be accounted for in the GHGEI of CCAP 2025.

Figure 11 comes from the EPA GHGEI 2021. While the baseline for this PCAP is 2022, it is also the first annual GHGEI for N2CP. And as such, we are unable to look at changes over time for the N2CP area. So, the EPA data above allows us to look at the states general trends over time showing the 2021 levels and the rate change of each gas when compared to emissions from 1990. Here we see a decrease in land use and forestry sinks of 4.6%. We also see an increase in Fluorinated gases at that same rate. While fluorinated gases alone account for a small proportion of all GHG emissions, their increase is notable as it is the largest increase in emissions across all gases. One of the most common sources of fluorinated gases are HVAC units. So its increase can likely be closely related to the increase in usage of cooling systems for refrigeration and indoor temperature. Looking at this alongside of future climate projections, it is safe to assume that this emission class of gases will increase as the state experiences generally higher temperatures and have increasingly more days over 100°.

## 3. REDUCTION MEASURES

Reduction measures above are intended to respond directly to the GHG emissions information found in the above GHGEI-V1 (figure 10) focusing on achieving the most significant GHG reductions possible, alongside nation and/or city planning goals. Reduction measures will include both measures that reduce GHG emissions and

measures that enhance carbon sinks. Reduction measures for consideration follow the findings. The measures below fall in line with the Kiowa Tribes goal of Net Negative 2040.

## 3.1 MEASURE 1


### 3.1.1 RATIONALE:

Transportation is the largest emissions sector for the N2CP area and, when oil and gas is separated, all of (native and non) western Oklahoma. This is somewhat unsurprising as this region of OK is predominantely rural with 86% of the population travelling more than 30 minutes for essential trips (work, school, groceries, etc) per day. It is also the largest sector that the Native Nations and communities of N2CP directly contribute to and are best situated to address. This measure would include 3 phases to create the largest cohesive emissions reduction in this sector.

Phase 1 (short term) is to increase SMART transportation. This includes increasing travel efficiency in and between commonly visited locations in the area. As a rural community, distance between vital and recreational areas pose a large obstacle. However, SMART transportation would include creating a transport network between tribes and identifying locations currently being underservised. The planning portion of this measure would also enable N2CP to address underserved areas that may be in need of tribal service (eg. Satelite offices or rounds of tribal services so that our tribal members do not need to travel as far.

Phase 2 (mid term) is fleet electrification. This is as inferred. Electrification and/or hybridisation of all tribally owned vehicles and incentives for tribal members to purchase EV or hybrid vehicles. This will also include the installation of charging stations at health and tribally operated facilities.

Phase 3 (long term) is to decrease ‘living’ miles. As a rural commmunity, distance between vital / living locations contributes to high emissions. This long term strategy is focused on decreasing distance between areas to ‘live, work, and play’. In our area it is less likely to be intensification (as is the solution in urban areas to this issue). Rather it would involve creating a strategic plan to incentivize particular companies to come to the area and/or open pathways for tribnal member entrepenuership in certain ventures. There are several federal fnuding streams such as the IRA and IIJA (White House, 2023).

### 3.1.2 BENEFITS ANALYSIS

The transportation sector is an imperative feature of any community, whether they be rural or urban. Accordingly, improvements based on climate planning and sustainability require coordination and creative reflexive deisgn. This project, occuring in more rural settings, will require professionals with backgrounds in engineering, transportation, project management, sustainability, and technical expertise. Organizations that oversee program implementation will also have procurement and oversight responsibilities. Phase 2 and 3 will require significant collaboration with city and state agency partners as we aim to increase livability in the region for our entire community (native and non). Implementation of this measure is anticipated to result in an increased demand for workers, and an associated need for workforce development and training, which will have a positive impact on the economy for tribes and western oklahoma. A skilled workfoce from this same pool of professions is also necessary for implementation of other measures below, as well as other projects in the green sector not listed here. It is our intent to marry these funding and training resources and opportunities to build and maintain this workforce as we develop the renewables sector here, in Western Oklahoma. There are 36 programs across the IIJA and IRA that provide for green workforce development and include recruiting, training, and hiring workers. The N2CP also intends to support this workforce recuirtment and hiring process by utilitsing a shared recruitment process, sharing a job notice board, communications and candidates where appropriate. In addition to GHG reductions directly from transportation, the increase in shared and eventually local logistics, whereever possilble, will allow for and support concurrent projects focused on sustainability, workforce development, health, and economic development.

It is our inent to significantly collarborate with our established partners at the SouthCentral Climate Adaptation Center (SC-CASC) and Southern Plains Transportation Center (SPTC) to deisgn the projects, as well as recruitment and workforce development.

### 3.1.3 REVIEW OF AUTHORITY TO IMPLEMENT

The Kiowa, Cheyenne and Arapaho Tribes, and Comanche, and Delaware Nations have transportation deparments (DoT) within their existing operations that has the authority to implement roading and logistics designs for our tribal operations as well as implement electric utility infrastructure (such as EV charging stations). As federally recognised tribes, all nations participating in N2CP have the authority to receive and distribute funds federal funds. N2CP as an organisational program would not be named as either an applicant nor recipient. Future projects will follow the same strucutre utilized by N2CP under CPRG in naming and applying via a 'host tribe' to the consortia, who will act as grant manager for that project.

Our primary (external) partner would be the Oklahoma Department of Transportation (ODoT) for phases 1 and two. Through improved design of transportation corridors, there may be cause for new road construction, through currently undetermined. We also intend to design our charger placement to support the wider ODoT Interstate Charging Scheme along our major corridors.

### 3.1.4 IDENTIFICATION OF OTHER FUNDING MECHANISMS

The Biden-Harris Administration has facillitated a unprecedent investment funds into the environmetnal and renewables sectors and the green economy;  including specific allocations for tribal nations and commuinties. This has been opened through various channels via the US federal governments extensive network of administrative agencies. Noteably, the administrations 'Investing in America" agency which allocated $13 billion through the Bipartisan Infrastructure Law (BIL). This alongside the, previously mentioned IRA have opened channels for specific engagement of Tribes and Tribal entiries to apply

for. The N2CP has identified a number of other funding mechanisms and opportunities as follows:

- EPA Community Change Grants
- FTA Accelerating Innovatie Mobility
- FTA Formula Grants for Rural Areas – 5311
- FTA Grants for Buses and Bus Facilities Formula Program - 5339(a)
- FTA Low or No Emission Grant Program - 5339(c)
- FTA Public Transportation on Indian Reservations Program; Tribal Transit Competitive Program
- FTA Tribal Transit Formula Grants - 5311(c)(1)(B)
- FHA Low-Carbon Transportation Materials
- FHA Neighborhood Access and Equity

### 3.1.5 WORKFORCE PLANNING ANALYSIS

Measure 1 utilizes a large existing workforce within our transportation sector. It will also require training of a new larger tribal workforce in EV and charge station istalation and maintenance, as well as increasing our tribal transportation agency capacity in dealing with larger public transportation systems and frameworks. With the overlap in the sustainability and renewables sector, it is also appropriate leaverage and design educational programs and pathways with our educational partner at our local technical schools and the Univeristy of Oklahoma (OU) via our SC-CASC, SPTC, as well as relevant engagage relevant schools with an existing N2CP tribal student population such as Haskell, USAO and OSU thatwould center around enhancing Career and Technical Education (CTE) programs. This approach would involve establishing specialized curricula focused on sustainable transportation.

The N2CP tribal offices would serve as hub supporting internship programs and pathways for emeployment post certificate or degree completion. These internships would also allow students to learn on the job while earning credentials. To further strengthen the workforce pipeline, outreach, and educational programs at the high school level, education and youth programs will incorperate rellevant modules into youth summer

camps, workshops, and include high school educational experiences aimed at sparking early interest in transportation and the renewables sector.

## 3.2 MEASURE 2


### 3.2.1 RATIONALE

Electric power accounts for our second largest GHG emission sector accounting for about 1/3 of all emissions. Within a sector we have also seen a significant rise in the emissions of fluorinated gases. Much of which come from refrigerants and HVAC units. With these in mind came the necessity for implementation measure 2 focused on increasing solar capacity and energy efficiency. Like measure one this measure also includes 3 phases. Phases one and two focus on mid- and short-term implementation time periods and phase three is long term.

Phase one focuses on operational independent solar. Step one of phase one includes solar panels on all tribally owned operational buildings. This would dampen grid electricity utilized by these facilities as well as free up capital of participating N2CP nations. Step 2 of this phase focuses on grid independence at significant tribal administrative locations, such as healthcare facilities administrative complexes etc. Should be done through micro grid installation at identified locations to create a closed independent circuit that draws from onsite solar and is supported by battery storage on site.

Phase two can be done simultaneously with phase one and is focused on dampening emissions and grid energy drawdown from residential properties within the N2CP area. Like phase one, this involves solar panel installation on residential homes as well as

localized battery storage. Whether that be done per property or in a communal area of multiple houses will be determined during the design phase of implementation.

Phase three focuses on energy efficiency across all properties of Tribes and Tribal entities both operational and residential. This involves upgrading windows, insulation, and appliances. How to build an energy efficient home. Where possible this will include the use of sustainable climate smart materials in new constructions as well as efforts to alter the localized energy budget. For example, using lighter colored materials to increase surface albedo (reflectivity) and surface level moving water pieces, to create small scale Oasis effects[4]. This measure also falls in line with measure 1's SMART transportation and improved livability goals with new construction residential and operational buildings utilizing all appropriate features of each measure, including measure 3 (below).

### 3.2.2 QUANTIFIED GHG REDUCTION

As about 30 percent of the regional inventory is from the electric power sector, there is the potential for implementation of this measure at a large scale have a significant impact in reducing GHG emissions. Servicing both tribal and non-tribal properties, with an overall 33% transition of current residential and commercial energy conversion to solar, the impact would be an overall reduction of ~12% of regional GHG emissions. Meaningful implementation at this rate would require multiple funding sources. With the full implementation of all three phases above, this reduction would increase to a decrease of 88% percent of all tribally contributed emissions.

### 3.2.3 BENEFITS ANALYSIS

As indicated in GHGEI- V2, emissions from electric power account for the second largest source sector in the N2CP territory. This measure falls in line with the US DOE's $44 million commitment to 'Advance a Clean, Reliable Electric Grid' (DOE, 2024) which includes incentivized intent to lighten current and future grid load.  All three phases of this measure

[4] The 'oasis effect' refers to the phenomenon of a cooling effect caused by surface water and vegetation (Potchter et al., 2023). See appendix C

will require significant coordination with initial external collaboration with federal and private sector partners in training and workforce development. Implementation will also increase the demand for a skilled workforce with the capacity to install and maintain each of these three measures.

The average household in Oklahoma spends $216 per month and about $2,593 per year on electricity. Over the next 25 years, residents can expect to pay $92,100 on electric bills (Energy Sage, 2024). This along with an average inflation rate of 2.8% per year and an anticipated increase associated with more over 100-degree days (Figure 6) will have a significant impact on local communities and operational costs. With the average income in the N2CP coverage area being $55,708.57 and 54993 for general and native households respectively (HDPulse, 2024), benefits of implementing measure 2 can both dampen GHG emissions and operational costs for both tribal operations and community members, as well as intensify emission rates of CO2 and fluorinated gases up to 46%. As average monthly consumption for residential homes is 1,522 kWh and the installation of solar panels with a 5kW system per household, users can expect to save an average of $50 per month. For N2CP tribes, system purchasing can be subsidized through federal tax credits and many programs (listed below).

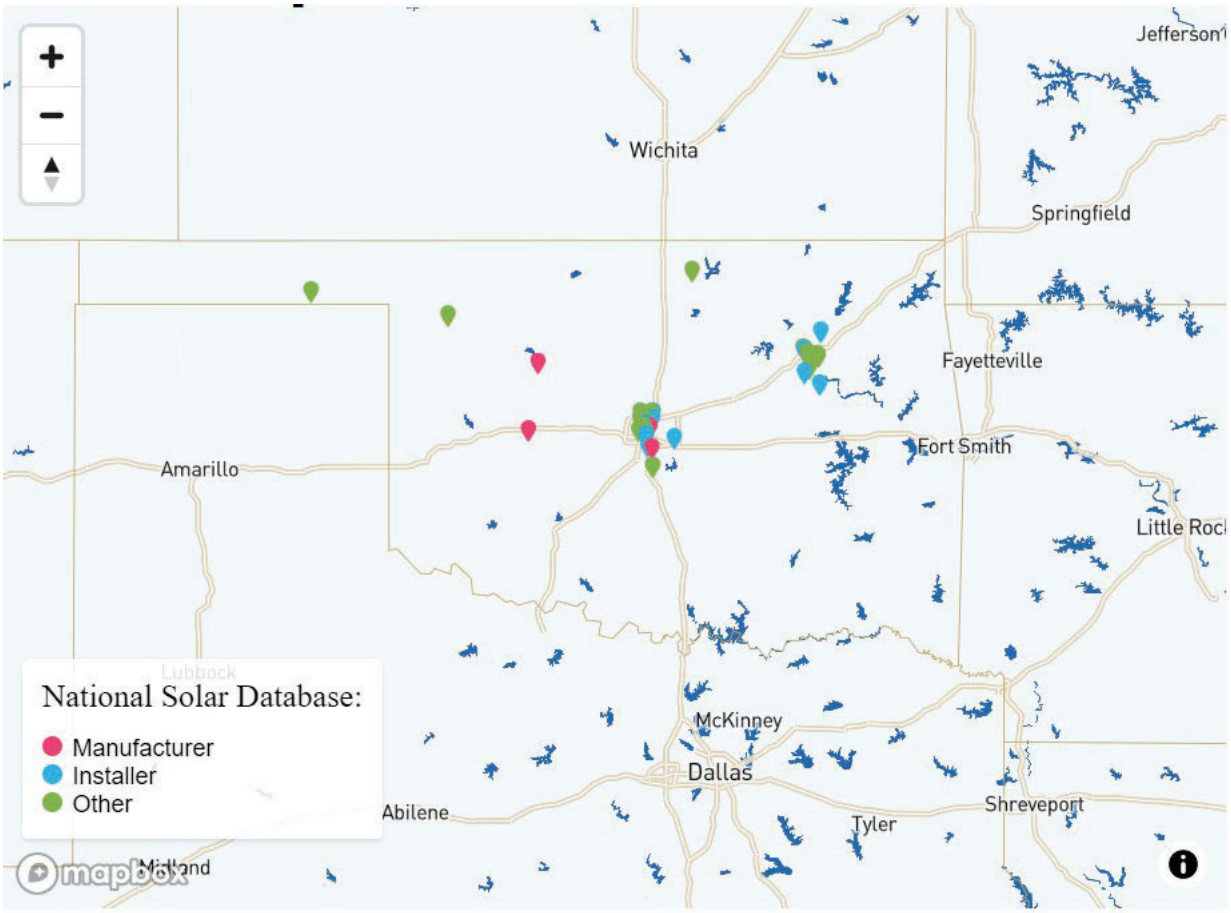



**Figure 12.** Map of Solar providers in Oklahoma (https://www.seia.org/state-solar-policy/oklahoma-solar, accessed 3/6/2024).

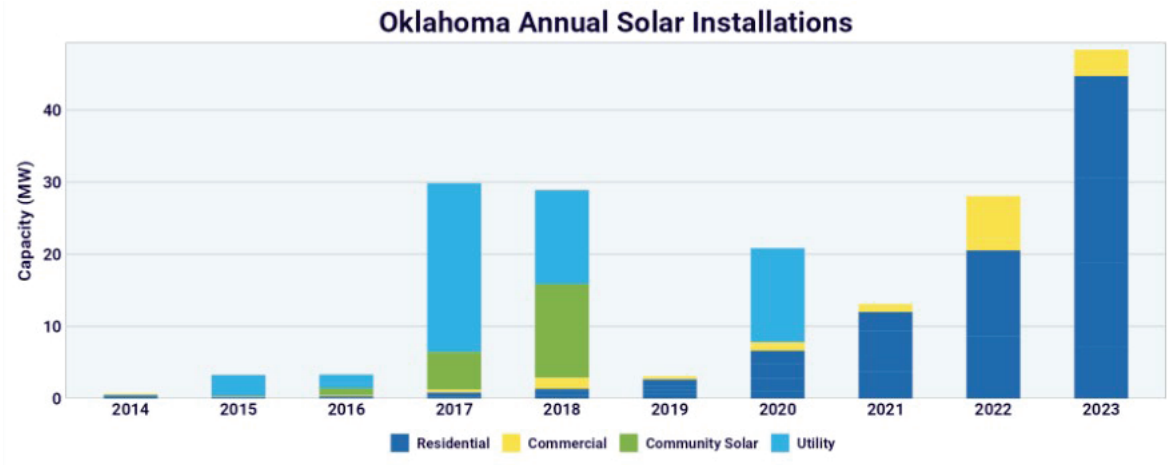



**Figure 13.** Solar panel installation in Oklahoma by year and type (SEIA, 2024).

The energy sector and power generation are an imperative component of all societies, and the solar energy industry will require a wide range of skills and expertise to design, develop, and operate these green systems. This will require the training and recruitment of professionals engineering, project management, environmental science, and technical expertise as well as field technicians to construct, install, operate, and maintain these systems. Organizations that oversee program implementation will also have procurement and oversight responsibilities. However, upskilling a local workforce can support the N2CP and WOK economies, increase livability, and further develop a skilled workforce with capacity to service WOK and compete in the growing market of the renewables sector. While the state has several existing installation and maintenance servicing companies, there are yet to be any in the N2CP coverage area (Figure 11). This along population growth of an average 4% in the N2CP area and areas like Medicine Park at 9.6% (ODoC) is a significant market opportunity for N2CP tribes and tribal entities to fill that need. This will also allow tribes and tribal entities to service the businesses and communities in nearby regions, further increasing revenue generation and supporting federal DOE initiatives and goals.

A skilled workforce from this same pool of professions listed above is also necessary for the implementation of other measures below, as well as other projects in the green sector not listed here. It is our intent to marry these funding and training resources and opportunities to build and maintain this workforce as we develop the renewables sector here, in Western Oklahoma. As in measure 1, workforce recruitment and hiring process will be done by utilizing a shared recruitment process and hiring notice board, communications, and candidates where appropriate. Utilizing the 50+ IIJA and IRA programs that support workforce development in the renewables sector, including recruiting, training, and hiring workers alongside collaborating with existing partners educational and training partners can significantly fill the training requirements for this workforce. This along with IRA includes tax credits and other rebate programs that support energy-related workforce development activities can also dampen capital investment required by N2CP tribes. Under the IRA, the Department of US Treasury also offers tax credits for entities that include workforce development activities in their renewable energy projects such as registered apprenticeships and meeting wage requirements.

### 3.2.4 REVIEW OF AUTHORITY TO IMPLEMENT

The N2CP tribes have varying levels of existing tribal utility. There is a need to utilize a portion of incoming funding allocation to enable tribes without utility to begin those services for their community. Falls in line with the existing strategic planning goals of several, including the Kiowa. As federally recognised tribes, all nations participating in N2CP have the authority to receive and distribute funds federal funds. N2CP as an organisational program would not be named as either an applicant nor recipient. Future projects will follow the same strucutre utilized by N2CP under CPRG in naming and applying via a 'host tribe' to the consortia, who will act as grant manager for that project.

Our primary (external) partner would be the Oklahoma Department of Transportation (ODoT) for phases 1 and two. Through improved design of transportation corridors, there may be cause for new road construction, through currently undetermined. We also intend to design our charger placement to support the wider ODoT Interstate Charging Scheme along our major corridors that has the authority to implement renewable energy, energy storage.

### 3.1.3 IDENTIFICATION OF OTHER FUNDING MECHANISMS

As stated, this measure falls in line with the US DOE's $44 million commitment to 'Advance a Clean, Reliable Electric Grid' (DOE, 2024) which includes incentivized intent to lighten current and future grid load.  These programs support businesses and tribal authorities in the transition to the clean energy economy. This allocation alongside President Biden's "Investing in America" Agenda, including these include $13 billion from the Bipartisan Infrastructure Law (BIL) and an additional $700 million from the IRA, have shown unprecedented investment and into the clean energy and renewables sectors. While design varies by funding agency and stream, tribes and Tribal entities are eligible through both BIL and IRA. Below are potential funding streams the N2CP are eligible to apply:

- DOE Clean Energy Technology Deployment on Tribal Lands
- DOE Grid Resilience State and Tribal Formula Grant
- DOE Improvement in Rural or Remote Areas
- EPA Community Change Grants

- DOE Tribal Energy Financing
- USDA Rural Energy for America Program Renewable Energy Systems & Energy Efficiency Improvement Guaranteed Loans & Grants

### 3.1.4 WORKFORCE PLANNING ANALYSIS

Targeted workforce development for this measure and increasing general tribal utility servicing capacity in the clean energy space, requires leveraging our existing partner base which includes OU, OSU, SCCASC, the IREES research center at OU, and regional technical schools. It is also necessary to engage other higher education institutions that have significant tribal attendance as well as targeted youth programs aimed at sparking early interest in high school (HS) aged students to create and strengthen the school to employment pipeline in this sector. Post HS education would center around enhancing Career and Technical Education (CTE) programs and establishing curricula focused on clean energy and microgrid technologies.

As in measure 1, N2CP tribes would then serve as a training hub where on-site learning and experience are gained while receiving the relevant qualifications at one of the institutions named above and actively increase solar projects on tribal territories. N2CP will also establish apprenticeships and internships to financially support students through their education as well as establish employment opportunities post-graduation. High school engagement will include highlighting clean energy career paths by engaging our youth summer camps, in school workshops, and (eventually) working with local schools in the N2CP area to create modules in line with these goals. While not all students will end up working directly for N2CP tribes and tribal entities, these programs will increase their credentials and earning capacity as they become more competitive in the workforce.

## 3.3 MEASURE 3

### 3.3.1 RATIONALE

While dampening GHG emissions is an imperative mechanism for climate measures, it is also important to increase carbon sinks[5]. Carbon sinks in OK have decreased by about 5% since 1990 (figure 11). While that may sound negligible, considering that it is the same amount of FlG increase, alongside climate projections from the area, increasing carbon sinks via vegetative mediums can dampen emissions directly and indirectly. Direct decrease can be considered the amount of carbon sequestered by vegetation. Indirect GHG emissions dampening can come from vegetation supporting the 'oasis effect' outlined in a previous section where the increased transportation and latent moisture available translate to lower air temperatures. If we understand that our region is to expect higher temperature days with over 50 more days per year that reach over 100 degrees, strategically placed areas of 'oasis effect' can dampen the load required of GHG emitting uses like HVAC and refrigerants. This measure comprises of two steps.

Step 1 is implementing regenerative agricultural practices including cover crops on agricultural land. Regenerative agriculture is known to have several ecological benefits such as decreasing need for external fertilizer and imported nutrient supplements and soils. This would decrease GHG emissions in the transport sector by a lower demand for rural logistics. The Kiowa Tribe is already engaging in these practices and registered with the Center of Excellence for Regenerative Native Agriculture (CERNA) (more information below).

Step 2 is aimed at prairie grass restoration on non-agricultural lands including grazing land, lands at rest, and non-productive lands, including land under concurrent contract such under wind turbines. The aim here is to ensure that all property in N2CP tribal ownership is accounted for in GHGEI dampening and performing to benefit sociocultural and economic wellbeing.

### 3.3.1 BENEFITS ANALYSIS

Utilizing both methods in this measure creates a comprehensive land management plan is designed to optimize the utilization of different land categories through double cropping

[5] Sinks are areas of sequestration. Places where carbon is taken out of the atmosphere.

with cover crops on agricultural plots and prairie grass restoration on non-agricultural land. The plan focuses significantly on enhancing carbon sequestration capabilities alongside improving economic returns and promoting environmental sustainability.

Step 1: Implementing Double Cropping with Cover Crops on Agricultural Land

Cover crops are integral to capturing atmospheric carbon and storing it in the soil. They can sequester approximately 0.3 to 0.6 tons of CO2 per acre per year. These cover crops will be implementing though the ‘double cropping’ method intended to add to existing growing on agricultural plots. Double cropping increases the land's productivity and yield outputs which enhances farm income stability. Cover crops enhance soil health by increasing organic matter, boosting nutrient cycling, and improving soil structure. These improvements result from the ability of cover crops to prevent soil erosion, enrich the soil's carbon content, and contribute organic matter through their decomposition. Healthier soils lead to better crop yields over time, reducing the need for expensive fertilizers and amendments. This results in increased productivity for subsequent cash crops, maximizing returns per acre. Cover crops (such as hemp and legumes) fix atmospheric nitrogen, naturally adding nitrogen to the soil. This process reduces the need for synthetic nitrogen fertilizers, which are often a significant expense in conventional monocropping systems. The natural nutrient enrichment from cover crops can also decrease the long-term reliance on chemical inputs. This structure also reduces soil erosion and improves water infiltration and retention. This capability is particularly valuable in WOK, a region prone to drought. Better water management can lead to more stable yields during dry spells, reducing the risk of crop failure and saving on water costs. The biomass produced by cover crops can effectively suppress weeds by outcompeting them for light and space. This natural weed control lowers the need for herbicides, reducing input costs and potentially reducing labor for weed management. Fewer weeds also mean less competition for resources for the main crops, enhancing their growth and yield. This method can also help break pest and disease cycles. Some cover crops can repel specific pests or attract beneficial insects that predate harmful ones. By disrupting the habitat for pests and diseases, cover crops can reduce the incidence of crop diseases and pest infestations, which in turn decreases the reliance on chemical pesticides and associated costs.  Finally, by diversifying crop production, farmers can hedge against the failure of a single crop. Having multiple crops in the system, including cover crops, can provide a buffer against price fluctuations in the market for a particular crop, offering a more stable and diverse income source.

With increasing market demand for sustainable and organically grown products, farmers using cover crops can access premium markets or specialty buyers willing to pay more for sustainably produced goods. Additionally, the practice of using cover crops can qualify farmers for environmental grants or subsidy programs aimed at promoting sustainable agriculture. Each of these benefits increases climate resiliency. As our region experiences increased frequency and intensity of extreme weather events, maintaining a resilient farming system is crucial. The use of cover crops will make cropping systems more resilient to climatic stresses, ensuring more consistent production levels and protecting farmers' incomes from climate-related shocks.

Step 2 involves restoring prairie grassland on non-agricultural land. Prairie grasslands, with their extensive and deep root systems, are excellent at long-term carbon storage. Well-managed prairie grass restoration can sequester up to 1.5 to 3 tons of CO2 per acre per year. The ecological and aesthetic improvements from prairie restoration can raise land values, making them more attractive for recreational uses and conservation-focused real estate markets as well as open tourism opportunities. Restored prairies support diverse plant and animal life, enhancing local ecosystems' resilience and functionality, which in turn supports broader ecological stability. This measure will be supported using controlled burns to help maintain grassland health and reduce the risk of larger wildfires, which can release significant amounts of stored carbon back into the atmosphere. High rates of carbon sequestration in both practices will also qualify tribes and landowners for carbon credits under various environmental credit schemes, providing an additional income stream.

By emphasizing carbon sequestration, this dual land management strategy not only targets significant reductions in atmospheric CO2 levels but also enhances the economic viability of both agricultural and non-agricultural lands. Double cropping with cover crops maximizes agricultural productivity and soil carbon storage, while prairie grass restoration transforms less-utilized lands into valuable carbon sinks, contributing profoundly to climate change mitigation efforts. Together, these strategies create a holistic approach to land management that balances productivity with crucial environmental stewardship.

### 4.3.2 GHG QUANITIFIED REDUCTION

Cover crops can sequester approximately 0.3 to 0.6 tons of CO2 per acre per year. The specific rate depends on the type of cover crop, soil properties, climate, and management

practices. N2CP tribes and tribal entities currently operate and/or manage more than 100,000 acres of land. an agricultural operation that implements cover crops over 1,000 acres, the potential carbon sequestration would range from 300 to 600 tons of CO2 per year. Cover crops can also help reduce nitrous oxide emissions by improving nitrogen use efficiency and decreasing the need for nitrogen fertilizers. This reduction can be quantified as up to 50% decrease in N2O emissions from soil management activities. Methane reductions are less directly influenced by cover crops in crop systems but can be impacted by associated changes in soil health and microbial activity. Prairie grasses can sequester significantly more carbon due to their deep root systems, storing up to 1.5 to 3 tons of CO2 per acre per year. Restoring prairie grass on an area of 1,000 acres could result in the sequestration of 1,500 to 3,000 tons of CO2 annually. Restoration also influences the emissions of other GHGs such as methane and nitrous oxide. The restoration of natural grasslands can lead to reduced methane emissions compared to degraded lands or those used for intensive agriculture. Similarly, the healthy, undisturbed soils of a prairie can emit lower amounts of nitrous oxide.

The total potential sequestration rates are as follows:

CO2 Sequestration Potential on 55,000 Acres

- Agricultural Land (Double Cropping with Cover Crops): Total CO2 Sequestration: Between 16,500 and 33,000 tons of CO2 per year.
- Non-Agricultural Land (Prairie Grass Restoration): Total CO2 Sequestration: Between 82,500 and 165,000 tons of CO2 per year.

Combined Impact for 110,000 Acres: Total CO2 Sequestration: Between 99,000 and 198,000 tons of CO2 per year.

This substantial increase in CO2 sequestration potential highlights the significant environmental benefits of scaling up sustainable land management practices across large areas. A decreased use of synthetic fertilizer use in double cropping systems also reduces the overall carbon footprint by reducing the energy used in fertilizer production and transport. While both strategies contribute to reductions in methane and nitrous oxide emissions through improvements in soil health and changes in land use from high-emission activities to more sustainable practices.

### 3.3.3 REVIEW OF AUTHORITY

All N2CP tribal nations have and operate existing agricultural and non-agricultural lands. Each nation also has the authority to operate and manage land as well as assist tribal member owned and operated lands. Conversion and implementation of these measures across fee, trust, and free held land will be dealt with separately with the appropriate agencies such as the BIA and USDA.

### 3.3.4 IDENTIFICATION OF OTHER FUNDING MECHANISMS

Like measures 1 and 2, there are several funding opportunities under IRA as well as more long standing environmental funding streams and acts. With the inherently 'environmental' of this measure, the following funding opportunities have been identified.

- USFW Tribal Wildlife Grant
- BIA Tribal Climate Resilience Award Program
- USFWS Ecosystem Restoration Program NOAA
- NRCS Regional Conservation Partnership Program
- USDA EQIP Cover Crop Initiative
- USDA Partnerships for Climate Smart Commodities DoD REPI Resilience Project Funding Program
- DoD REPI Resilience Project Funding

### 3.3.5 WORKFORCE PLANNING

The N2CP tribal consortia currently relies on an existing workforce in the agricultural sector of a substantial size. As agriculture is one of the main industries of western Oklahoma there is also a large non-native workforce base to draw from. Force enhancement would be the main developmental need for this measure. This includes drawing increasing regional education on regenerative and restorative agricultural practices this would be done with assistance from our technical training schools as well as federal programs aimed at upskilling existing operations and operators the USDA has several relevant offices that

would be used for this initiative such as USDA climate hubs. The measure would also include increased partnership with the Center of Excellence for Regenerative Native Agriculture (CERNA) with the Iowa Tribe of Kansas and Nebraska.

## 4. BENEFITS TO LOW AND DISADVANTAGED COMMUNITIES

According to the US Council on Environmental Quality, the N2CP tribal territories and communities are considered 'disadvantaged communities'. Stating:

> "Census tracts that are overburdened and underserved are highlighted as being disadvantaged on the map. Federally Recognized Tribes, including Alaska Native Villages, are also considered disadvantaged communities."

Characteristics for consideration of LIDAC status for any community consider economic, social, and environmental factors such as income, access, legacy pollution etc. All participating tribes under N2CP have experienced the harmful effects of the US colonial project and, as such, have been subject to multitudes of harm. The LIDAC status, though negative appearing in its name, is a useful characterization in equity policy across all sectors under the IRA and similar policy. It is also important to note that, while Federally recognized tribes, of which all N2CP members are titled, are categorically included in the LIDAC category, all areas in the N2CP area are independently also categorized as LIDAC communities (as shown in Figure 7). As both the Tribal Nations and non-native communities and townships that we share space with all qualify as LIDAC under US EPA and CEQ definitions, all communities in this great region of western Oklahoma can and will benefit from the implementation of these and other reduction measures that boost our entire region and community.

Benefits of implementing the above reduction measures will be quantified and individually addressed.

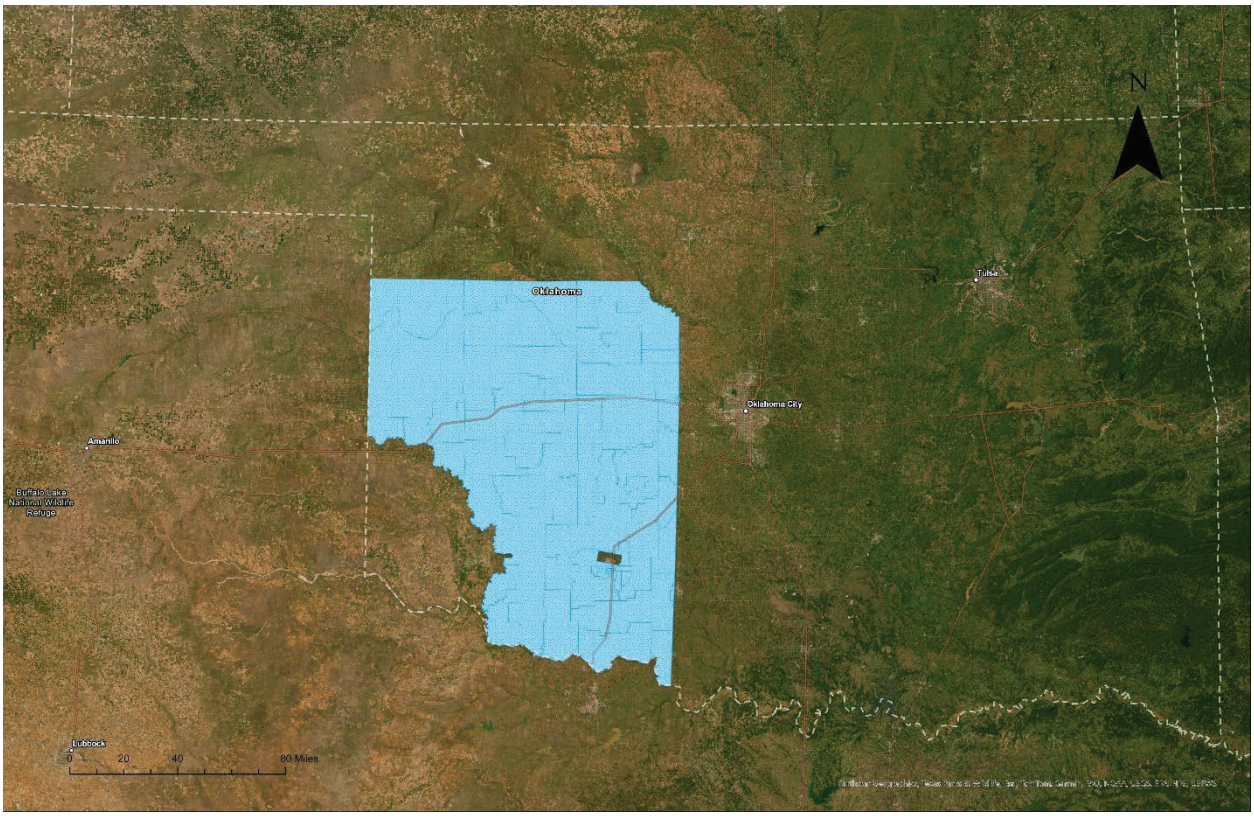



**Figure 14**. Climate and Economic Justice Screening tool identifying low-income and disadvantaged communities under the US CEQ. This image shows the census blocks categorized as 'LIDAC' , clipped to the boundary of the N2CP but has removed the 'tribal territories' layer from the image. The census blocks shown represent non-native communities. Data collected from screeningtool.geoplatform.gov.

The benefits analysis will assess the benefits of the GHG reduction measures above and measure the base year against co-pollutants as well as the benefits anticipated once the goals are met. Co-pollutant impact data and assessment will be gathered from the National Emissions Inventory (NEI). These will be assessed against public health outcomes, economic benefits, increased climate resilience, or other environmental benefits. As well as Quantified estimates of co-pollutant reductions (e.g., PM2.5, NOx, SO2, VOCs, air toxics, etc.). The project will draw from the C40 climate action and sustainability goals set out in the Paris Agreement.

## 5. INTERAGENCY AND INTERGOVERNMENTAL COORDINATION:

Interagency coordination during this PCAP largely occurred between the N2CP Native Nations establishing relationships and agreements on data sharing and protocol and

sought directions. However, during the CCAP period heavy emphasis will be placed on hosting community outreach days and meetings engaging both tribal communities, our non-native community members, and stakeholders throughout the territory. As the larger 'territory' for each native nation is considered in preparation for their Nation level CCAP, other state and federal agencies in relevant locations will also be coordinated with. We thank and acknowledge the cooperation and support gathered early on during this time from the City of Anadarko, City of Lawton, and Olahoma DEQ,

## 6. CONCLUSION + NEXT STEPS

The Native Nations Climate Program (N2CP) represents a pioneering step towards enhancing climate resilience within the tribal territories of Western Oklahoma. By synthesizing traditional ecological knowledge with modern scientific approaches, the N2CP is setting a robust precedent for climate action that is both inclusive and effective. The Priority Climate Action Plan (PCAP) outlined in this document not only identifies the main sources of greenhouse gas emissions but also proposes strategic, scalable solutions aimed at substantial mitigation. As we move towards the development of the Comprehensive Climate Action Plan (CCAP), it is crucial to build on the groundwork laid by the PCAP, enhancing data collection, community engagement, and interagency collaboration. The future steps must focus on refining these strategies and expanding their scope to ensure a sustainable future for the current and upcoming generations of the tribal communities in Western Oklahoma. This initiative is a beacon of hope and a replicable model for other native and non-native communities striving for climate resilience and sustainability.

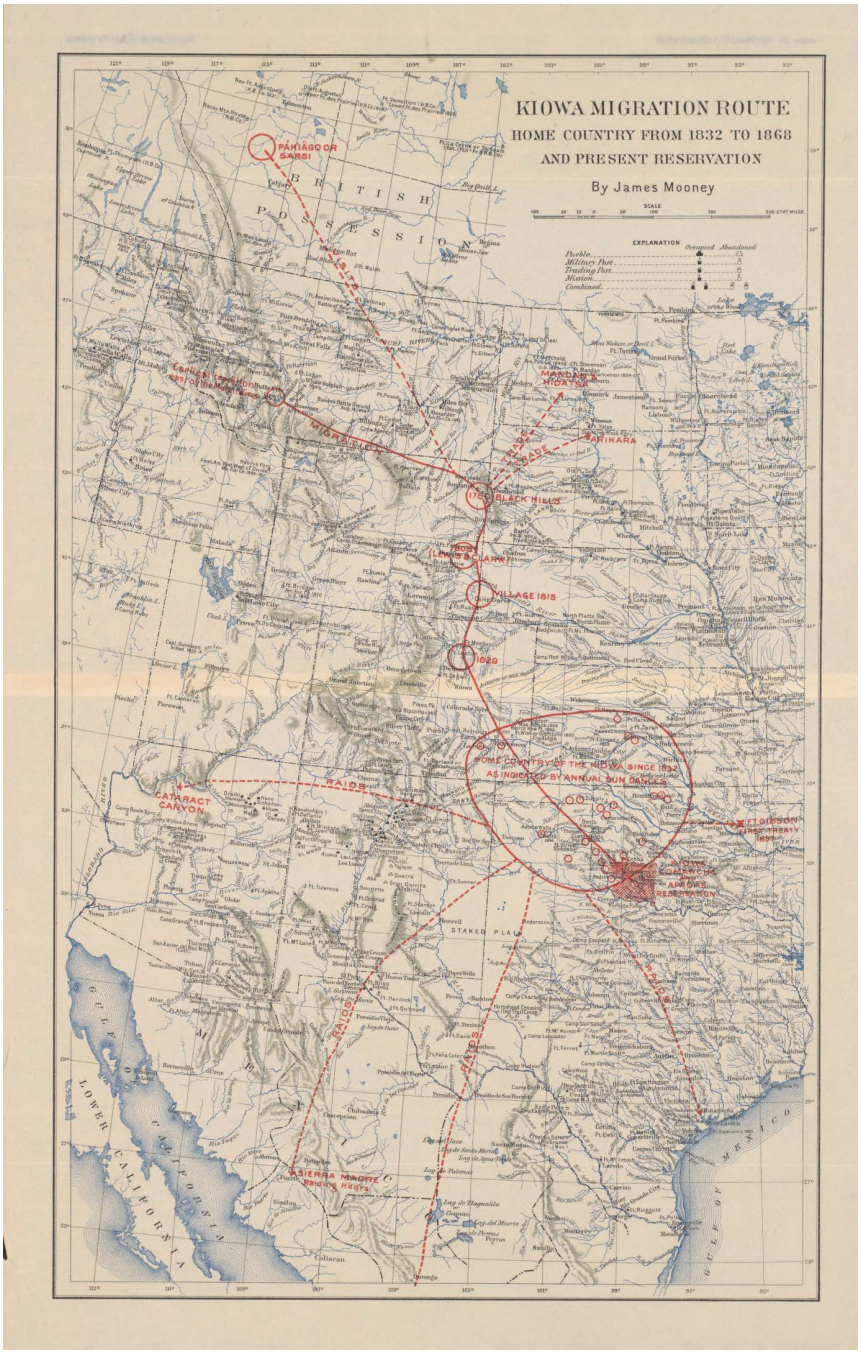
It is heartening to have seen and read the PCAPs from States, including our own (Oklahoma). Take up the imperative and unavoidable responsibility for climate addressment and land stewardship. It is our hope that this tone and drive will continue. Failure to engage in climate addressment and environmental consideration in State and Nation level development and planning does not diminish its impact. It simply leaves a larger more degraded and daunting job to the next generation left to carry and rectify our mistakes and harms when it was our duty to protect and prepare for them.

While the timeline for this document followed a rapid IRA timeline, we look forward to preparing with care, time, and attention to the CCAP period and prepare for publication in

2025. It is our hope that through this program and funding stream we make a meaningful impact and is useful to our community.

# APPENDIX

## **APPENDIX 1.** MAP OF KIOWA TERRITORY FOR REFERENCE AND CONSIDERATION UNDER THE KTCCAP 2025.

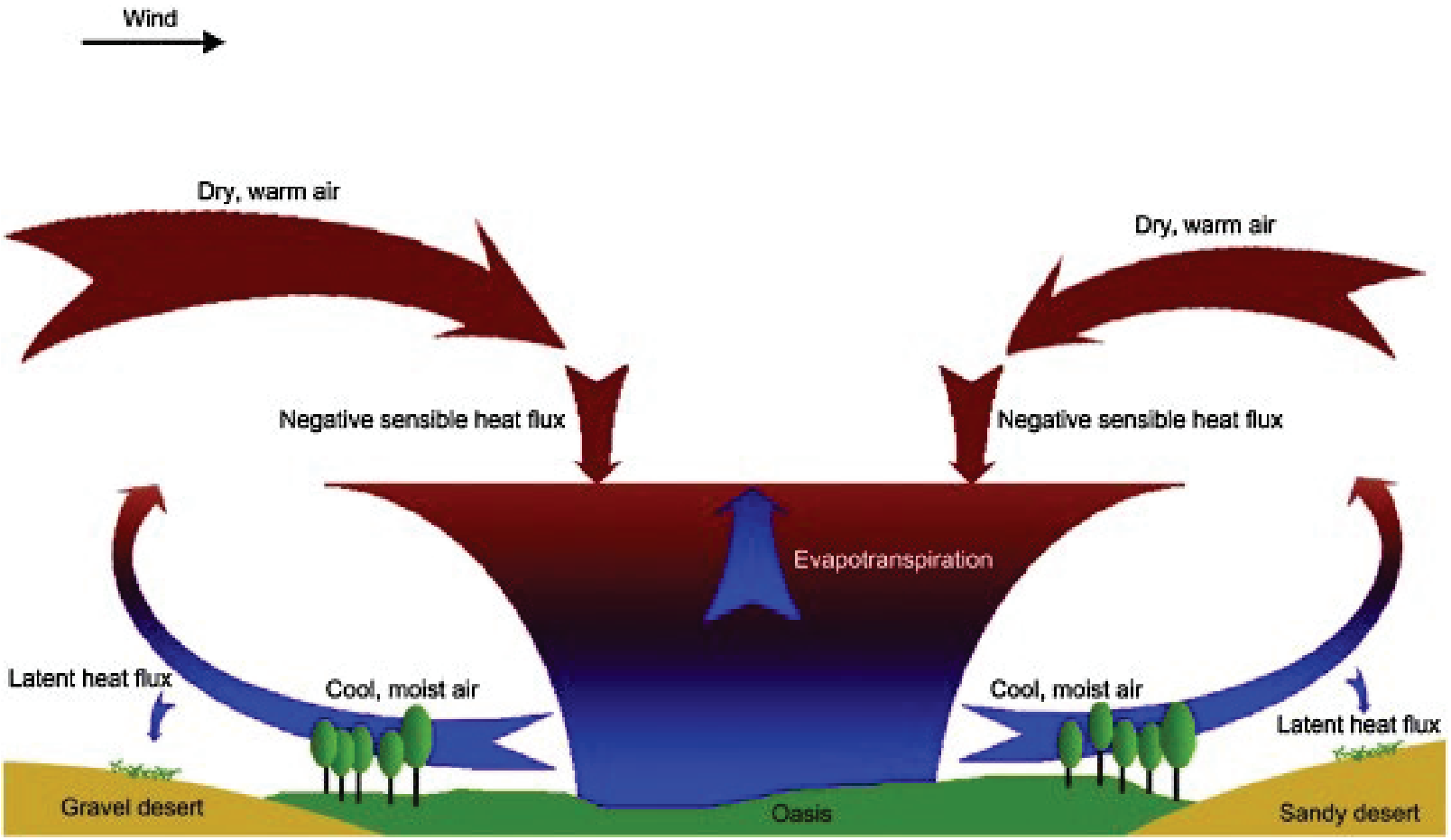


| **Sum of total emissions** | **Sector** | **Subsector** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Agriculture | | | | Agriculture Total | Commercial | | | | |
| pollutant code | Agriculture | Field Burns | Prescribed Burns | Wildfires | | Combustion | Consumer Use | Food | Oil + Gas | |
| CH4 | | | 655.91 | 37.35 | 693.26 | | | | | |
| CO | 1,418.26 | 1,540.18 | 6,454.35 | 4,714.11 | 14,126.90 | 18.71 | | 25.71 | | 61.35 |
| CO2 | | | 138,810.32 | 7,825.15 | 146,635.47 | | | | | |
| N2O | | | | | | | | | | |
| NO3 | 73.74 | 0.14 | 1.24 | 0.00 | 75.12 | 0.04 | | 0.31 | | 0.01 |
| NOX | 1,760.45 | 65.55 | 348.67 | 7.34 | 2,181.99 | 42.94 | | | | 0.26 |
| SO2 | | 14.83 | 91.69 | 13.03 | 119.55 | 0.77 | | | | 0.03 |
| SO4 | 74.91 | 2.40 | 5.86 | 1.60 | 84.78 | 0.36 | | 0.35 | | 0.01 |
| VOC | 3,697.90 | 85.17 | 2,310.49 | 1,153.78 | 7,247.35 | 2.35 | 2,027.39 | 6.20 | 81.16 | 260.79 |
| **Grand Total** | **7,025.25** | **1,708.27** | **148,678.53** | **13,752.37** | **171,164.42** | **65.16** | **2,027.39** | **32.58** | **81.16** | **322.45** |
| | | | | | | | | | | |
| Industry | | | | | | Industry Total | Residential | | Residential Total | Transportati |
| Combustion | Construction | Manufactoring | Mining + Quarying | Oil + Gas | (blank) | | Oil + Gas | Wood | | Aircraft |
| | | | | | 16,300.17 | 16,300.17 | | | | |
| 3,714.44 | | | | 1,455.80 | 92.40 | 5,262.64 | 24.79 | 1,098.10 | 1,122.89 | 478. |
| | | | | | 2,278,277.69 | 2,278,277.69 | | | | 636. |
| | | | | | 0.23 | 0.23 | | | | |
| 4.26 | 0.95 | 9.55 | 0.01 | 3.28 | 0.05 | 18.09 | 0.01 | 0.49 | 0.50 | |
| 5,142.51 | | 317.70 | | 3,410.80 | 13.09 | 8,884.09 | 72.45 | 16.19 | 88.64 | 387. |
| 18.27 | | | | 23.00 | 0.03 | 41.29 | 0.36 | 0.82 | 1.18 | 18. |
| 12.28 | 2.56 | | 0.10 | 34.20 | 10.43 | 59.57 | 0.05 | 0.19 | 0.23 | 0. |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 13.42 | | | | 12,482.10 | | 12,495.52 | 9.43 | 59.64 | 69.07 | 0. |
| **8,905.16** | **3.50** | **327.25** | **0.10** | **17,409.18** | **2,294,694.09** | **2,321,339.29** | **107.09** | **1,175.43** | **1,282.52** | **1,521.** |

## **Appendix 3**: GHGEI V1 for N2CP

**Appendix 4**: Graphic depicting the 'Oasis Effect' (Li et al., 2016)



## Appendix 5. Electricity profile for the State of Oklahoma, 2021

# Oklahoma Electricity Profile 2021

**Table 1. 2021 Summary statistics (Oklahoma)**

| Item | Value | Rank |
|---|---|---|
| **Primary energy source** | | **Natural gas** |
| **Net summer capacity (megawatts)** | **32,619** | **9** |
| Electric utilities | 18,676 | 14 |
| IPP & CHP | 13,943 | 8 |
| **Net generation (megawatthours)** | **84,634,922** | **18** |
| Electric utilities | 36,521,415 | 26 |
| IPP & CHP | 48,113,507 | 8 |
| **Emissions** | | |
| Sulfur dioxide | 13,224 | 26 |
| Nitrogen oxide | 24,098 | 22 |
| Carbon dioxide (thousand metric tons) | 26,607 | 24 |
| Sulfur dioxide (lbs/MWh) | 0.3 | 31 |
| Nitrogen oxide (lbs/MWh) | 0.6 | 32 |
| Carbon dioxide (lbs/MWh) | 692 | 35 |
| **Total retail sales (megawatthours)** | **69,486,942** | **23** |
| Full service provider Sales | 69,486,942 | 19 |
| Energy-only provider sales | 0 | 0 |
| **Direct use (megawatthours)** | **929,280** | **25** |
| **Average retail price (cents/kWh)** | **10.05** | **38** |

Sources: U.S. Energy Information Administration, Form EIA-860, *Annual Electric Generator Report*, U.S. Energy Information Administration, Form EIA-861, *Annual Electric Power Industry Report*, U.S. Energy Information Administration, Form EIA-923, *Power Plant Operations Report* and predecessor forms.

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