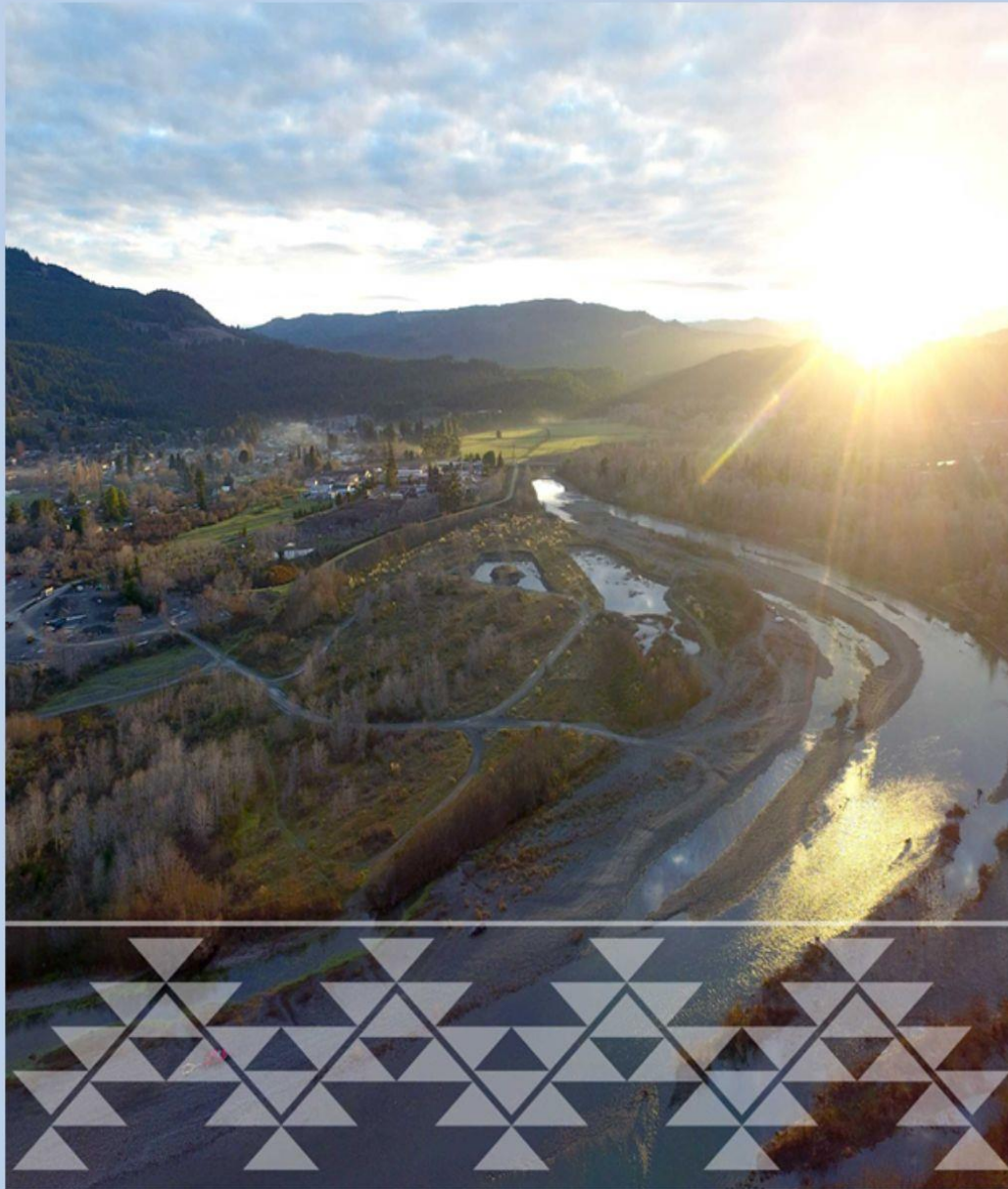


# BLUE LAKE RANCHERIA



## 2024 Priority Climate Action Plan



**CLIMATE  
POLLUTION  
REDUCTION  
GRANTS**

U.S. Environmental Protection Agency



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## Definitions

**Blue Lake Rancheria (BLR):** A federally recognized Tribe located in Humboldt County, California.

**Carbon Dioxide Equivalent (CO<sub>2</sub> e):** The number of metric tons of CO<sub>2</sub> emissions with the same global warming potential as one metric ton of another greenhouse gas.

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

**Criteria Air Pollutants (CAP):** Six common air pollutants that harm human health. They include: ozone, particulate matter, carbon monoxide, lead, sulfur dioxide, and nitrogen dioxide. These are regulated under the Clean Air Act.

**Greenhouse Gas (GHG):** Gasses in the earth's atmosphere that trap heat.

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

**Hazardous Air Pollutants (HAP):** Also known as air toxics, these are pollutants known to cause cancer and other serious health impacts. These are regulated under the Clean Air Act.

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

**Sea Level Rise (SLR):** An increase in the level of the world's oceans due to the effects of global warming.

**Wigi:** Humboldt Bay in the Wiyot language.

## 1 Introduction

The Blue Lake Rancheria (Tribe) is a federally recognized Wiyot Area Tribe, in the ancestral territory of the Wiyot People. The Tribe's Federal tribal trust lands span the Baduwa't (Mad River), and members of the Tribe have been stewards of this river valley and watershed since time immemorial.

Blue Lake Rancheria was established by the Federal government in 1908 as a 'refuge for homeless Indians,' where tribal members and families were rounded up and placed on a small unproductive parcel of land prone to significant and frequent flooding. The Tribe was then terminated by the U.S. government in 1958 pursuant to the Rancheria Act of 1958, and then reinstated to federal recognition status in 1983 as a result of the *Tillie Hardwick v. U.S.* decision. Since then, the Tribe has made a concerted effort to rebuild and exercise its rights as a Sovereign Tribal Nation. Today, the Tribe has approximately 100 acres of tribal land in trust within their ancestral territory. This has allowed for some limited economic development opportunities and innovations concerning clean energy, decentralized grid technology, agriculture, tribal governmental functions, and environmental and cultural resource monitoring and co-management.

The Tribe's ancestral territory ranges from Little River to the north, ridges between Redwood Creek and the South Fork Trinity River to the east, Wigi-Humboldt Bay and the Eel River to the south and west into the Pacific Ocean (Figure 1). This area covers a vast and diverse landscape that includes redwood and mixed conifer forest, oak woodlands, prairies, alluvial flats, gravel bars, fresh- and saltwater marshes, tidal flats, estuaries, sand dunes, and all the rivers, creeks, and wetlands that connect them. These ecologically distinct areas have provided food, shelter, energy, medicine, fish, game, trade goods, materials to make clothing and ceremonial regalia, and the tools to create a sustaining and regenerative culture since time immemorial.

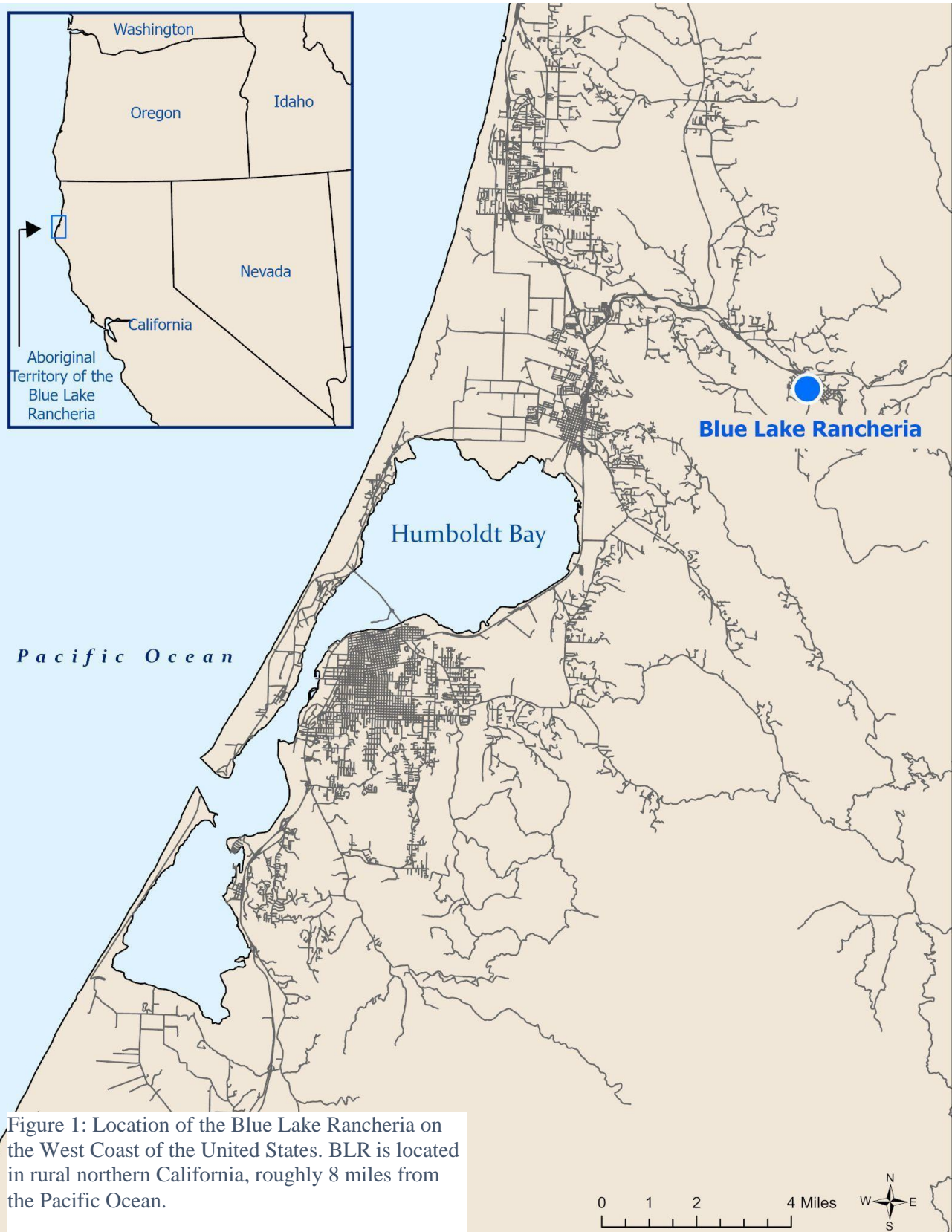


Figure 1: Location of the Blue Lake Rancheria on the West Coast of the United States. BLR is located in rural northern California, roughly 8 miles from the Pacific Ocean.

## 1.1 Blue Lake Rancheria History of Sustainability

The rural, geographically isolated North Coast region of California has specific hazards such as large earthquakes from the Cascadia Subduction Zone, tsunamis, severe storms, wildfire, drought, floods, and landslides, among many others. Impacts from these hazards include air quality reductions, and lengthy resource disruptions (e.g., fuels, electricity) that can last from hours, to weeks, to months. This helped to inspire the use of renewable energy at BLR. Using microgrids allows for the Tribe to maintain access to electrical power.

Blue Lake Rancheria is a regional leader in sustainability and renewable energy. In 2014, BLR was recognized by the White House as a “[Climate Action Champion](#)” (Office of the Press Secretary, 2014). The following year, in 2016 BLR became an innovator in microgrid technology. These photovoltaic arrays reduce energy usage by roughly 10%, and allows the Tribe to maintain power in times of emergency.



Figure 2: BLR Microgrid

Primary climate-related threats that face the region of the Blue Lake Rancheria are forest fire and flooding. Humboldt County is [80% forestland](#) (Humboldt County, 2018). The Blue Lake Rancheria reservation is located in the flood plain of the Baduwa't (Mad River). This makes it vulnerable to flooding during flashier, climate change-related storm events. The broader aboriginal territory of the Blue Lake Rancheria is highly vulnerable to the impacts of sea level rise (SLR). The Wigi-Humboldt Bay Area is experiencing the fastest rate of relative sea level rise on the West Coast. This is the result of tectonic subsidence in conjunction with rising seas. This is threatening tens of thousands of acres of low-lying land around Wigi-Humboldt Bay, or Wigi in the Wiyot Language.

In line with BLR's existing climate action, and in response to local climate-related hazards, the Tribe is committed to reducing GHG emissions. This commitment is the driving force behind the creation of this Priority Climate Action Plan. This goal is for the health of the land and people of the north coast for generations to come.

## 1.2 Background and Approach to Developing the PCAP

The Blue Lake Rancheria has divided the GHG Inventory into three departments. These departments are Tribal Government, Economic Enterprises, and the Fire Department.



The Tribal Government includes the Tribal Council, Government Affairs, Office of Emergency Services, Education Department, Environmental Department, Media and Communication, Finance, Human Resources, and the Police Department. This includes 65 employees and 45 residences. Within the Tribal Government, the Environmental Department maintains the Daluviwi' Community Garden. Emissions associated with the garden are included in this department. The Tribal Government provides housing to 203 Tribal members and Rancheria employees. The electricity and water of these residential units are connected to, and paid by the Blue Lake Rancheria Tribal Government. For these reasons, residential GHG emissions are included within the scope of the Tribal Government.

Economic Enterprises includes the Casino, Hotel, Playstation 777 Gas Station and Convenience Store. It also includes the IT Department, and the Facilities Maintenance Department. The Blue Lake Rancheria Casino includes an event space and 102 room hotel.



The Fire Department is a standalone department in the GHG Inventory. Other departments are housed within Blue Lake Rancheria's Tribal Justice Center (Government Office). However, the Fire Department occupies its own building and footprint within the Rancheria boundary. The Fire Department has separate heating, and is an uninsulated building that relies on a diesel space heater to keep the facility and equipment dry. The Blue Lake Rancheria Fire Department includes four fire engines. It is a wildland and all risk firefighting department. It partners with the Bureau of Indian Affairs (BIA) to deploy engines across the state. These fire engines are diesel and contribute disproportionately to mobile emissions sources at BLR.

When developing priority reduction measures for this PCAP, BLR staff solicited input from Tribal administration, departments across the Rancheria, and Tribal community. Staff met with Tribal Council members and held multiple conversations with the Tribal Administrator. These



conversations informed the priority reduction measures. Additionally, staff created a survey open to BLR employees to gauge interest in reduction measures.

The Scope of this PCAP is the aboriginal territory of the Blue Lake Rancheria (Figure 3). The scope of the Greenhouse Gas Inventory is the 100-acre trust land reservation that is the Blue Lake Rancheria. See Figure 4 for the Blue Lake Rancheria trust land boundary.

The 100-acre parcel includes two seasonal streams— School Creek and Powers Creek. The Baduwa't (Mad River) runs through the western edge of the Rancheria property. The Baduwa't

is a critical habitat for threatened species including steelhead trout, and chinook salmon. In 1985, the City of Blue Lake constructed the City's wastewater treatment facility. These wastewater treatment ponds can be seen in the center of the figure.

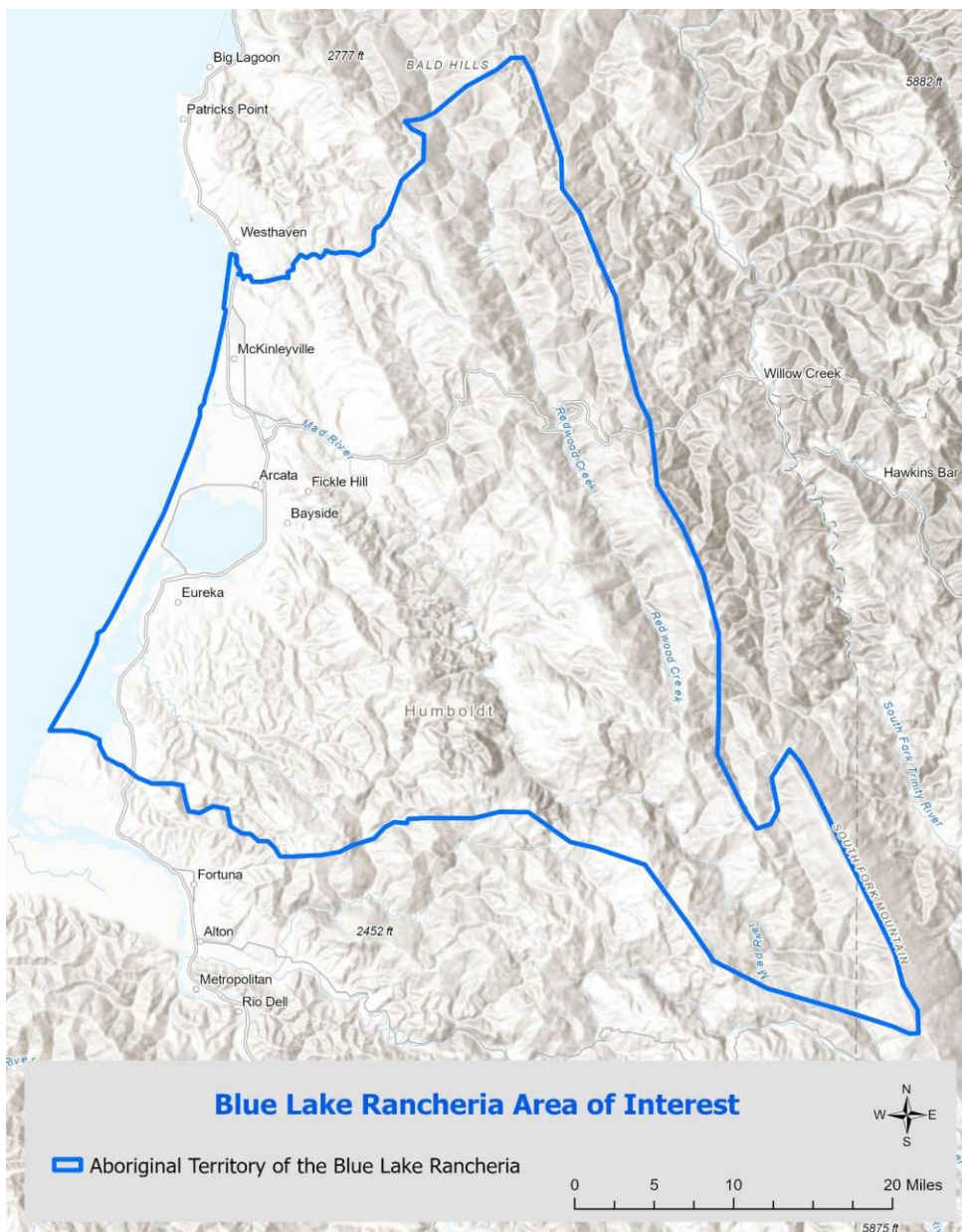


Figure 3: Aboriginal territory of the Blue Lake Rancheria



Figure 4: Map of the Blue Lake Rancheria Tribal Boundary (Blue). The Baduwa't (Mad River) runs along the eastern boundary of the Rancheria.

This PCAP was developed by the staff of the Blue Lake Rancheria Environmental Department. Staff collaborated across departments in the process of making this document. This collaboration informed priority GHG reduction measures. It was also necessary to acquire data included in the GHG Emissions Inventory.

## **2. PCAP Elements**

### **2.1 Greenhouse Gas (GHG) Inventory**

The Blue Lake Rancheria GHG Inventory uses 2022 as the base year. This year is representative of typical BLR operations. It was also the first year after the Global Pandemic in which Tribal Government workers returned to the office, and the Casino event space resumed activity. The scope of the GHG Inventory is the 100-acre Blue Lake Rancheria reservation.

The GHG Inventory is divided into three departments: Tribal Government, Economic Enterprises, and Fire. To develop the GHG Inventory, BLR utilized the EPA Tribal Greenhouse Gas Accounting Tool. Unless otherwise noted, all equations and conversion factors are those stated in the [Tribal GHG Inventory Tool](#) version 2024.1.

#### **Data Collection Methods by Sector**

##### **Stationary Sources**

Staff compiled stationary source data from utility bills. Pacific Gas and Electric (PG&E) provided natural gas usage per month. This was used for Tribal Government and Economic Enterprises. A diesel heater is used to keep equipment dry in the Fire Department. This energy usage was calculated based on receipt data, and confirmed with the heater model information.

##### **Mobile Sources**

Mobile emissions were calculated differently for different departments of the Tribe. This is due to varying availability of data. Tribal Government vehicles emissions were calculated based on vehicle miles traveled. Vehicle miles traveled are recorded in individual vehicles logs. Economic enterprises do not keep vehicle logs, so staff used fuel receipts to calculate emissions. These vehicles do not leave Tribal property, and are fueled at the BLR gas station. Cost of fuel purchased (gasoline and diesel) and the average 2022 cost of fuel at the BLR gas station were used to determine gallons of fuel used. Fire Department mobile source emissions were calculated by gallons of fuel used. This was calculated by compiling receipt data.

## **Electricity**

Across all departments, electrical information was compiled using PG&E billing data. Monthly bills displayed kWh of electricity used. This inventory does not include electricity generated from the Blue Lake Rancheria microgrid. Due to staff turnover, access to this data is currently limited.

## **Employee Commute**

Employee Commute was calculated using the average number of employees per department. No department within the Tribe has formal commute records. Because of this, staff utilized transportation assumptions included in the Tribal GHG Inventory Tool.

## **Solid Waste**

Blue Lake Rancheria does not maintain a landfill. At this time, solid waste data is not included in the GHG Inventory. For the creation of the CCAP will look into using the EPA WARM model to calculate solid waste emissions.

## **Wastewater**

Blue Lake Rancheria does not maintain a wastewater facility, and as a result wastewater is not included in this GHG Inventory.

## **Water**

Water data was collected from billing information. BLR gets most of its water from the City of Blue Lake. Billing information was used for both Tribal Government and Economic Enterprises. There is no water listed for the Fire Department, as the building does not have separate plumbing. Water used while on assignment comes is often local to the area, but can have a variety of different sources.

## **Agriculture and Land Management**

Economic and Fire Departments do not use soil amendments that would contribute to emissions. The Tribal Government maintains the Daluviwi' Community Garden. This garden uses compost that is collected and created on BLR property. A 2023 BLR Solid

Waste Report contained data on compost created on property. This compost is used in the community garden.

## Urban Forestry

To calculate urban forestry, staff used the formula below to determine percent cover of forested land.

$$\frac{\sum_{i=1}^{i=30} (km^2 \text{ of area } i)(\% \text{ tree cover of area } i)}{\sum_{i=1}^{i=30} (km^2 \text{ } i)}$$

Where:

$i = 1 \text{ to } 30$	Designates 30 tree-covered areas in a sector on tribal lands.
$km^2 \text{ of area } i$	The measured area (in square kilometers) of area $i$ .
$\% \text{ tree cover of area } i$	The estimated percentage of tree cover for area $i$ .
$\sum_{i=1}^{i=30} (km^2 \text{ } i)$	The denominator is the total combined area of all 30 areas within the sector.

Staff did not use this formula for the Fire Department, as this department is limited to a singular building. There are no distinct boundaries between Economic and Government departments. As a result, staff created boundaries based on traditional usage. This allotted the majority of the property to the Tribal Government.

## Emissions Results by Sector

### Stationary Sources

Stationary sources make up 35% of the total GHG Inventory for Blue Lake Rancheria, which is a total of 521 MT CO<sub>2</sub>e (Table 1). The department that most contributes to these emissions is Economic Enterprises. This department includes the most square footage, as it includes the casino, hotel, and gas station.

Table 1: Stationary Emissions by Department

<b>Emissions by Department (MT CO<sub>2</sub>e)</b>				
<b>Department</b>	<b>CO<sub>2</sub></b>	<b>CH<sub>4</sub></b>	<b>N<sub>2</sub>O</b>	<b>Total</b>
Tribal Government	81	0	0	81
Economic Enterprises	411	1	0	413
Fire Department	27	0	0	27
<b>Total Stationary Combustion Emissions</b>	<b>519</b>	<b>1</b>	<b>0</b>	<b>521</b>

### Mobile Sources

Mobile sources make up 7% of the total GHG inventory (Table 2). The largest contributor to this is Economic Enterprises, contributing 37 MT CO<sub>2</sub>e.

Within Economic Enterprises, the facilities department is the primary contributor. Within the facilities department’s purview is building and landscaping upkeep. This includes the use of diesel operated equipment such as tractors and leaf blowers.

The Tribal Government contributed 30 MT CO<sub>2</sub> from mobile sources. This is primarily the result of the Office of Emergency Services vehicles, the BLR transit system, and vehicles used in the Food Sovereignty Program to deliver fresh food.

The Fire Department contributed 29 MT CO<sub>2</sub> from mobile sources. The Fire Department has the fewest number of vehicles (5), however they are heavy duty vehicles that travel hundreds of miles off BLR property.

Table 2: Net Mobile Emissions by Department

<b>Net Emissions by Department (MT CO<sub>2</sub>e)</b>				
	<b>CO<sub>2</sub></b>	<b>CH<sub>4</sub></b>	<b>N<sub>2</sub>O</b>	<b>TOTAL</b>
<b>Tribal Government</b>	30.42	-	-	30
<b>Economic Enterprises</b>	37	-	-	37
<b>Fire Department</b>	29	-	-	29
Total Mobile Emissions	96.37	-	-	<b>96</b>

## Electricity

Electricity makes up 8% of the total GHG emissions. The largest electrical user is Economic Enterprises. This is largely due to the casino and hotel. Electricity use grid and market based data comes from eGrid CAMX region information. See Table 3 for a breakdown of electricity use by department.

Table 3: Electricity Use Summary

Electricity Use by Department (in kWh)			
Department	Grid-Supplied kWh	Contractual Instrument kWh	Market-Based kWh
Tribal Government	200,902	-	200,902
Economic Enterprises	279,086	-	279,086
Fire Department	-	-	-
<b>Total Electricity Use</b>	<b>479,988</b>	<b>-</b>	<b>479,988</b>

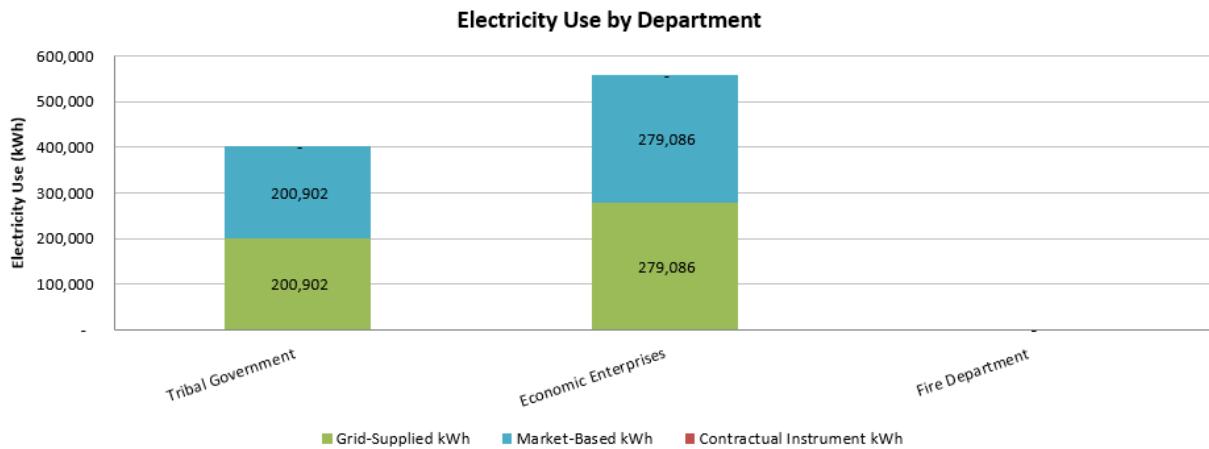


Figure 5: Electricity usage broken down by department. Green displays grid-based electricity use, and blue represents market-based use.

## Employee Commute

At 45% of the Inventory, employee commute is the largest source of emissions at Blue Lake Rancheria. The small Rancheria population combined with the economic enterprises make this a disproportionate amount of emissions. In 2022, BLR averaged 335 employees. This contributed 660 MT CO<sub>2</sub>e. See Table 4 for the distribution of employee commute emissions across departments.

Table 4: Employee Commute Emissions by Department

<b>Emissions by Department (MT CO<sub>2</sub>e)</b>	
	<b>CO<sub>2</sub></b>
<b>Tribal Government</b>	128.06
<b>Economic Enterprises</b>	512.24
<b>Fire Department</b>	19.70
<b>Total</b>	<b>660.00</b>

## Solid Waste

No emissions calculated for solid waste.

## Wastewater

No emissions calculated for wastewater.

## Water

Water makes up 6% of total GHG emissions. Economic Enterprises make up 55% of water use. Tribal Government makes up a large portion (44%) of the data including water usage of trust land residences.

Table 5: Water Consumption Emissions by Department

<b>Water Consumption Emissions (MT Co2e)</b>				
	<b>Co2</b>	<b>CH4</b>	<b>N20</b>	<b>TOTAL</b>
<b>Tribal Government</b>	36.89	0.06	0.07	<b>37.02</b>
<b>Economic Enterprises</b>	44.26	0.07	0.09	<b>44.42</b>
<b>Fire Department</b>	–	–	–	–
<b>Total Emissions From Water Consumption</b>	81.15	0.13	0.16	<b>81.44</b>



## Agriculture and Land Management

Agriculture and Land Management is the smallest contributor to the GHG Inventory. Contributing 0.25 MT CO<sub>2</sub> e, it makes up <1% of the total inventory (Table 6). All of these emissions come from the Tribal Government’s community garden.



Table 6: Fertilizer Application Emissions

Figure 6: Community Garden

Fertilizer Application Emissions (MT CO <sub>2</sub> e)				
	Synthetic N <sub>2</sub> O	Organic N <sub>2</sub> O	Manure N <sub>2</sub> O	TOTAL
<b>Tribal Government</b>	–	0.25	–	0.25
<b>Economic Enterprises</b>	–	0.00	–	0.00
<b>Fire Department</b>	–	0.00	–	0.00
Total Emissions from Fertilizer Application	–	0.25	–	<b>0.25</b>

## Urban Forestry

Urban Forestry reduced BLR emissions by 4%. The majority of these reductions came from the Tribal Government. This is because the Environmental Department within the Tribal Government manages and restores the riparian corridors present on the Rancheria. These riparian areas contain the majority of dense vegetation on the property.

Table 7: Carbon Sequestration Through Urban Forestry

Carbon Sequestered (MT CO <sub>2</sub> e)		
	Carbon Sequestration	TOTAL
<b>Tribal Government</b>	58.87	58.87
<b>Economic Enterprises</b>	-	-
<b>Fire Department</b>	-	-
<b>Total Sequestration from Urban Trees</b>	<b>58.87</b>	<b>58.87</b>

## Summary

Economic Enterprises make up the majority (73%) of Blue Lake Rancheria GHG emissions (Figure 7). Tribal Government is the second largest source of emissions (22%) and the Fire Department contributes least (5%). The largest source of emissions across sectors and departments is employee commute (Figure 7). This is followed by stationary combustion. Of the sectors completed for this inventory, water usage contributes to the least amount of emissions.

### Gross Emissions by Department

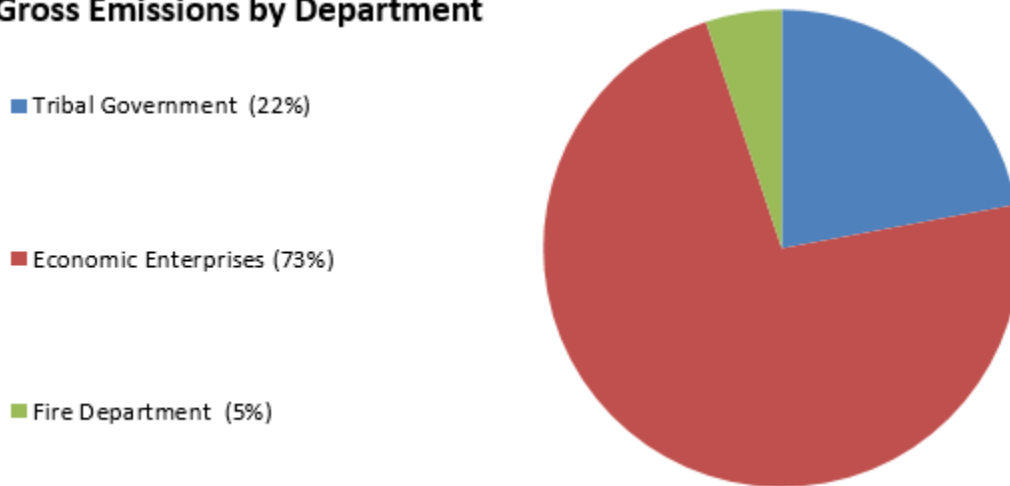


Figure 7: Blue Lake Rancheria emissions broken down by department. Economic Enterprises make up the majority of emissions, while the Fire Department makes up the least.

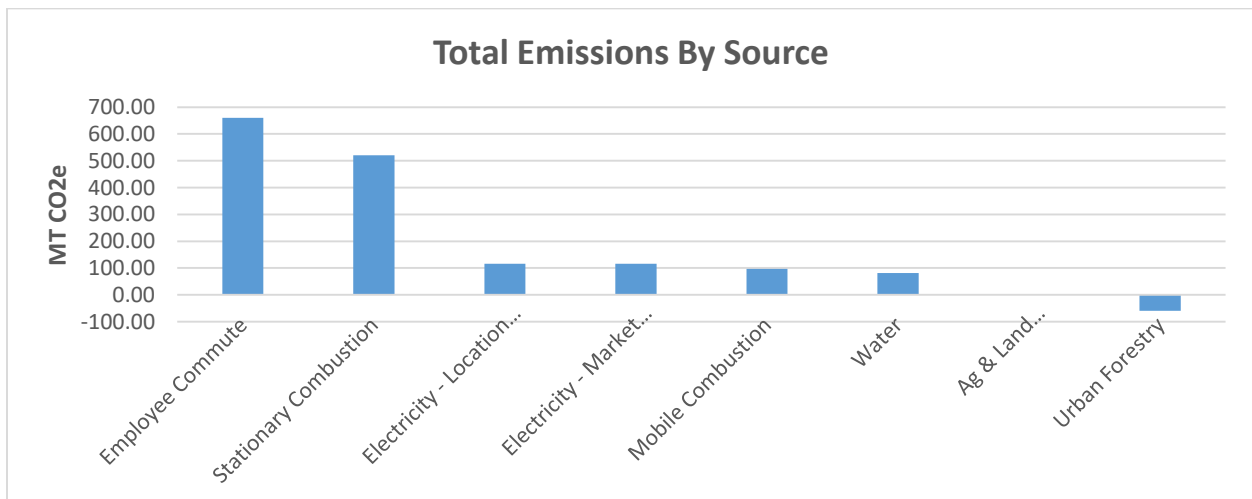


Figure 8: Summary of GHG emissions Inventory.

Table 8: Summary of Emissions by Source

Emissions by Source (MT CO <sub>2</sub> e)								
Source	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs	PFCs	SF <sub>6</sub>	Total	Percent of Total
Stationary Combustion	519.09	1.15	0.43	-	-	-	520.67	35%
Mobile Combustion	96.37	0.00	0.00	-	-	-	96.37	7%
Electricity - Location Based	115.76	0.19	0.23	-	-	-	116.18	8%
Electricity - Market Based	115.76	0.19	0.23				116.18	
Employee Commute	660.00	-	-	-	-	-	660.00	45%
Water	81.14	0.13	0.16	-	-	-	81.44	6%
Ag & Land Management	-	-	0.25				0.25	0%
Urban Forestry	-58.87	-	-				-58.87	-4%
<b>Total (Gross Emissions)</b>	<b>1472.36</b>	<b>1.47</b>	<b>1.07</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1474.90</b>	<b>100%</b>
<b>Total (Net Emissions)</b>	<b>1413.48</b>	<b>1.47</b>	<b>1.07</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>1416.03</b>	<b>100%</b>

## 2.2 GHG Reduction Measures

The priority GHG reduction measures in this PCAP focus on carbon sequestration and urban forestry, and electrification of on-road mobile emissions sources.

### Carbon Sequestration & Urban Forestry

Blue Lake Rancheria identifies carbon sequestration as the top priority to reduce GHG emissions. Blue Lake Rancheria is presently limited to 100 acres of trust land. This limits restoration to the sections of riparian corridors within the Rancheria boundary. Expanding carbon sequestration beyond the existing BLR trust land allows for significantly more carbon storage. The BLR aboriginal territory is experiencing rapid changes through investments including port development for offshore wind, and establishing land-based aquaculture. Acquiring and restoring this land will increase carbon sequestration. Wetland ecosystems sequester the most carbon per acre of any ecosystem type around Wigi- Humboldt Bay (Humboldt County CAP. 2022). They also provide shoreline stabilization, and create critical wildlife habitat. Additionally, wetlands provide Tribal benefit including access to traditional resources.

The Humboldt Bay Area is experiencing the fastest rate of relative sea level rise on the west coast. This is a result of tectonic subsidence in conjunction with rising seas. California [Office of Planning and Research 2024 Sea Level Rise Guidance](#) shows that SLR around Humboldt Bay is expected to rise 3.9 feet by the end of the century (intermediate scenario) (OPC, 2024). This threatens hundreds of acres of land around Wigi-Humboldt Bay (Figure 10).

Blue Lake Rancheria plans to acquire and restore sea level rise-vulnerable land around Humboldt Bay. According to the [Humboldt Bay Area Plan](#), there are 21,315 acres of low-lying, SLR-vulnerable land surrounding Wigi-Humboldt Bay. 10,680 acres of this is agricultural land (Laird, 2018). Blue Lake Rancheria plans to target 5% (534 acres) of the SLR-vulnerable agricultural land.



Figure 9: Views of Mad River Slough (northern Wigi-Humboldt Bay). Clockwise: Aerial view of the Slough and agricultural land during December 2023 King Tides in Wigi-Humboldt Bay. Aerial view of Mad River Slough at medium tide. View of the Slough (left) and Wigi-Humboldt Bay (right) from the top of an earthen dike. The dike is ~1ft away from overtopping and inundating the low-lying agricultural land that sits behind it.

A 2017 study conducted by [J. Nickerson for the North Coast Resource Partnership](#) inventoried Humboldt County land use types (Nickerson, 2017). This study is utilized in the Humboldt County Draft Climate Action Plan to quantify potential impacts of carbon sequestration. This study shows that local wetland carbons sequestration capacity.

The current predominant habitat type of low-lying agricultural land around Wigi-Humboldt Bay is grassland. These are former tidal lands that were drained and diked to become agricultural pasture land (Figure 9). Restoring this grassland to wetland will increase carbon sequestration (Figure 10). Restoring 534 acres of grassland to wetland habitat will increase carbon storage by 1,623,360 MT CO<sub>2e</sub>. The data used for these calculations uses a 100-year timeframe.

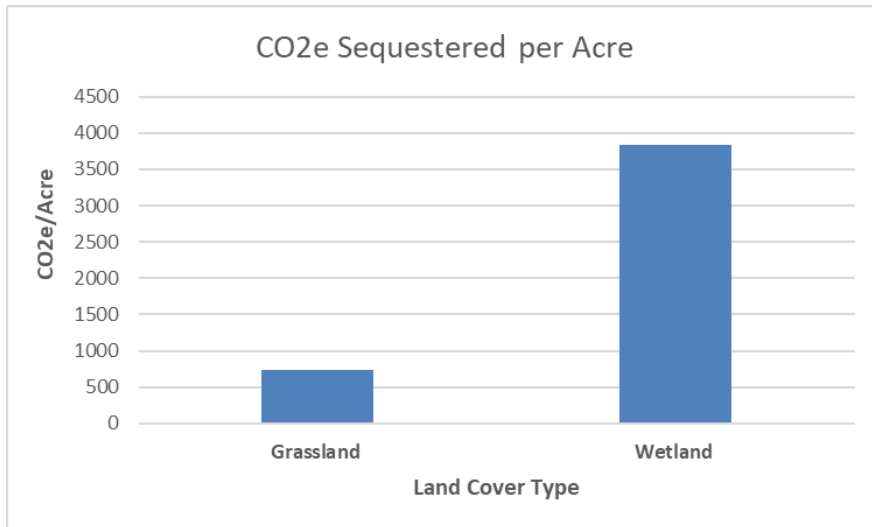


Figure 10: Displays the increased carbon sequestration of wetland habitat type compared to grassland. Grassland represents much of the sea level rise-vulnerable agricultural land that surrounds Wigi-Humboldt Bay.

Table 9: Wetland Carbon Sequestration Targets

<b>Wigi-Humboldt Bay Wetland Carbon Sequestration</b>			
<b>Habitat Type</b>	<b>MT CO<sub>2</sub>/Acre</b>	<b>Target # of Acres</b>	<b>Total MT CO<sub>2e</sub> Sequestered</b>
<b>Grassland</b>	790	534	421,860
<b>Wetland</b>	3830	534	2,045,220
<b>Net Change</b>	3,040	–	<b>1,623,360</b>

Blue Lake Rancheria plans to expand urban forestry and restoration. The Baduwa't (Mad River) and two streams (Powers and School Creeks) run through Blue Lake Rancheria property. Over the past 20+ years the Environmental Department has worked to restore these waterways. These areas are the primary forested areas on trust land. Going forward, the vision of the Tribe is to acquire parcels to restore ecologically and culturally significant habitat. This will expand urban forestry.



Figure 11: Powers Creek Restoration

The Tribe would like to target 50% of Net GHG emissions (Table 8) to reduce through the Urban Forestry sector. This target is 707 MT CO<sub>2e</sub>. Blue Lake Rancheria can accomplish this by acquiring and restoring 783 acres (317 hectares) of land. See Table 10 for a breakdown of this calculation.

Table 10: Urban Forestry Emission Reductions

Urban Forestry Emission Reductions		
Carbon Sequestration Emissions Factor (MT CO <sub>2e</sub> )	Target Emissions Reductions (MT CO <sub>2e</sub> )	Hectares Required to Meet Emissions Goal
2.23/ hectare/ year	707	317

These calculations use the EPA Tribal GHG Emission Inventory “Urban Forestry” carbon sequestration emissions factor (2.23 MT/hectare/year). However, much of the land within the aboriginal territory of the Blue Lake Rancheria is agricultural, or forest/timber land use types.

## Electrification

### Fire Department

Electrification of operations focuses on on-road mobile emissions sources. Electrification aligns with the Tribe’s history of investing in renewable energy technology. The BLR Fire Department is the largest consumer of diesel fuel at the Tribe. Of this diesel consumption, one engine is the primary consumer of fuel.

Replacing this engine with an electric fire truck will reduce the Fire Departments emissions by 39% (Figure 12) (Vector Electric Fire Truck, 2022).

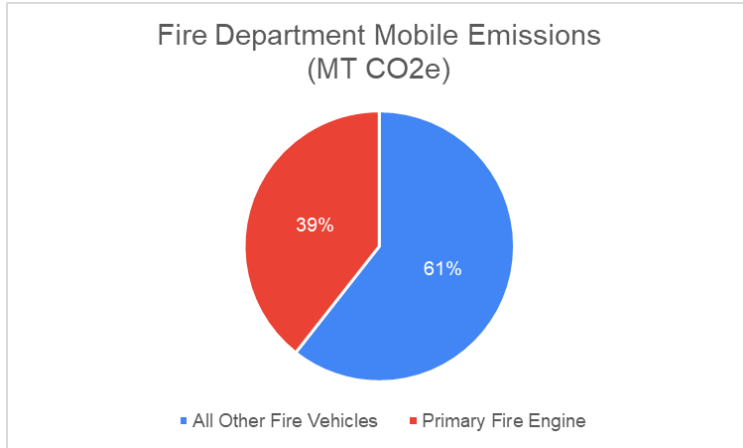


Figure 12: One fire engine in the Fire Department accounts for 39% of the departments’ mobile emissions.

The primary fire engine emits 11.42 MT CO<sub>2</sub>e/year (Table 9). Over the course of 25 years this will eliminate 286 MT CO<sub>2</sub>e from being emitted. All vehicles in this department are heavy duty trucks. As a result, staff was able to scale the total emissions to represent the emissions from the primary fire engine.

Table 11: Primary Fire Engine Emissions

Primary Fire Engine Emissions			
Total Fuel Usage 2022 (diesel)	% of Total Fuel Used by Primary Engine	Total Mobile MT CO <sub>2</sub> e Emitted by Dept.	Total MT CO <sub>2</sub> Emitted by Primary Engine
2871	39.39	29	<b>11.42</b>



Figure 13: Blue Lake Rancheria Wildland and All-Risk Fire Department.

## Tribal Government

The Tribal Government Department has two vehicles that are used most. Both of these primary vehicles are light truck vehicle types. Replacing these two vehicles will reduce emissions by an average of 16 MT CO<sub>2e</sub>/year. This makes up 53% of mobile emissions from the Tribal Government. Over 25 years, replacing these heavy usage gasoline vehicles will eliminate 400 MT CO<sub>2e</sub> from being emitted.

Table 12: Tribal Government Mobile Emissions Reductions

<b>Tribal Gov. Mobile Emissions Reductions (MT CO<sub>2e</sub>)</b>				
	<b>CO<sub>2</sub></b>	<b>CH<sub>4</sub></b>	<b>N<sub>2</sub>O</b>	<b>Total Mobile Emissions</b>
<b>Primary Tribal Gov. Vehicles (gasoline)</b>	16	–	–	<b>16</b>

## 2.3 Benefits Analysis

### Criteria and Hazardous Air Pollutants

BLR used the National Emissions Inventory (NEI) dataset to determine criteria air pollutants (CAPs) and hazardous air pollutants (HAPs). The baseline data year used for this inventory is 2020, as this was the most recent year available. The NEI does not collect data for Blue Lake Rancheria. As a result, the CAP and HAP values are scaled from Humboldt County level data.

Population in Humboldt County in 2020 was 136,310. Blue Lake Rancheria population is 203. The cumulative CAP and HAP emissions were 320070 MT CO<sub>2e</sub>. Scaled to Blue Lake Rancheria, this is 476 MT CO<sub>2e</sub> CAPs and HAPs emitted (Figure 14).



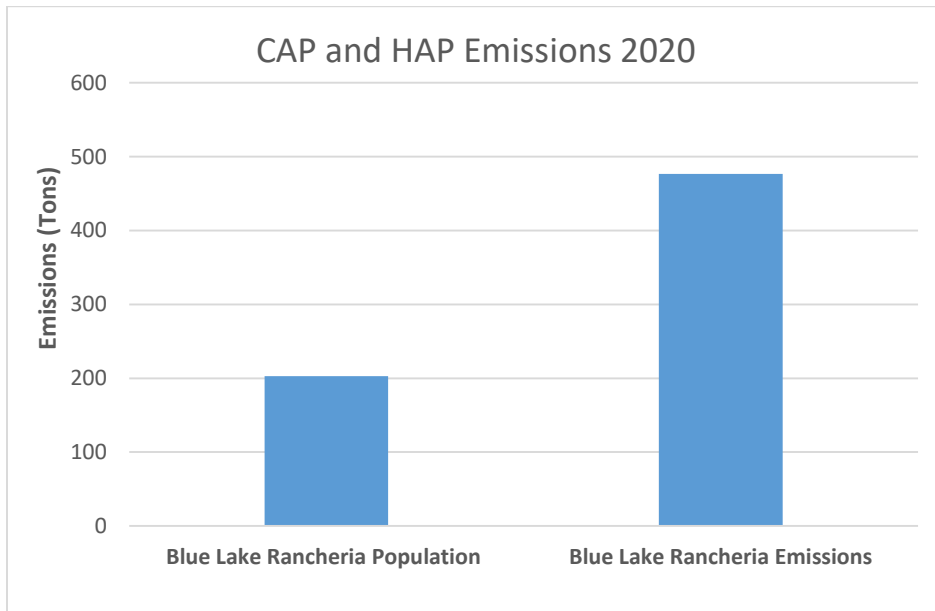


Figure 14: CAPs and HAPs Emissions

Blue Lake Rancheria does not have any industrial sources of emissions from which to quantify CAP and HAP emissions reductions.

### **Electrification of Fire Department**

Electrifying the primary-use diesel fire engine of the BLR Fire Department will reduce particulate matter pollution (criteria air pollutant). Reducing criteria air pollutants from the Rancheria itself will help reduce the human health impacts of particulate air pollution.

### **Carbon Sequestration & Urban Forestry**

Carbon sequestration through land acquisition and restoration supports many co-benefits. The Tribe has been stripped of much of its aboriginal territory. Land acquisition for carbon sequestration supports the Tribe to reclaim sovereignty over ancestral territory.

Low-lying agricultural land has limited viability into the future. Climate change is threatening both agricultural productivity and monetary value of low-lying properties. Purchasing land for carbon sequestration allows current landowners to be fairly compensated for their land. It also paves the way for restoration of the existing grassland/pasture. This agricultural land was once salt marsh and mudflat ecosystems that was drained and converted to pasture during

colonization. Private land ownership is a barrier to restoration projects around Humboldt County. Restoration of wetland ecosystems provides multiple wetland services. Wetlands increase coastal resilience. They absorb wave energy, and accrue sediment— both of which mitigate the impacts of coastal inundation. Wetlands also protect water quality by filtering water. Additionally, they provide critical habitat to many species, including threatened and culturally important salmonids. Wetlands sequester the most carbon of any ecosystem type indigenous to the California north coast. Restoring these lands reduces GHG emissions from the atmosphere.

Replanting native species increases carbon sequestration, and also increases access to traditional materials. Species such as hazel are used in basket making, and acorns are a traditional food source. Increasing access to these resources promotes cultural and food sovereignty for Indigenous communities.

## **2.4 Review of Authority to Implement**

### **Role of the Blue Lake Rancheria Tribal Council**

Blue Lake Rancheria is a federally recognized sovereign nation. As a sovereign nation, the Tribe exercises authority to implement the measures outlined in this PCAP. BLR adopted a Constitution in 1993. Measures outlined in the constitution support the implementation of the priority measures.

The Blue Lake Rancheria is governed by a 5-member Tribal Council. Tribal Council meets on a monthly basis, with additional meetings held as needed. All Tribal Council members must currently reside on BLR property. Tribal Council is elected on a yearly basis by Tribal members presently living on the Rancheria property.

The Tribal Council is the decision-making body for the Blue Lake Rancheria. Within the Tribal Council, the Chairperson operates as the chief executive officer of the Tribe. The Vice Chairperson performs the duties of the Chairperson in their absence. This council approves Tribal Resolutions. These resolutions demonstrate support and commitment from the Tribe on projects or ideas.

### **Authority to Electrify Operations at the Blue Lake Rancheria**

Blue Lake Rancheria maintains the authority to implement electrification of the property. Per the Blue Lake Rancheria Constitution, the Council oversees the right to regulate “the use and development of all tribal lands, whether assigned or unassigned, and to manage, lease or to otherwise use all unassigned Tribal lands in accordance with applicable law” (Section 6; G). Electrification of Rancheria operations is allowed under the right to develop and manage tribal land.

### **Authority to Acquire Land for Mitigation**

The Blue Lake Rancheria intends to take Climate Action by acquiring land for carbon sequestration. Per the Blue Lake Rancheria Constitution, this is within the purview of the Tribal Council. The Council also exercises authority to, “purchase and to acquire in other ways land and other property” (Section 6; K). This expressly gives the Blue Lake Rancheria Tribe the authority to acquire land for the use of climate mitigation and adaptation.

### **Authority to Increase Carbon Sequestration Through Urban Forestry**

The Tribe exercises full authority over the development of BLR lands. This includes restoration and planting. The Tribe has a history of planting and restoring riparian corridors along the three waterways that run through Rancheria property.

## **2.5 Identification of Other Funding Mechanisms**

The Blue Lake Rancheria has identified and applied for multiple complementary funding sources. The funding sources are within the carbon sequestration and urban forestry sectors. Asterisks (\*) are included if the funding source has been secured.

### **National Atmospheric and Atmospheric Administration Climate Resilience Challenge**

The Tribe has applied for funding through the National Atmospheric and Atmospheric Administration (NOAA). If funded, the NOAA Climate Resilience Challenge funding will pair seamlessly with the goal of land acquisition for carbon sequestration. The Tribe

has applied in coordination with the North Coast Regional Water Quality Control Board for a total of 2 million dollars to support the creation of a Wigi-Humboldt Bay Sea Level Rise Shoreline Adaptation Atlas. This is meant to be a tool to help plan for SLR at the regional scale. It is a two-prong project, where the second phase of the project focuses on prioritized implementation of nature based solutions for SLR adaptation and mitigation. This process will require the selection of areas of shoreline to implement restoration through nature based solutions.

Private land ownership has been identified as a barrier to both SLR adaptation, and wetland mitigation. Blue Lake Rancheria acquiring SLR-vulnerable parcels would contribute not only to carbon sequestration, but to tribal sovereignty and coastal resilience.

A Tribal Resolution has been passed to support this project, demonstrating the Tribe's support of coastal-resilience through nature based solutions.

### **California State Lands Commission Sustainable Agricultural Lands Conservation Program\***

The Blue Lake Rancheria secured funding through the California State Lands Commission Sustainable Agricultural Lands Conservation (SALC) program. This capacity grant provides funding for the Tribe to hire a Land Acquisition Specialist. This will allow the Tribe to target, and eventually acquire agricultural lands. This is meant to reduce GHG emissions by maintaining working lands. In line with GHG reduction measures, this staff member will be able to target low-lying agricultural lands.

### **Environmental Protection Agency Clean Water Act 319 Funding\***

The Tribe has applied for climate funding through EPA Clean Water Act 319 funding. This would provide funding to expand riparian restoration and planting, which would contribute to increased carbon sequestration on the reservation.

## **Bureau of Land Management Seeds of Success\***

Blue Lake Rancheria applied for the Bureau of Land Management (BLM) Seeds of Success grant. This grant would support native seed collection. In turn this would support the Tribe's restoration efforts. Restoring Tribal land will increase carbon sequestration.

### **2.6 Next Steps**

Blue Lake Rancheria staff will continue to develop GHG reduction measures. The most impact to reduce GHG emissions can be made through reductions to the Employee Commute and Stationary Combustion sectors. Staff will compile and input data for sectors that do not have emissions calculated in the PCAP. This includes accessing BLR microgrid data, and determining the reductions this provides. This will provide a more complete inventory of energy use and production. Staff will also utilize local carbon sequestration data to compare to urban forestry calculations. The current carbon sequestration factor is a conservative estimate for local lands, and it is likely that the number of hectares needed to meet the emissions target is lower than is currently calculated.

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