Pueblo of Tesuque Department of Environment and Natural Resources

Priority Climate Action Plan
For the
Pueblo Coalition of Tesuque, Nambe, Picuris, and San Ildefonso
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Definitions

AFOLU - Agriculture, Forestry, and Other Land Use
BAU - Business as Usual
BEA - U.S. Bureau of Economic Analysis
CAP - Criteria Air Pollutants
CAFE - Corporate Average Fuel Economy
CCAP - Comprehensive Climate Action Plan
CO_2e - Carbon Dioxide equivalents
EIA - Energy Information Administration
EJ - Environmental Justice
EPA - Environmental Protection Agency
EV - Electric Vehicles
GHG - Greenhouse Gasses
ICE - Internal Combustion Engine
ICLEI - International Council for Local Environmental Initiatives
NAAQs - National Ambient Air Quality Standards
NE - Not Estimated
NEI - National Emissions Inventory
NO - Not Occurring
PCAP - Priority Climate Action Plan
PV - Photovoltaic
USCP - U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions
VMT - Vehicle Miles Traveled

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Executive Summary

Calculating greenhouse gas emissions is essential to any climate action plan. The four Pueblos making up the Tribal Climate Change Task Force -- Nambe, Picuris, San Ildefonso, and Tesuque – created this priority climate action plan containing an inventory for each Pueblo in order to set a baseline understanding of the amount of GHG emissions, which sources and sectors they come from, and to best plan the mitigation measures that will have the greatest effect on their emissions and promote environmental stewardship. The inventories represent a baseline year of 2020. The inventories are community-scale and follow the U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions. Each inventory was prepared using ICLEI's ClearPath software.

In 2020 there was an estimated 15,229 MT of CO_2e emitted on the Pueblo of Nambe, with transportation and mobile sources the highest contributing sector. There was an estimated 6,087 MT of CO_2e emitted on the Pueblo of Picuris in 2020 with transportation and mobile sources the highest contributing sector. On the Pueblo of San Ildefonso there was an estimated 12,364 MT of CO_2e, with transportation and mobile sources the highest contributing sector. There was an estimated 22,555 MT of CO_2e on the Pueblo of Tesuque, with transportation and mobile sources the highest contributing sector. Consumption-based emissions were estimated at an additional 53,905 MT of CO_2e for the Pueblo of Nambe; 4,262 MT of CO_2e for the Pueblo of Picuris; 57,399 MT of CO_2e for the Pueblo of San Ildefonso; and 5,394 MT of CO_2e for the Pueblo of Tesuque. In total, the GHG emissions inventories of the Tribal Climate Change Task Force, not including consumption-based emissions, amounted to an estimated 56,235 MT of CO_2e in 2020. The findings of these inventories have informed the top three priority mitigation measures for each Pueblo and can be used to continue to inform future implementation measures.

1. Introduction

The Tribal Climate Change Task Force includes the Pueblo of Nambe, the Pueblo of Picuris, Pueblo de San Ildefonso, and the Pueblo of Tesuque. The Tribal Climate Change Task Force has partnered with Adelante Consulting, Inc. to create this Priority Climate Action Plan (PCAP) to support investment in policies, practices, and technologies that reduce pollutant emissions, create high-quality jobs, spur economic growth, protect the environment, and enhance the quality of life for all of the Pueblos. The Pueblos chose to work together as a coalition to collectively address climate change within their communities and build a foundation for any current and future climate mitigation actions.

Climate action planning is an important step towards stifling the negative effects of climate change. Climate change has caused an increasing number of days of extreme heat, intensified drought, air pollution, an extreme and extended fire season, post-fire flooding, ecosystem degradation, and more impacts in Northern New Mexico. These effects disproportionately impact lower income communities and communities of color, including Pueblos.

Tribal nations are frequently some of the most vulnerable communities to the impacts of climate change despite contributing little to climate change. Pueblos have lived sustainably on their ancestral lands since time immemorial. Located within Santa Fe and Taos Counties and within the Northern New Mexico mountains and valleys, the coalition's member Pueblos are primarily rural with populations under 3,000. Compared to urban areas, the Pueblos generally rely more heavily on wood-burning appliances and face unique environmental challenges due to their more remote geographical locations. The Tribal Climate Change Task Force is committed to planning and implementing climate-pollution-reducing actions and tribal sustainability goals despite being some of the lowest emitting communities in the region.

This project is funded by the United States Environmental Protection Agency (EPA) under agreement #5D-02F41301-0 to the Pueblo of Tesuque. The contents of this document do not necessarily reflect the views and policies of the EPA, nor does the EPA endorse trade names or recommend the use of commercial products mentioned in this document.

PCAP requirements are included under the four main sections of the report, below:

1) **GHG Inventories**

   A baseline 2020 GHG inventory using data provided by the Tribal Climate Change Task Force, the National Emissions Inventory (NEI), and the ICLEI software ClearPath while following the USCP.

2) **Quantified GHG Reduction Measures**

   GHG reduction measures for each Pueblo based on the established 2020 GHG inventory for the respective Pueblo.

3) **Benefits Analysis**

   Created an analysis for the potential co-benefits of the quantified GHG reduction measures for each Pueblo.

4) **Review of Authority to Implement**

   Addressed scope of authority, procedural requirements, and jurisdictional issues for each Pueblo.

1.1 Approach to Developing the PCAP

Developing this PCAP for the Tribal Climate Change Task Force involved regular collaboration of Tribal Environmental Directors for the Pueblo of Tesuque, Nambe, Picuris, and San Ildefonso along with hired consultants at Adelante Consulting, Inc. Regular meetings were held focusing on data collection and discussion, ClearPath GHG inventory methodology, and inquiries about GHG emissions inventory details. In addition to these monthly meetings with the Tesuque Coalition, a meeting with each Pueblo's Tribal Environmental Director was facilitated to

understand their Pueblos' history and both current and future climate initiatives for their community.

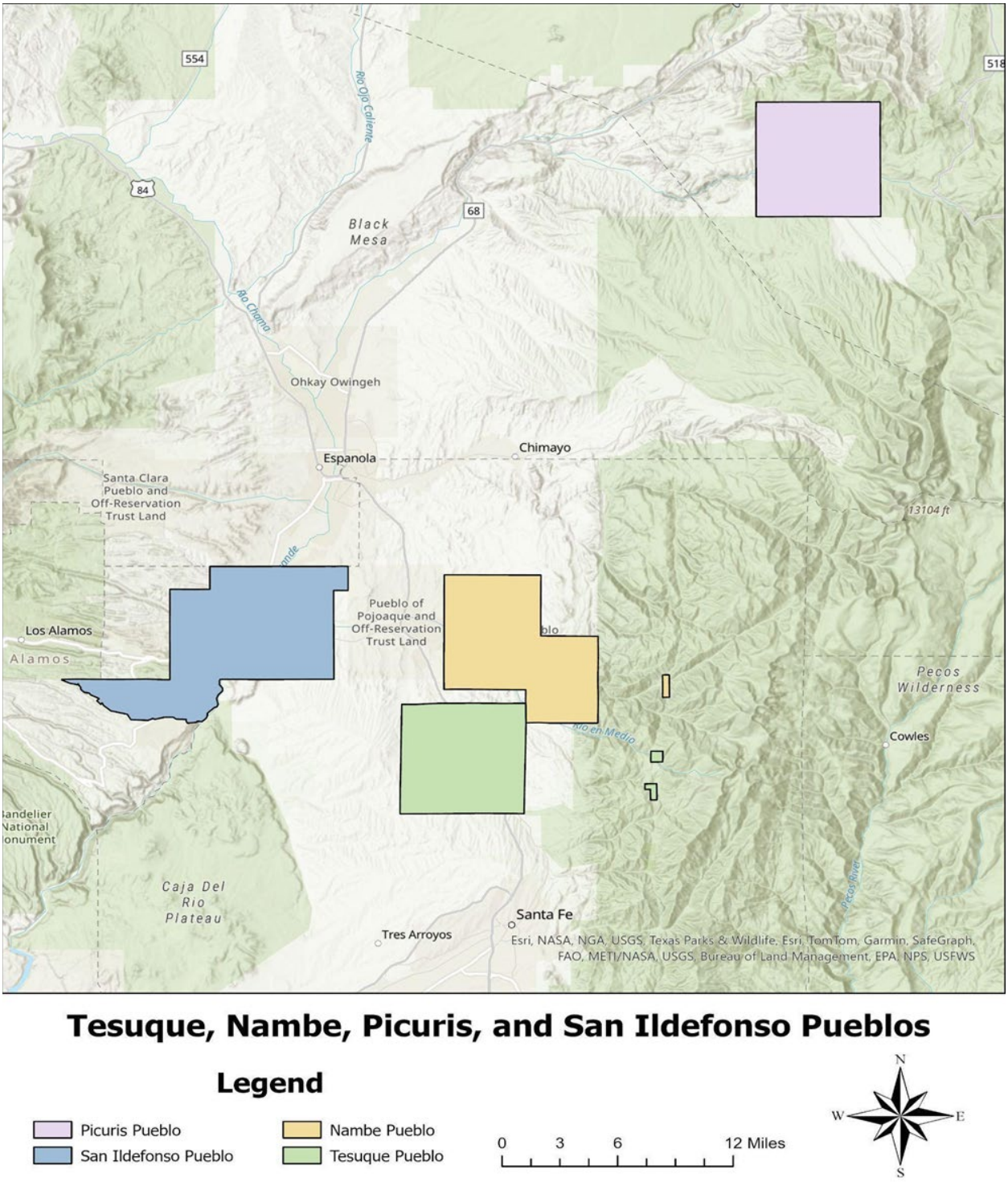
A series of meetings with each Pueblo's Tribal Environmental director to request and inquire about specific data for the Pueblos were hosted throughout the development of this PCAP to provide guidance for each Pueblo's GHG emission inventory. To optimize the PCAP timeline each Pueblo was assigned a designated consultant from Adelante Consulting Inc. to facilitate streamlined communication. Samantha Valentine was assigned to Tesuque and Picuris and Brianna Green was assigned to Nambe and San Ildefonso.

Discussions about each Pueblo's desired reduction measures were established during the one-on-one meetings. The top three reduction measures were identified for each Pueblo, and the priority and feasibility of them were addressed between the Tribal Environmental Directors and Adelante consultants. After projections for a business-as-usual scenario were produced for each Pueblo, the GHG-reducing impact of priority mitigation measures were modeled from 2025 to 2030 and 2025 to 2050. Pueblo-specific reduction measures analyzed based on the impact they have with their related sector(s).

1.2 Scope of the PCAP

Trust land boundaries for each Pueblo determined the geographic territory included in each Pueblo's baseline inventory and this PCAP (Figure 1). This PCAP includes inventories that cover Scope 1, 2, and 3 emissions originating from these boundaries. Mitigation measures are projected for each Pueblo individually through 2030 and 2050.

Figure 1. Pueblo Trust Lands



2. Tribal/Territorial Organization and Considerations

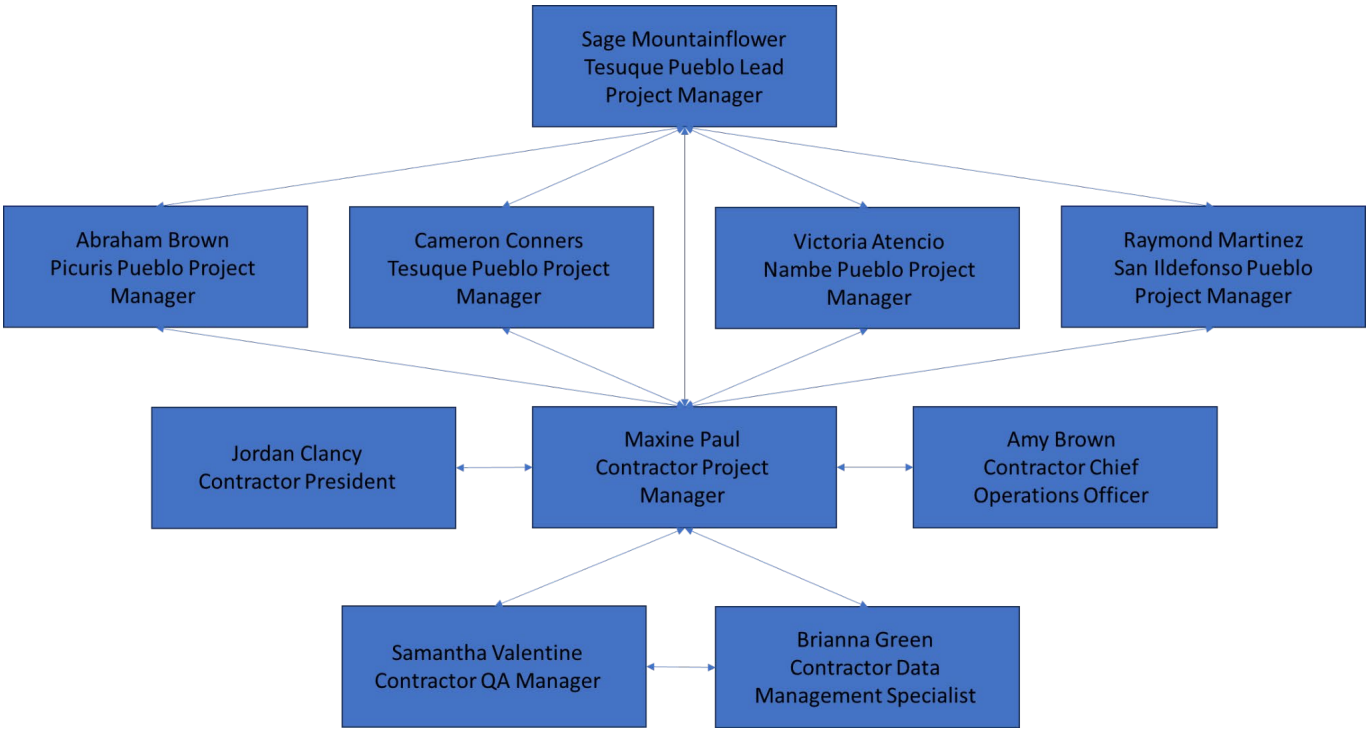
2.1 The Tribal/Territorial PCAP Management and Development Team

The organizations involved in drafting the PCAP include:

- Pueblo of Nambe
- Pueblo of Picuris
- Pueblo of San Ildefonso
- Pueblo of Tesuque
- Adelante Consulting, Inc.

This PCAP was developed by the Tribal Climate Change Task Force, made up of Environment and or Natural Resources Directors and staff at each Pueblo's government and the contractor, Adelante Consulting, Inc. Decision-making authority for project-wide changes has been by consensus among coalition members, with the final word coming down to the lead Pueblo, Tesuque.

Figure 2. PCAP Management and Development Team



2.2 Special Considerations for Tribal/Territorial Entities

Two Pueblos within the Tribal Climate Change Task Force, the Pueblo of Picuris and the Pueblo of San Ildefonso, are working on or already have implemented a solar array. These existing projects influence the mitigation measures that are likely to be implemented at each Pueblo as well as the mitigation measures that are quantified in this PCAP.

Much of decarbonization is related to electrification and avoiding the burning of fossil fuels for heat, energy, and transportation; for example, switching from ICE vehicles to electric vehicles, or using heat pumps instead of gas furnaces to heat buildings. Therefore, electrical line, grid capacity and utility authorities each can play a limiting role in the pace and scope of in-front-of-the-meter mitigation measures.

2.3 Collaborations

Greenhouse gas emissions and therefore mitigation actions span across government departments and sectors at each Pueblo. To collect data and discuss prioritization and practicability of mitigation measures, coalition leaders interacted with:

- Individual tribal/territorial members
- Community organizations
- Local, state government, and federal government such as the New Mexico Environment Department
- Tribal businesses
- Energy utilities and co-ops (PNM, Kit Carson)
- Fuel Wholesalers

3. PCAP elements

3.1 Greenhouse Gas (GHG) Inventory

Relative Values of CO_2e

Certain gasses in the atmosphere absorb energy, slowing or preventing the loss of heat to space. Those gasses are known as "greenhouse gasses."[1] They act like a blanket, making the earth warmer than it would otherwise be. These gasses include carbon dioxide, methane, nitrous oxide, and fluorocarbons such as chlorofluorocarbons, hydrochlorofluorocarbons, and others, collectively known as "F-Gasses". F-gasses come from coolants, foaming agents, fire extinguishers, solvents, pesticides, and aerosol propellants. Excess carbon dioxide in the atmosphere is largely a by-product of combustion of fossil fuels. Methane is the product known

[1]US EPA, O. (2021, April 15). Basics of Climate Change [Data and Tools]. https://www.epa.gov/climatechange-science/basics-climate-change

as natural gas and is also produced in agricultural activities, as well as naturally by wetlands. Nitrous oxide is produced mainly through agricultural activities and natural processes but is also produced in fossil fuel burning and industrial processes.[2]

CO_2e - "Carbon Dioxide Equivalent" is a metric used to compare across types of greenhouse gasses. CO_2e means the number of metric tons of CO_2 emissions with the same global warming potential as one metric ton of another greenhouse gas.[3] Some values that might be helpful for understanding the meaning of the MT CO_2e unit are shown in Table 1 below.

Table 1. Example CO_2e Values

Source[4]	**Average Annual MT CO_2e**
Typical gasoline powered passenger vehicle	4.49
Individual Home electricity use	5.07
Individual Home energy use (including gas)	7.67
Acre of forest preserved from development	-155.92
Acre of forest sequestering (left alone)	-0.857
Natural Gas Fired Power Plant	374,732
Coal Fired Power Plant	3,890,367

3.1.1 Scope

The following greenhouse gas (GHG) inventories measure emissions from the Tribal Climate Change Task Force, a collaboration of four New Mexico tribal nations: The Pueblo of Nambe, the Pueblo of Picuris, Pueblo de San Ildefonso, and the Pueblo of Tesuque. Separate inventories

[2] US EPA, O. (2021, April 15). Basics of Climate Change [Data and Tools]. https://www.epa.gov/climatechange-science/basics-climate-change

[3] CO_2e is calculated using Equation A-1, 40 CFR Part 98

[4] US EPA, O. (2015, January 28). *Greenhouse Gas Equivalencies Calculator—Revision History* [Data and Tools]. https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator-revision-history

were created for each Pueblo, reflecting local data. The inventories are community-scale and were created using the U.S. Community Protocol for Accounting and Reporting of GHG Emissions (USCP) including Scopes 1, 2, and 3.

Scope 1 emissions are direct GHG emissions controlled by each Pueblo and originate from within their geographic boundaries. Scope 2 emissions are indirect GHG emissions associated with the purchase of electricity, heating and cooling. These emissions are the result of the Pueblo's purchased energy use. Scope 3 emissions are the result of activities from assets not owned or controlled by the Pueblo, but that the Pueblo indirectly affects in its value chain.[5] Scope 3 emissions include all sources not included in Scope 1 and 2. Scope 3 emissions often represent the majority of an organization's total GHG emissions.[6]

3.1.2 Methodology

The Tribal Climate Change Task Force's community-wide GHG inventory utilized ClearPath software from ICLEI USA, adhering to the USCP. This framework quantifies GHG emissions within the Pueblo of Nambe, Picuris, San Ildefonso, and Tesuque.

Per EPA recommendations,[7] the baseline year for the community-wide inventories selected was 2020. This year was selected primarily due to quality-assured data availability in nationwide databases such as the NEI, EIA, and BEA. Additionally, aligning with numerous other organizations and government agencies using a 2020 baseline year facilitates comparative analysis, providing context for the Tribal Climate Change Task Force's relative and overall emissions. *Appendix C*: *Limitations and Assumptions* provides a full justification for the use of 2020 as a baseline year.

Specific and local data produces the most accurate emissions inventories. Therefore, data was prioritized in this order: complete local 2020 emissions and process data, incomplete and/or proxy year local emissions and process data. Any data that could not be collected by the Pueblo themselves was then either scaled down from national or regional databases or a preexisting tool for estimation was used. For a comprehensive overview of the methodology employed, please refer to *Appendix A: Inventory Methodology*.

3.1.3 Emissions Sources

The Sectors and sources included in the inventories for each Pueblo are as follows:

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[5] US EPA, O. (2016, November 8). *Scope 3 Inventory Guidance* [Overviews and Factsheets]. https://www.epa.gov/climateleadership/scope-3-inventory-guidance.

[6] US EPA, O. (2016, November 8). *Scope 3 Inventory Guidance* [Overviews and Factsheets]. https://www.epa.gov/climateleadership/scope-3-inventory-guidance

[7] US EPA, O. (2023, May 31). *2023 National Emissions Inventory (NEI) Documentation* [Other Policies and Guidance]. https://www.epa.gov/air-emissions-inventories/2023-national-emissions-inventory-nei-documentation

Nambe:

Commercial Energy:
- Emissions from Grid Electricity
- Emissions from Stationary Fuel Combustion

Transportation & Mobile Sources:
- Emissions from Off Road Vehicles
- On Road Transportation

Residential Energy:
- Emissions from Grid Electricity
- Emissions from Stationary Fuel Combustion

Industrial Energy: NO

Solid Waste:
- Collection and Transportation Emissions
- Landfilled Waste
- Process Emissions Associated with Landfilling

Water & Wastewater: NE

Agriculture, Forestry, and Other Land Use (AFOLU):
- Emissions and Removals from Forests
- Emissions and Removals from Trees Outside of Forests
- Emissions from Agricultural Activities

Process & Fugitive Emissions:
- Fugitive Emissions from Natural Gas Distribution

Upstream Impacts of Activities:
- Upstream Impacts of Electricity Used by the Community
- Upstream Impacts of Fuels Used in Stationary Combustion by the Community

Consumption Based:
- Food Consumption
- Services Consumption
- Construction Consumption
- Goods Consumption

Picuris:

Commercial Energy:
- Emissions from Grid Electricity
- Emissions from Stationary Fuel Combustion

Transportation & Mobile Sources:
- On Road Transportation
- Emissions from Off Road Vehicles

Residential Energy:
- Emissions from Grid Electricity

- Emissions from Stationary Fuel Combustion

Industrial Energy: NO

Solid Waste:

- Landfilled Waste
- Process Emissions Associated with Landfilling
- Collection and Transportation Emissions

Water & Wastewater:

- Fugitive Emissions from Septic Systems
- Process Emissions from Wastewater Treatment Lagoons
- Process N_2O Emissions from Wastewater Treatment Plant
- Process N_2O from Effluent Discharge to River, Ocean, or Deep Well Injection
- Emissions from Wastewater Treatment Energy Use

Agriculture, Forestry, and Other Land Use (AFOLU):

- Emissions and Removals from Forests
- Emissions and Removals from Trees Outside of Forests
- Emissions from Agricultural Activities

Process & Fugitive Emissions:

- Hydrofluorocarbon & Refrigerant Emissions

Upstream Impacts of Activities:

- Emissions from Electric Power Transmission and Distribution Losses
- Upstream Impacts of Electricity Used by the Community

Consumption Based:

- Food Consumption
- Services Consumption
- Construction Consumption
- Goods Consumption

<u>San Ildefonso</u>:

Commercial Energy:

- Emissions from Grid Electricity
- Emissions from Stationary Fuel Combustion

Transportation & Mobile Sources:

- Emissions from Off Road Vehicles
- On Road Transportation

Residential Energy:

- Emissions from Grid Electricity
- Emissions from Stationary Fuel Combustion

Industrial Energy: NO

Solid Waste:

- Collection and Transportation Emissions

- Landfilled Waste
- Process Emissions Associated with Landfilling

Water & Wastewater:

- Process Emissions from Wastewater Treatment Lagoons
- Process N_2O Emissions from Wastewater Treatment Plant

Agriculture, Forestry, and Other Land Use (AFOLU):

- Emissions and Removals from Forests
- Emissions and Removals from Trees Outside of Forests
- Emissions from Agricultural Activities

Process & Fugitive Emissions:

- Fugitive Emissions from Natural Gas Distribution

Upstream Impacts of Activities:

- Upstream Impacts of Electricity Used by the Community
- Upstream Impacts of Fuels Used in Stationary Combustion by the Community

Consumption Based:

- Food Consumption
- Services Consumption
- Construction Consumption
- Goods Consumption

<u>Tesuque</u>:

Commercial Energy:

- Emissions from Grid Electricity
- Emissions from Stationary Fuel Combustion

Transportation & Mobile Sources:

- Emissions from Off Road Vehicles
- On Road Transportation

Residential Energy:

- Emissions from Grid Electricity
- Emissions from Stationary Fuel Combustion

Industrial Energy: NO

Solid Waste:

- Collection and Transportation Emissions
- Emissions from Flaring of Landfill Gas
- Landfilled Waste
- Process Emissions Associated with Landfilling

Water & Wastewater:

- Fugitive Emissions from Septic Systems
- Process Emissions from Wastewater Treatment Lagoons
- Process N_2O Emissions from Wastewater Treatment Plant

- Process N_2O from Effluent Discharge to River, Ocean, or Deep Well Injection

Agriculture, Forestry, and Other Land Use (AFOLU):

- Emissions and Removals from Forests
- Emissions and Removals from Trees Outside of Forests
- Emissions from Agricultural Activities

Process & Fugitive Emissions:

- Fugitive Emissions from Natural Gas Distribution
- Hydrofluorocarbon & Refrigerant Emissions

Upstream Impacts of Activities:

- Emissions from Electric Power Transmission and Distribution Losses
- Upstream Impacts of Electricity Used by the Community
- Upstream Impacts of Fuels Used in Stationary Combustion by the Community

Consumption Based:

- Food Consumption
- Services Consumption
- Construction Consumption
- Goods Consumption

3.1.4 GHG Emissions Results by Sector

This section shows the results of the GHG emissions inventories for each Pueblo by sector in CO_2 equivalents (CO_2e) and by each individual greenhouse gas. Included in these results are Scope 3 emissions which are estimates of all the greenhouse gas emissions associated with the production, transportation, use and disposal of products and services consumed by a particular community or entity in a year. Local governments do not often include these emissions because they are difficult to account for or make policies to change. We have included them because they are part of the USCP but should not be included in comparisons between the Pueblos and local governments such as Santa Fe County and Los Alamos County.

The USCP consumption-based emissions provides a framework to determine the indirect emissions associated with food, goods, services, and construction. Understanding Scope 3 emissions is important in making decisions about reducing environmental impacts associated with GHG emissions. While consumption-based emissions can offer valuable information about consumption patterns, the methods to calculate them have limitations to consider. Some of the limitations associated with USCP consumption-based emissions for these specific emissions inventory includes data availability and limited transparency. These limitations are further discussed in *Appendix C*: *Limitations and Assumptions*.

Nambe

Table 2. Pueblo of Nambe GHG Emissions by Sector

Sector	**Metric Tons of CO_2e**
Residential Energy	3,048
Commercial Energy	3,457
Transportation & Mobile Sources	4,027
Solid Waste	81
Water & Wastewater	0
AFOLU	-5,223
Process & Fugitive Emissions	64
Upstream Impacts of Activities	1,571
Consumption Based	*53,906*

Figure 3. Pueblo of Nambe GHG Emissions by Sector with Consumption Based Emissions

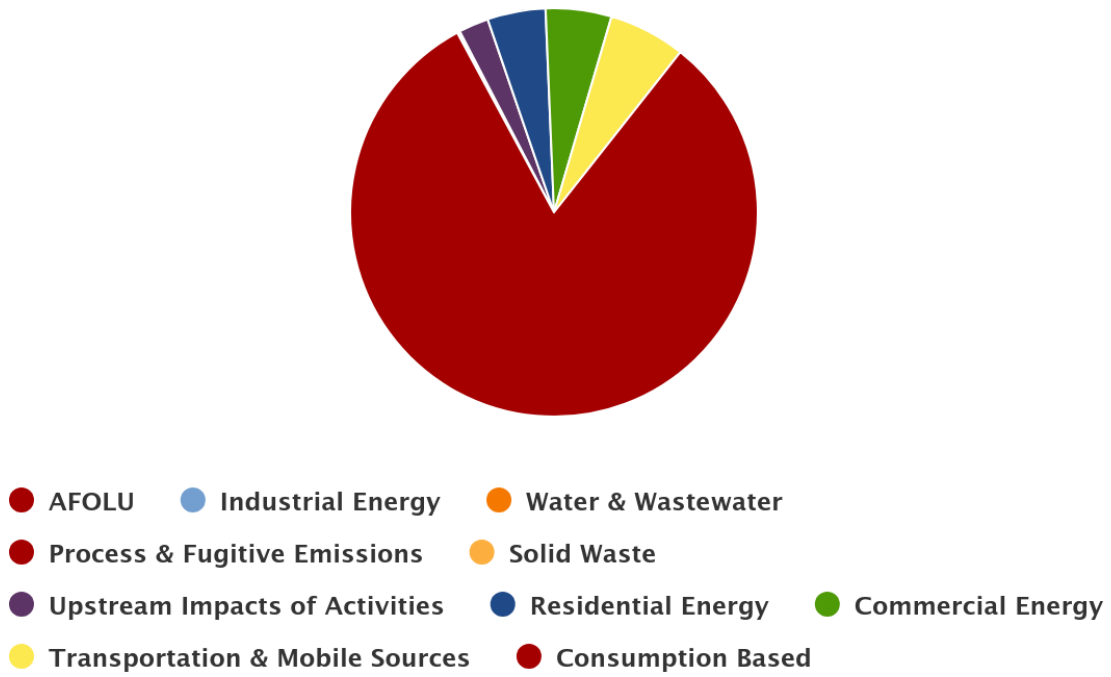


Figure 4. Pueblo of Nambe GHG Emissions by Sector without Consumption Based Emissions

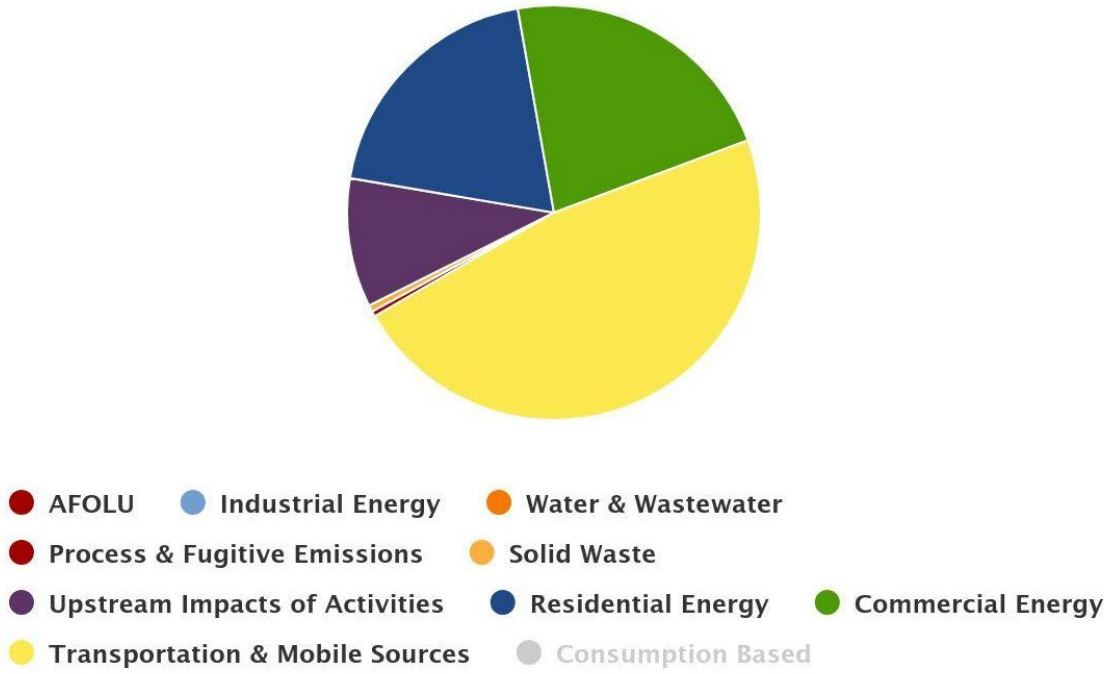


Table 3. Pueblo of Nambe GHG emissions by Gas and Sector

Sector	**CO_2 (MT)**	**CH_4 (MT)**	**N_2O (MT)**	**HFCs (MT)**	**PFCs**	**SF_6**	**NF_3**	**CO_2e (MT)**
Residential Energy	3035.40	0.28	0.02	0	0	0	0	3048.32
Commercial Energy	3443.53	0.24	0.02	0	0	0	0	3456.58

Transportation & Mobile Sources	2856.83	2.35	4.05	0	0	0	0	4026.52
Solid Waste	0	2.78	0	0	0	0	0	80.00
Water and Wastewater	-	-	-	-	-	-	-	-
AFOLU	-	-	-	-	-	-	-	-5,202.00
Process and Fugitive Emissions	0	1.20	0	0	0	0	0	63.53
Upstream Impacts of Activities	208.06	0.013	0	0	0	0	0	1,571.00
Consumption Based	*46511.97*	*208.03*	*6.36*	*0*	*0*	*0*	*0*	*53,905.70*

The Pueblo of Nambe's largest GHG emissions come from consumption, categorized as Scope 3 emissions producing 53,096 metric tons of CO_2e. Scope 1 emissions from the Transportation and Mobile Sources sector was the second highest with GHG emissions from on road gasoline vehicles producing 3,407 metric tons of CO_2e and on road diesel vehicles producing 16 metric tons of CO_2e. Despite this, many of these transportation emissions are from trips through the Pueblo on US Highway 503, which is not directly under the control of the Pueblo.

The third largest emitter came from a combination of Scope 1 and 2 emissions in the residential and commercial energy sectors. For residential and commercial energy, the stationary combustion of natural gas in these sectors produced 1,032 and 798 metric tons of CO_2e respectively. Residential and commercial energy include natural gas, electricity, and any other stationary fuel consumption. Stationary fuel consumption like natural gas is a Scope 1 source, while purchased electricity is a Scope 2 source.

The overall positive emissions for the Pueblo of Nambe in 2020 were 12,248 MT CO_2e. By including emissions sinks as well as sources, the net emissions were 7,025 MT CO_2e. Consumption based emissions, reported separately from the total, were 53,906 MT of CO_2e.

Picuris

Table 4. Pueblo of Picuris GHG Emissions by Sector

Sector	**MT CO_2e in 2020**
Residential Energy	821
Commercial Energy	81
Transportation & Mobile Sources	4,966
Solid Waste	41
Water & Wastewater	65
AFOLU	-3,696
Process & Fugitive Emissions	55
Upstream Impacts of Activities	54
Consumption Based	*4,262*

Figure 5. Pueblo of Picuris GHG Emissions by Sector with Consumption Based Emissions

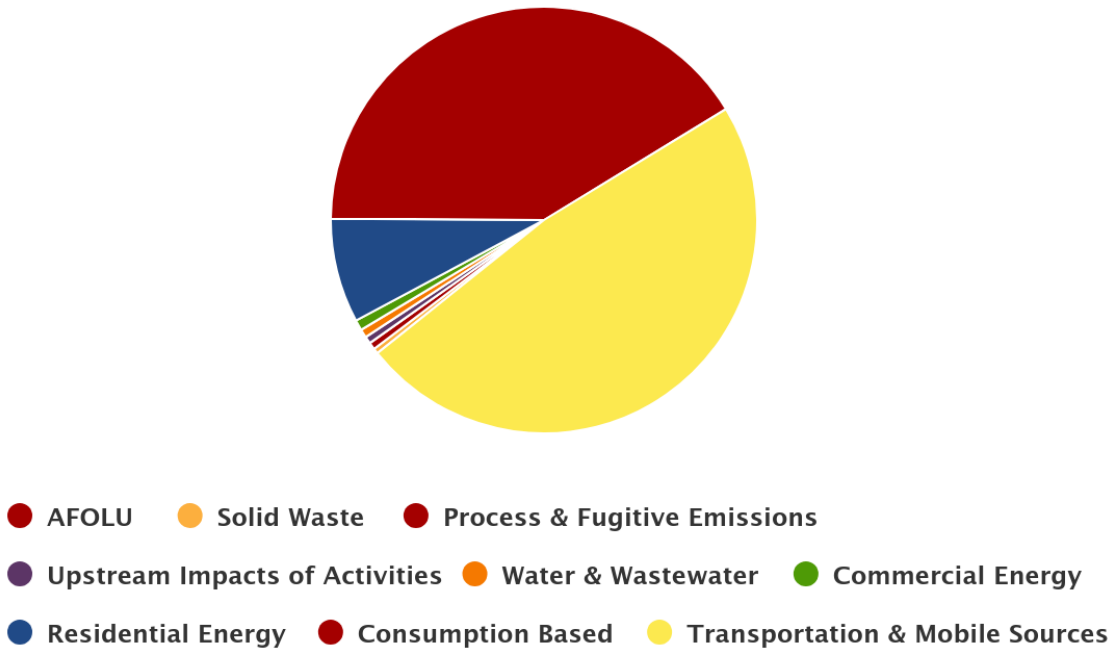


Figure 6. Pueblo of Picuris GHG Emissions by Sector without Consumption Based Emissions

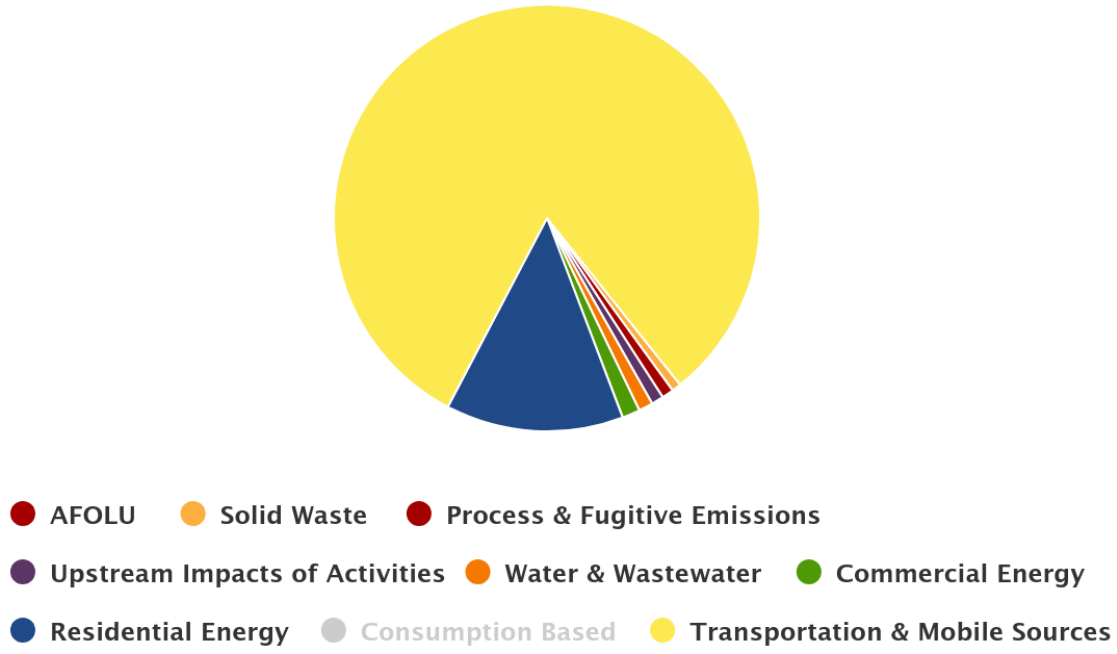


Table 5. Pueblo of Picuris GHG emissions by Gas and Sector

Sector	**CO_2 (MT)**	**CH_4 (MT)**	**N_2O (MT)**	**HFCs (MT)**	**PFCs**	**SF_6**	**NF_3**	**CO_2e (MT)**
Residential Energy	475.39	11.16	0.16	0	0	0	0	821.34
Commercial Energy	81.02	0.01	0.001	0	0	0	0	81.81
Transportation & Mobile Sources	4965.60	0.04	0	0	0	0	0	4966.71
Solid Waste	0	1.42	0	0	0	0	0	41.69
Water and Wastewater	0	2.38	0.004	0	0	0	0	65.97

AFOLU	0	2.22	0	0	0	0	0	-3696.69
Process and Fugitive Emissions	0	0	0	0.03	0	0	0	55.48
Upstream Impacts of Activities	1.27	8.13E-05	1.05E-05	0	0	0	0	54.72
Consumption Based	*3747.30*	*14.47*	*0.44*	*0*	*0*	*0*	*0*	*4261.68*

The largest emitter for the Pueblo of Picuris is from Transportation and Mobile sources at 4,967 Metric Tons (MT) of CO_2e. Transportation and Mobile emissions come from sources such as passenger vehicles, freight vehicles, mobile construction equipment and mobile recreational equipment. All Transportation and Mobile sources are Scope 1 sources. Despite this, many of these transportation emissions are from trips through the Pueblo on State Highway 75, which is not directly under the control of the Pueblo.

The second highest emission source is Consumption Based emissions at 4,262 MT CO_2e. Consumption based emissions are those derived from the use of goods, services, and food. These are Scope 3 sources.

The third largest source is Residential Energy at 821 MT CO_2e. Residential Energy includes residential propane use, wood burning, and electricity. Stationary fuel consumption like propane and wood burning is a Scope 1 source, while purchased electricity is a Scope 2 source.

The overall positive emissions for the Pueblo of Picuris in 2020 were 6,087 MT CO_2e. By including emissions sinks as well as sources, the net emissions were 2,390 MT CO_2e. Consumption based emissions, reported separately from the total, were 4,262 MT CO_2e.

San Ildefonso

Table 6. Pueblo of San Ildefonso GHG Emissions by Sector

Sector	**MT CO_2e**
Residential Energy	2,856

Commercial Energy	3,238
Transportation & Mobile Sources	3,998
Solid Waste	445
Water & Wastewater	740
AFOLU	-5,070
Process & Fugitive Emissions	60
Upstream Impacts of Activities	1,472
Consumption Based	*57,399*

Figure 7. Pueblo of San Ildefonso GHG Emissions by Sector with Consumption

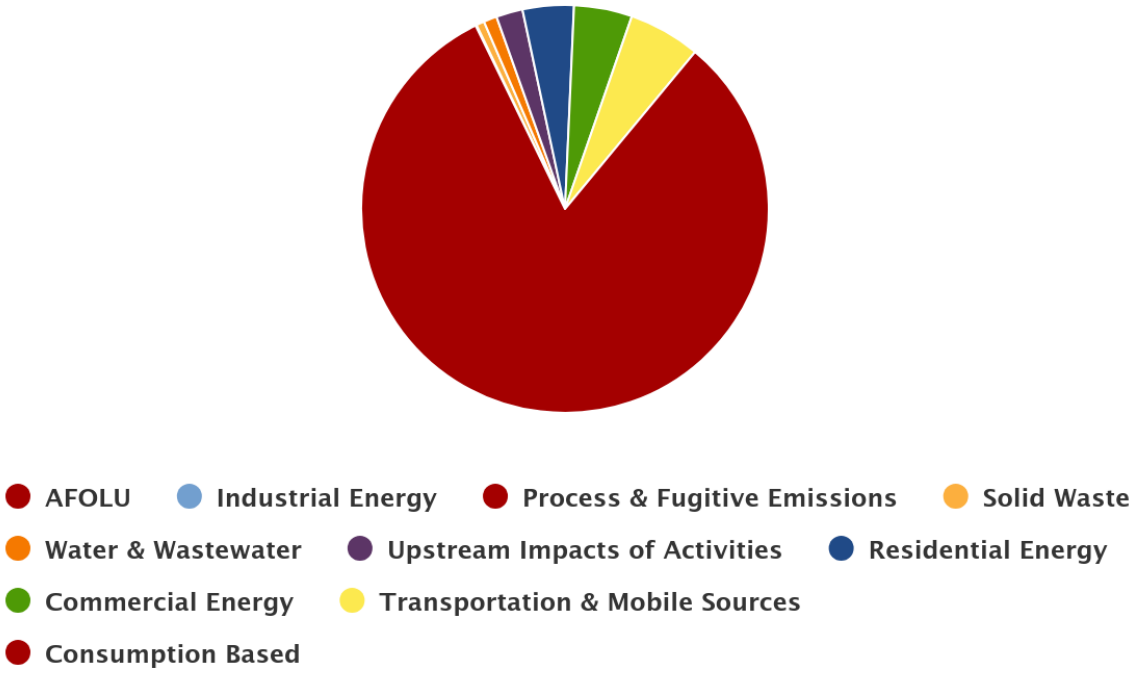


Figure 8. Pueblo of San Ildefonso GHG Emissions by Sector

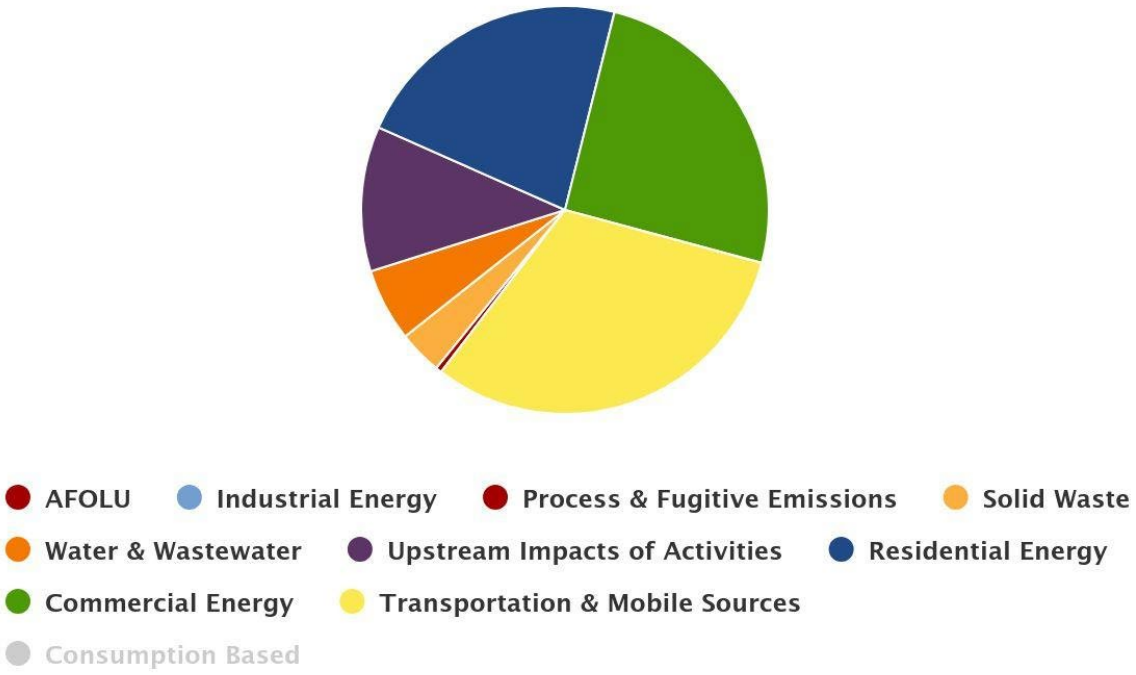


Table 7. Pueblo of San Ildefonso GHG emissions by Gas and Sector

Sector	CO_2 (MT)	CH_4 (MT)	N_2O (MT)	HFCs (MT)	PFCs	SF_6	NF_3	CO_2e (MT)
Residential Energy	2,844.07	0.26	0.02	0	0	0	0	2,856.13
Commercial Energy	3,226.47	0.23	0.02	0	0	0	0	3,238.69
Transportation & Mobile Sources	3,967.81	0.63	0.05	0	0	0	0	3,998.00
Solid Waste	16.19	0	0	0	0	0	0	445.70
Water and Wastewater	0	27.20	0	0	0	0	0	739.91

AFOLU	-	-	-	-	-	-	-	-5,070.00
Process and Fugitive Emissions	0.02	2.00	0	0	0	0	0	59.00
Upstream Impacts of Activities	389.90	0.01	0	0	0	0	0	1,472.00
Consumption Based	*50,471.6*	*194.91*	*5.96*	*0*	*0*	*0*	*0*	*57,399.3*

The Pueblo of San Ildefonso's consumption, categorized as Scope 3 emissions in this report, is the largest contributor at 57,399 metric tons of CO_2e. Consumption based emissions are those derived from the use of goods, services, and food. These are Scope 3 sources.

The second largest emitter for the Pueblo of San Ildefonso is Transportation and Mobile sources, emitting 4,000 Metric Tons (MT) of CO_2e. Transportation emissions from passenger vehicles produced 2,201 metric tons of CO_2e from on-road gasoline vehicles and 693 metric tons of CO_2e diesel vehicles. Transportation and Mobile emissions come from sources such as passenger vehicles, freight vehicles, mobile construction equipment and mobile recreational equipment. All Transportation and Mobile sources are Scope 1 sources. Despite this, many of these transportation emissions are from trips through the Pueblo on New Mexico State Road 30 (NM 30), which is not directly under the control of the Pueblo.

The third largest emitters for the Pueblo were Residential and Commercial Energy. Residential and commercial electrical energy use that is purchased is classified as Scope 2 emissions, contributing 1,887 and 2,491 metric tons of CO_2e, respectively. Energy from stationary fuel combustion of natural gas, classified as scope 1 emissions, emits 747 metric tons of CO_2e in the commercial sector and 967 metric tons of CO_2e in the residential sector.

The overall positive emissions for the Pueblo of San Ildefonso in 2020 were 12,809 MT CO_2e. By including emissions sinks as well as sources, the net emissions were 7,739 MT CO_2e. Consumption based emissions, reported separately from the total, were 57,399 MT of CO_2e.

Tesuque

Table 8. Pueblo of Tesuque GHG Emissions by Sector

Sector	**CO_2e**
Residential Energy	549
Commercial Energy	1,731
Transportation & Mobile Sources	19,157
Solid Waste	357
Water & Wastewater	107
AFOLU	-3,922
Process & Fugitive Emissions	105
Upstream Impacts of Activities	546
Consumption Based	*5,394*

Figure 9. Pueblo of Tesuque GHG Emissions by Sector with Consumption Based Emissions

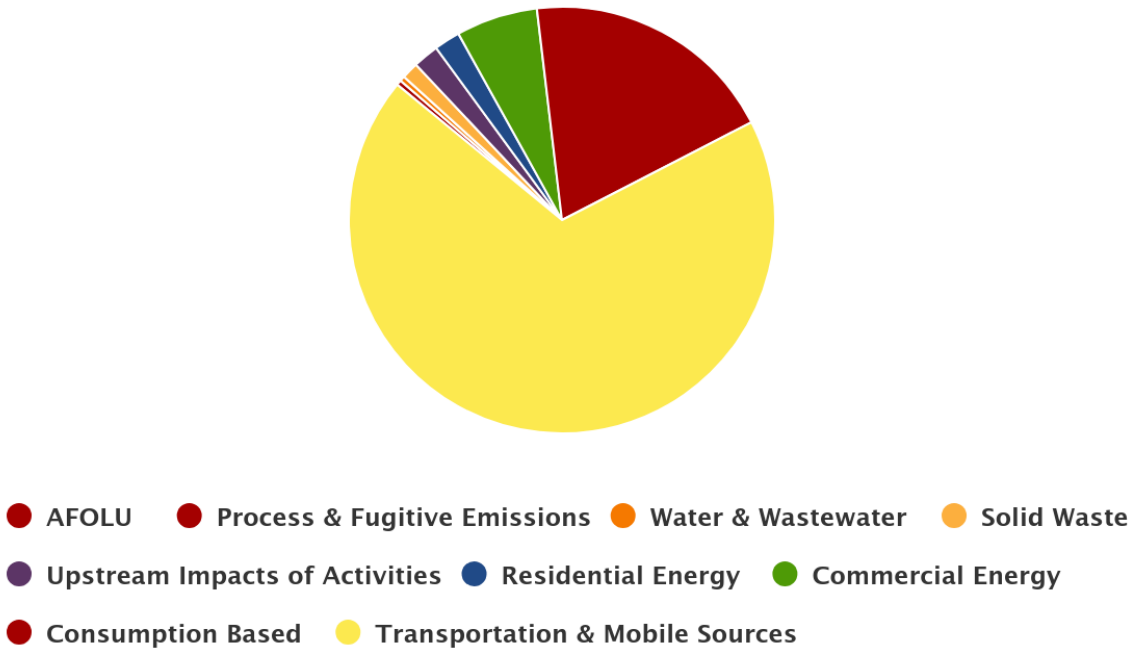


Figure 10. Pueblo of Tesuque GHG Emissions by Sector without Consumption Based Emissions

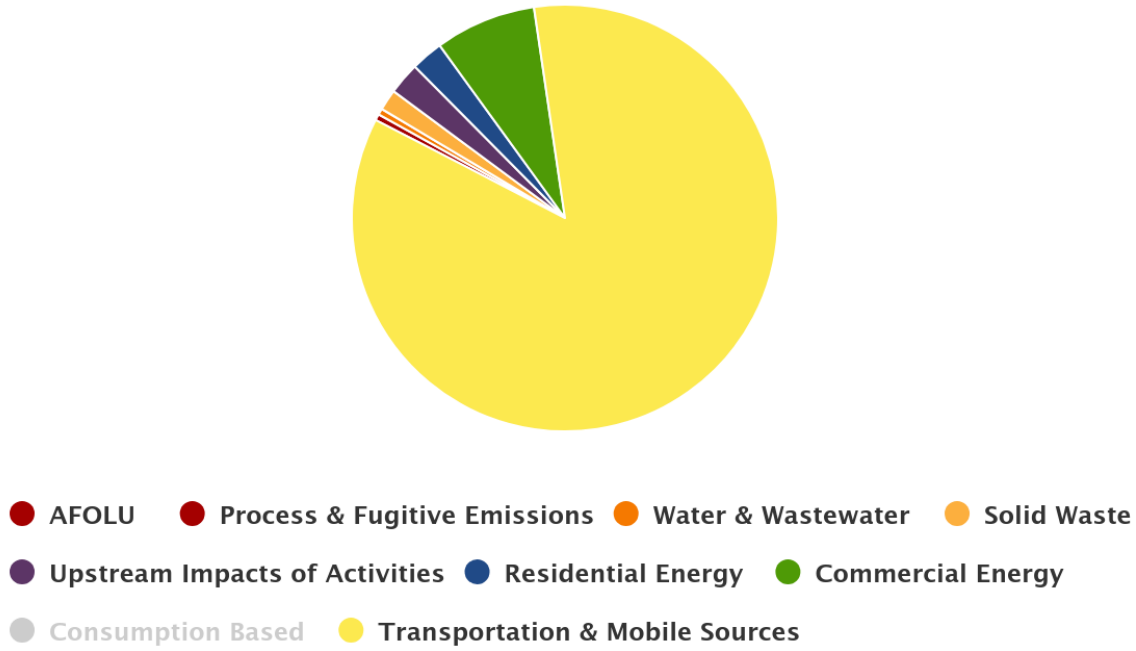


Table 9. Pueblo of Tesuque GHG Emissions by Gas and Sector

Sector	CO_2 (MT)	CH_4 (MT)	N_2O (MT)	HFCs (MT)	PFCs	SF_6	NF_3	CO_2e (MT)
Residential Energy	522.56	0.86	0.01	0	0	0	0	549.81
Commercial Energy	1724.23	0.11	0.01	0	0	0	0	1731.06
Transportation & Mobile Sources	19151.43	0.24	0	0	0	0	0	19157.97
Solid Waste	0	12.38	0	0	0	0	0	357.42
Water and Wastewater	0	3.9	0.005	0	0	0	0	107.44

AFOLU	0	4.88	0.04	0	0	0	0	-3922.56
Process and Fugitive Emissions	0.003	0.30	0	0.05	0	0	0	105.39
Upstream Impacts of Activities	88.26	0.006	0.0007	0	0	0	0	546.36
Consumption Based	*4742.65*	*18.31*	*0.56*	*0*	*0*	*0*	*0*	*5393.69*

The largest emitter for the Pueblo of Tesuque is from Transportation and Mobile sources at 19,158 Metric Tons (MT) of CO_2e. Transportation and Mobile emissions come from sources such as passenger vehicles, freight vehicles, mobile construction equipment and mobile recreational equipment. All Transportation and Mobile sources are Scope 1 sources. Despite this, many of these transportation emissions are from trips through the Pueblo on US Highway 84, which is not directly under the control of the Pueblo.

The second highest emission source is Consumption Based emissions at 5,394 MT CO_2e. Consumption based emissions are those derived from the use of goods, services, and food. These are Scope 3 sources.

The third largest source is Commercial Energy at 1,731 MT CO_2e. Commercial Energy includes commercial natural gas, electricity, and any other stationary fuel consumption. Stationary fuel consumption like natural gas is a Scope 1 source, while purchased electricity is a Scope 2 source.

The overall positive emissions for the Pueblo of Tesuque in 2020 were 22,555 MT CO_2e. By including emissions sinks as well as sources, the net emissions were 18,632 MT CO_2e. Consumption based emissions, reported separately from the total, were 5,394 MT of CO_2e.

3.2 GHG Emissions Projections

A business as usual GHG emissions projection was created for each Pueblo through 2030 and 2050 in ICLEI's ClearPath. Each of these projections used a population based growth rate derived from available growth rates in recent years. This assumes the rate of change in GHG emissions in each sector is the same as the population change rate. The National Highway Traffic

Safety's Corporate Average Fuel Economy (CAFE) carbon intensity change rates and local utility carbon intensity change rates were used for transportation and electricity projections in addition to the population based growth rate. The CAFE carbon intensity change rate is conservative based on recent legislation that was passed in New Mexico: Advanced Clean Cars II, Advanced Clean Trucks, and the Heavy Duty Omnibus rule which accelerate the transition to ZEVs and PHEVs as well as the state's Clean Fuels Standard). The CAFE carbon intensity change rate was still used due to a lack of data on the impact of this legislation on the carbon intensity change rate specifically. For more detailed information on data limitations and assumptions see *Appendix C*: *Limitations and Assumptions*.

Nambe

The business as usual projections for the Pueblo of Nambe display the projected GHG emissions for the Pueblo of Nambe if no reduction measures were taken and emissions productions continue as they are. The original forecast of total GHG emissions within the Pueblo of Nambe increases from 29,816 metric tons of CO_2e to 35,278 metric tons of CO_2e, indicating a 18.3% increase in overall GHG emissions from 2025 to 2030, shown in Figure 11. From 2025 to 2050 the projected overall GHG emissions increases by 136.8% going from 29,894 metric tons of CO_2e to 70,782 metric tons of CO_2e in a business as usual scenario shown in Figure 12.

Figure 11. Pueblo of Nambe Business as Usual GHG Emissions Projections through 2030

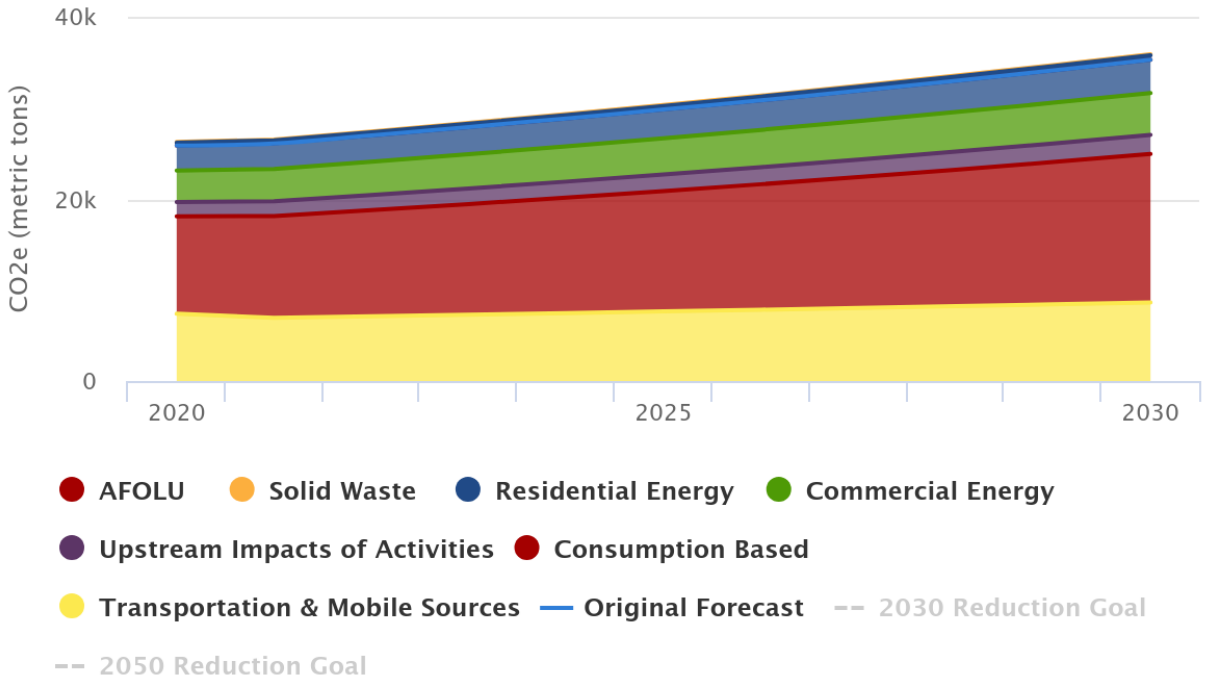
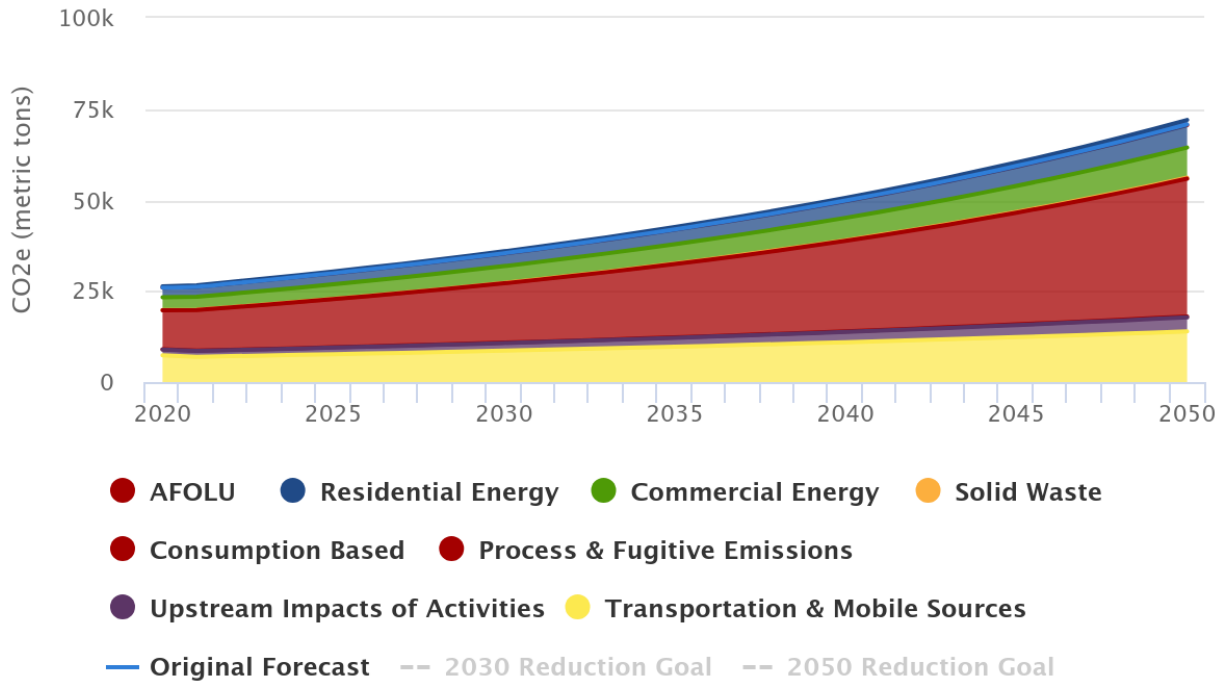


Figure 12. Pueblo of Nambe Business as Usual GHG Emissions Projections through 2050



Picuris

These projections assume no yearly population change from 2020 to 2050 based on estimations from the Pueblo. For Kit Carson Electric, a carbon intensity change rate of -11.3% was used based on 34% of the total electricity demand being provided by renewables in 2022 and a projected 80% of the total electricity demand being provided by renewables in 2030.[8] The default transportation carbon intensity change rate was set at -1.8% based on national corporate average fuel economy (CAFE) standards. Both the transportation and electric carbon intensity change rates were assumed to remain constant from 2020 to 2050.

The Picuris population based growth rate of 0% was applied to each sector and fuel type. This is based on the assumption that the rate of emissions in each sector changes at the same rate as the population. The Kit Carson Electric carbon intensity change rate was applied to electricity inputs, while the transportation carbon intensity change rate was applied to transportation inputs.

[8] Wood, E. (2024, February 16). *Think Community Energy Can't Work? Tell that to Kit Carson Electric*. Energy Changemakers. https://energychangemakers.com/community-energy-kit-carson/, Kit Carson Electric Cooperative. (2023). 100% Daytime Solar Energy by 2022. *Kit Carson Electric Cooperative*. https://kitcarson.com/electric/100-daytime-solar-energy-by-2022/).

Figure 13. Pueblo of Picuris Business as Usual GHG Emissions Projections through 2030

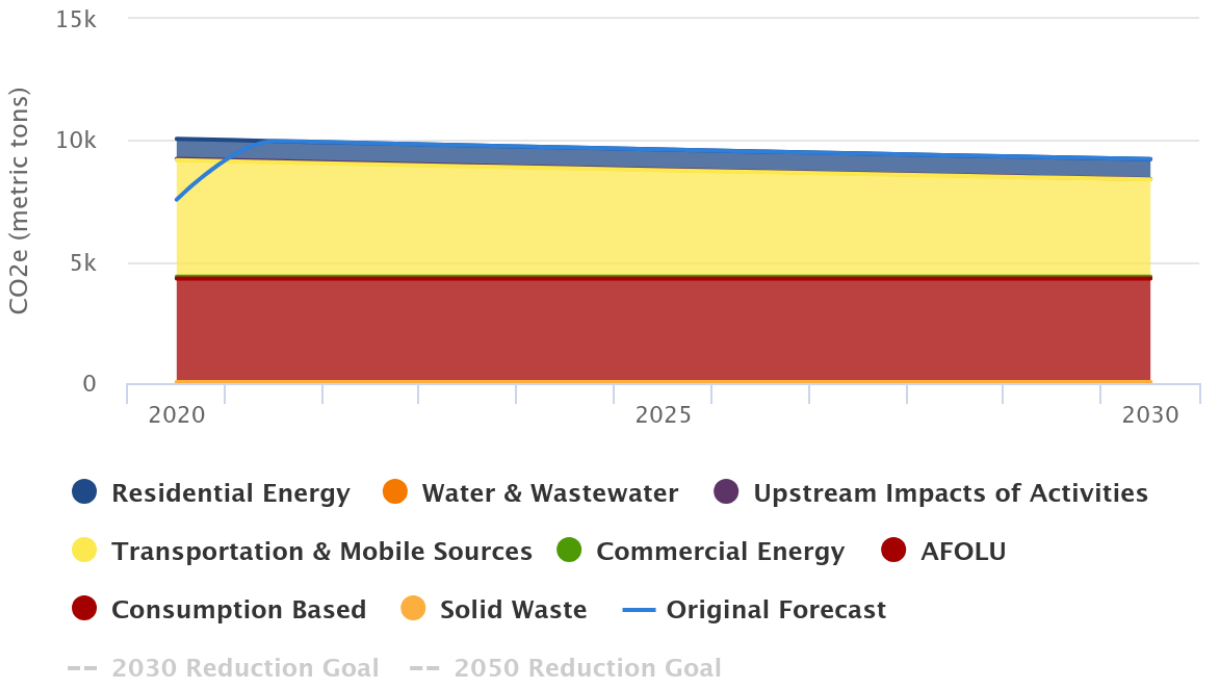
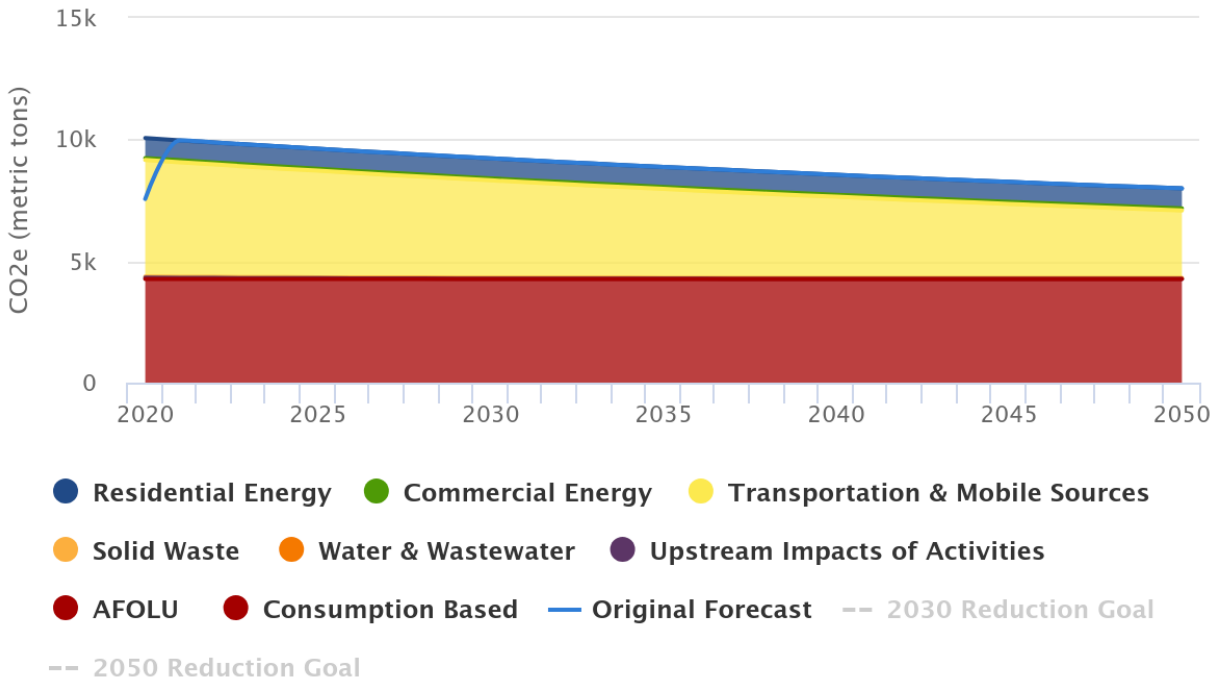


Figure 14. Pueblo of Picuris Business as Usual GHG Emissions Projections through 2050



San Ildefonso

The Business as usual projections for the Pueblo of San Ildefonso displays the projected GHG emissions for the Pueblo of San Ildefonso if no reduction measures were taken and things continue as they are. The original forecast of total GHG emissions within the Pueblo of San Ildefonso grows from 20,375 metric tons of CO_2e to 21,081 metric tons of CO_2e, indicating a 3.4% increase in overall GHG emissions from 2025 to 2030, shown in Figure 15. From 2025 to 2050 the projected overall GHG emissions increases by 20.8% going from 20,375 metric tons of CO_2e to 24,620 metric tons of CO_2e in a business as usual scenario shown in Figure 15.

Figure 15. Pueblo of San Ildefonso Business as Usual GHG Emissions Projections through 2030

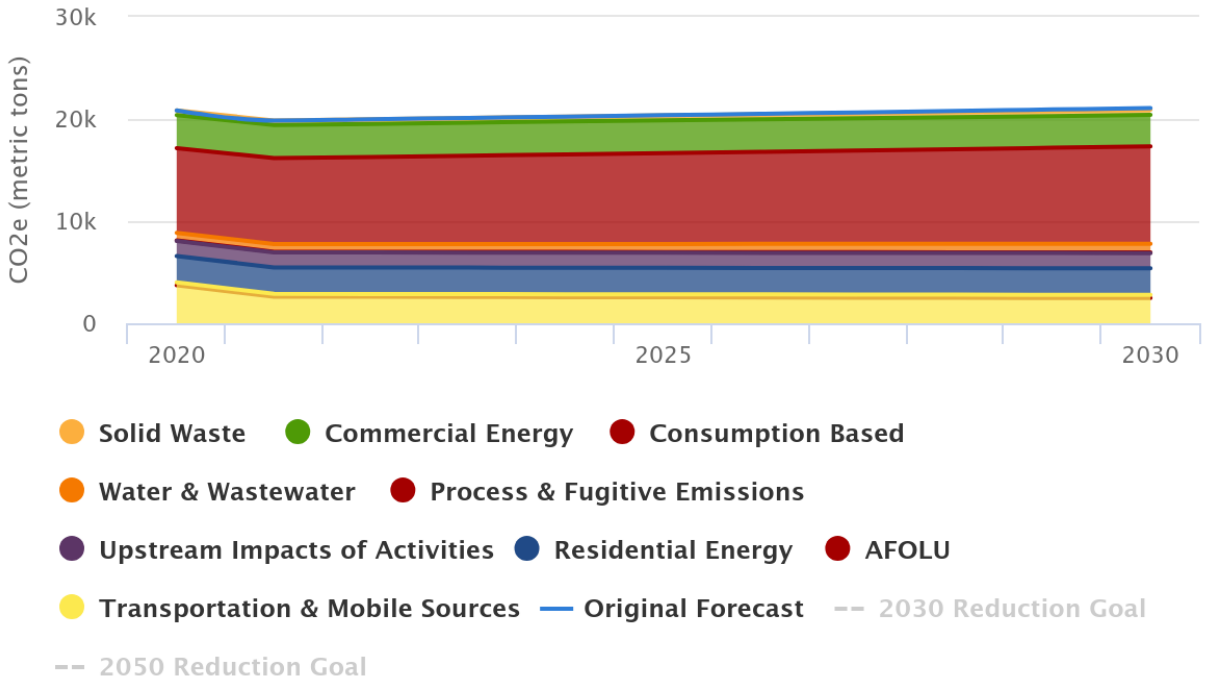
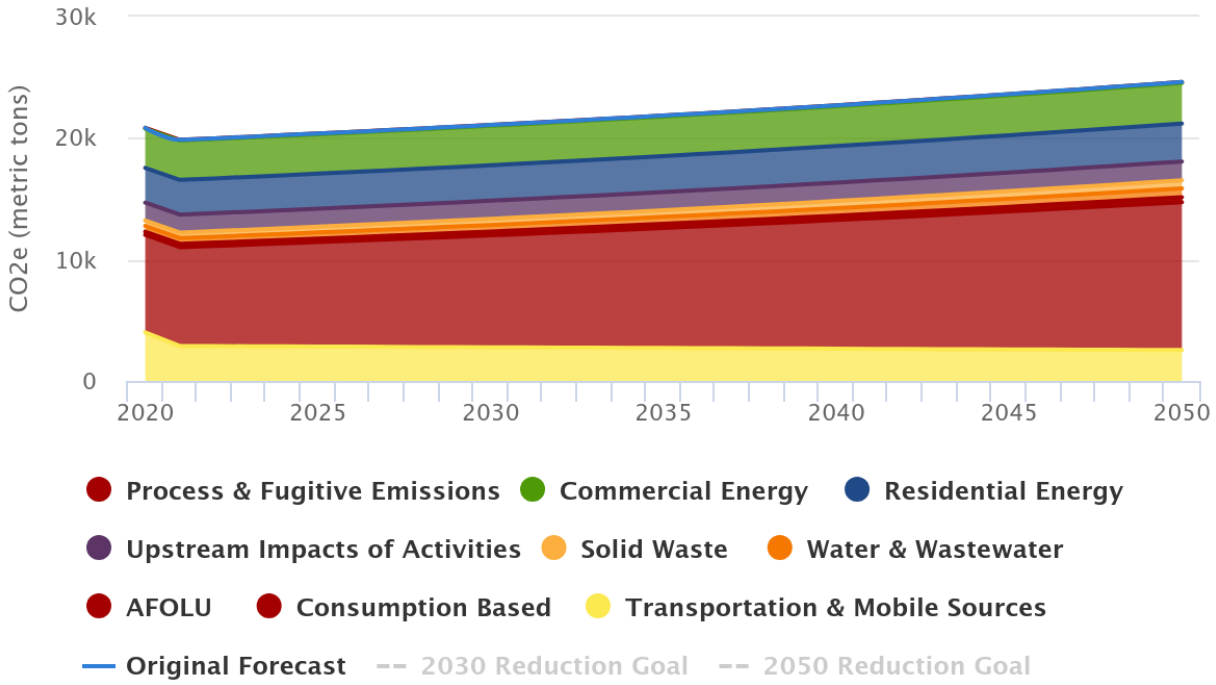


Figure 16. Pueblo of San Ildefonso Business as Usual GHG Emissions Projections through 2050



Tesuque

These projections assume a 1.8% yearly population growth rate based on the US Census population change in the Tesuque Pueblo Census Tract from 2020 to 2024.[9] For PNM Electric, a carbon intensity change rate of -1.8% was used based on PNM's system wide emissions decreasing by 31% from 2005 to 2022.[10] The default transportation carbon intensity change rate was set at -1.8% based on CAFE standards. Both the electric and transportation carbon intensity change rates were assumed to remain constant from 2020 to 2050.

The Tesuque population based growth rate was applied to each sector and fuel type. This is based on the assumption that the rate of emissions in each sector increases at the same rate of population growth. The utility specific electric carbon intensity change rate was applied to electricity inputs, while the transportation carbon intensity change rate was applied to transportation inputs.

[9] US Census Bureau. (2024). *DP05: ACS Demographic and ... - Census Bureau Table*. https://data.census.gov/table/ACSDP5Y2022.DP05?q=population%20Tesuque%20Pueblo
[10] PNM Resources. (n.d.). *Climate Change Report*. Retrieved March 4, 2024, from https://www.pnmresources.com/esg-commitment/environment/climate_change_report.aspx

Figure 17. Pueblo of Tesuque Business as Usual GHG Emissions Projections through 2030

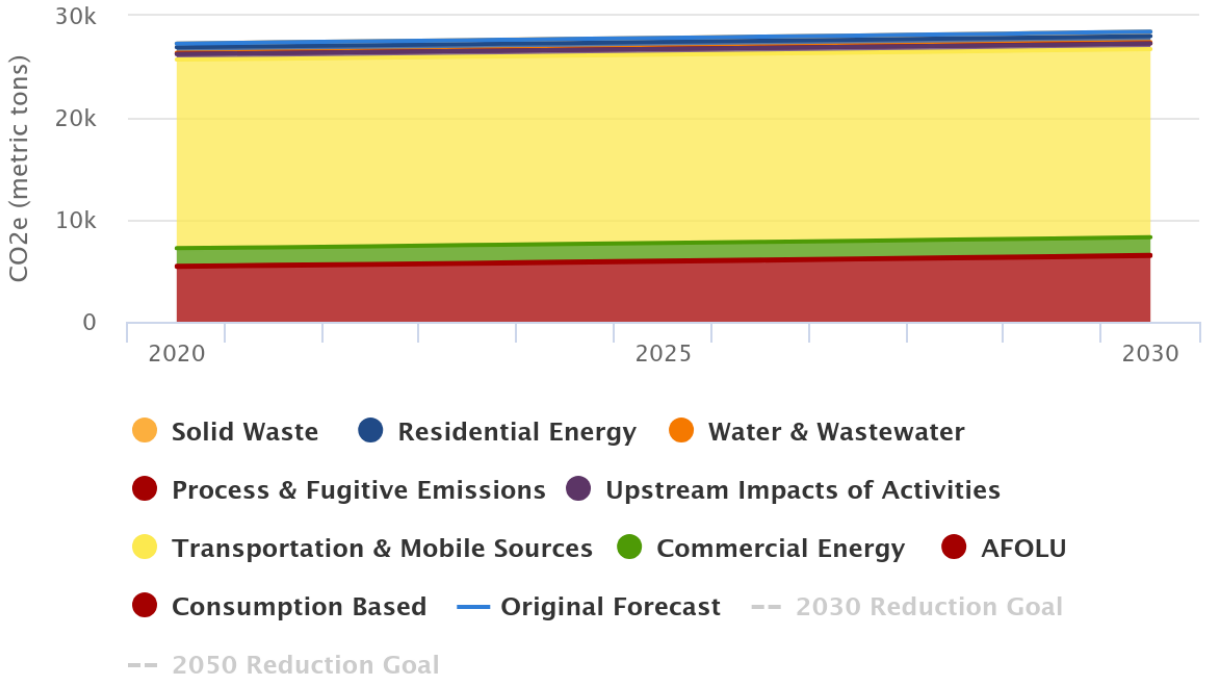
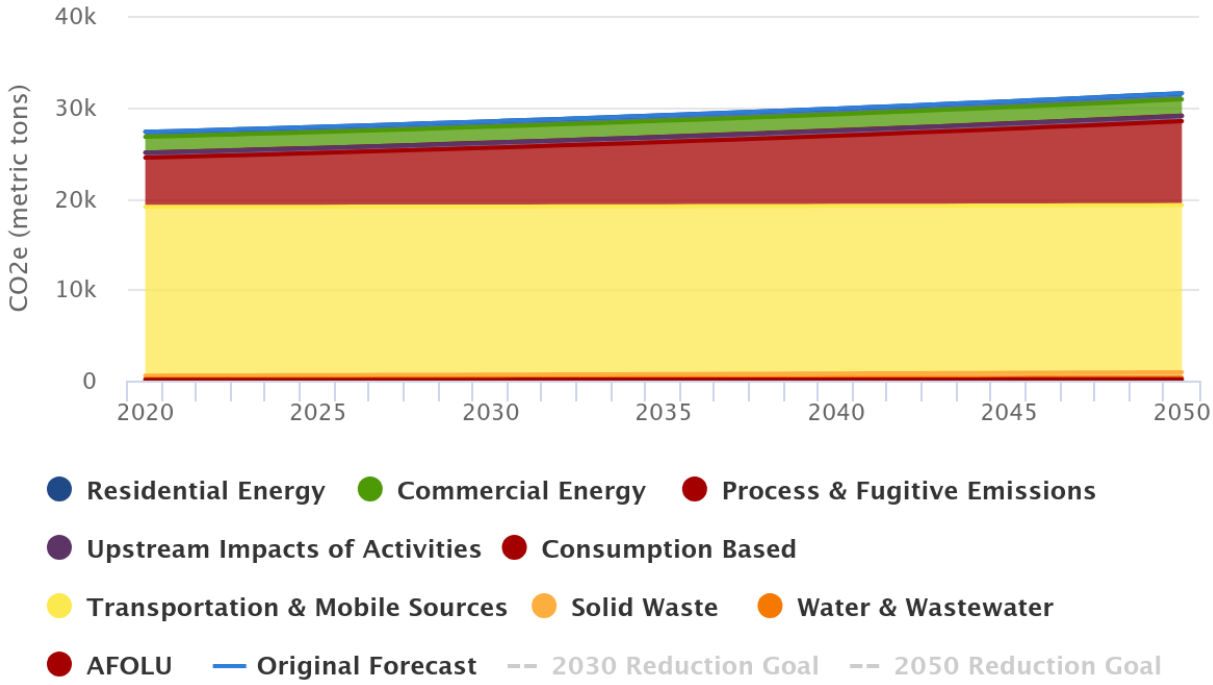


Figure 18. Pueblo of Tesuque Business as Usual GHG Emissions Projections through 2050



3.3. GHG Reduction Measures

The following priority GHG reduction measures are based on each individual Pueblo's priorities and GHG emissions inventory. These priority GHG reduction measures are focused on achieving the most significant GHG reductions possible considering feasibility and desired projects.

Nambe

Measure 1: Installation of EV Charging Station and VMT Reduction

In 2021, The Pueblo of Nambe became the first Pueblo to host a Tesla dealership facility[11]. Installing EV charging stations and promoting initiatives to reduce VMT should incentivize EV ownership and drive down VMT. This reduction measure for the Pueblo can encourage community-owned EV charging infrastructure and enhance EV adoption.

Community-Owned EV Charging Network:

- Explore establishing a community-owned network of electric vehicle charging stations. This empowers residents to invest in the infrastructure, potentially lowering overall costs and fostering a sense of ownership in the clean transportation transition.
- Partner with the local Tesla dealership to explore resident investment opportunities. Hold workshops on EV ownership, charging station operation, and the benefits of community ownership.

Enhancing EV Adoption:

- Install two strategically located Level 2 charging stations on the Pueblo of Nambe to improve resident access and encourage EV adoption. Level 2 chargers are a significantly lower cost option than Level 3/DC Fast chargers. They support approximately 25 miles per hour of charging which encourages tourists to engage with local businesses rather than charge quickly and go.

In calculating the GHG emissions reductions with this measure, several assumptions are made including:

- Electrification of gasoline vehicles only.
- Vehicle miles traveled (VMT) reduction:
    - 10% by 2030 and 20% by 2050 (compared to a 2025 baseline).
- Electric vehicle (EV) use:
    - 16% of VMT by EVs by 2030 and 20% by 2050.
    - EV fuel economy: 92 MPG equivalent (MPGGe).
    - EV charging: 80% occurring in residential buildings.
- VMT reduction efforts include promoting carpooling for Pueblo residents.
- Installation of two Level 2 EV chargers within the Pueblo.

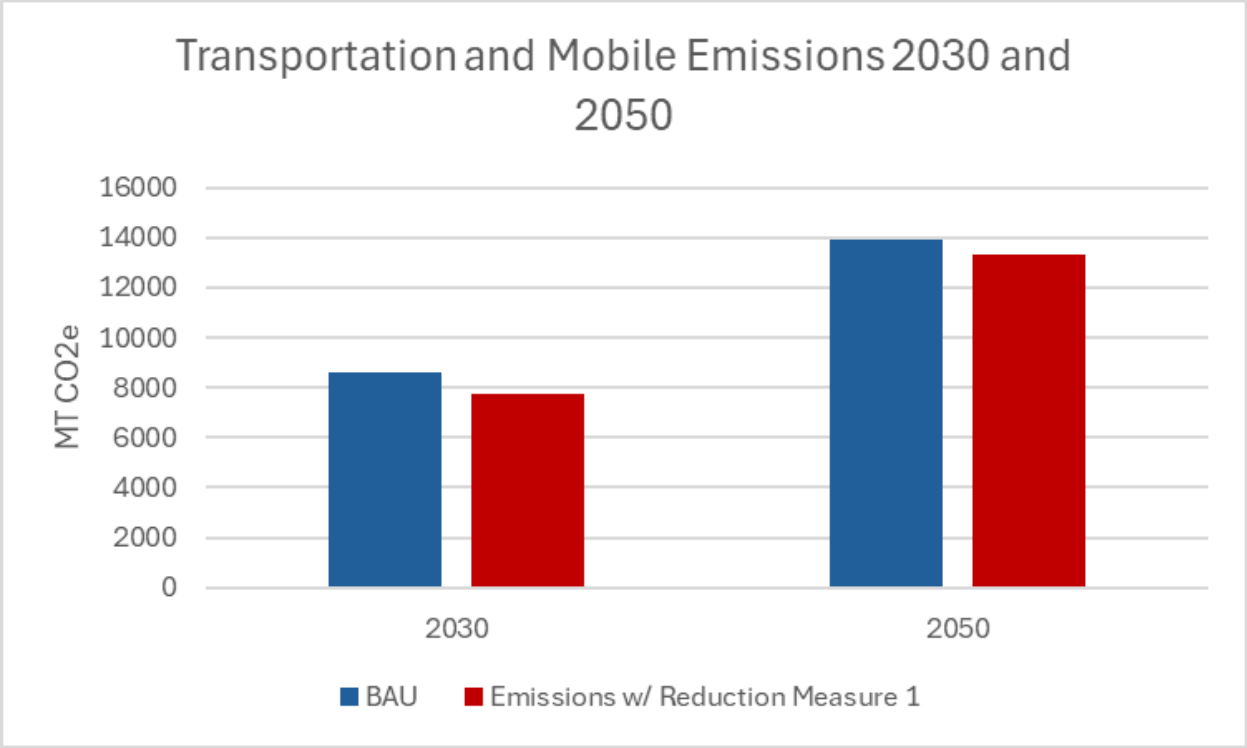
[11] Gleason, Megan. "Second Tribe in New Mexico Set to Open Tesla Dealership in 2023." *Source New Mexico*, 10 Oct. 2022, sourcenm.com/2022/10/10/second-tribe-in-new-mexico-set-to-open-tesla-dealership-in-2023/.

Table 10. Pueblo of Nambe Mitigation Measure 1

Measure 1: EV and VMT Reduction	
Implementing agency	Pueblo of Nambe
Estimated Cumulative GHG Reductions	2025-2030: 3,288 MT CO_2e 2025-2050: 10,013 MT CO_2e
Implementation Schedule	Implementation begins in 2025 or when funding is received. Implementation includes installing EV charging stations to incentivize EV ownership.
Geographic Location	Within the Pueblo of Nambe
Milestones for obtaining implementing authority	Pueblo of Nambe plan approval, Utility permitting, Tesla Dealership Stakeholder Engagement, and community education about EVs.
Funding Sources	US EPA CPRG Implementation Grant
Metrics for Tracking Progress	Utilization rate of charging stations, number of EV charging sessions, Number of Electric Vehicles owned by those on the Pueblo every 5 years, Number of passengers using Transit every 5 years, Daily commute distance and method of transportation every 5 years.
Applicable Sector	Transportation and Mobile Sources

The effects of this mitigation measure on the Transportation and Mobile Emissions sector for the end year of the goal period can be seen in Figure 19.

Figure 19. Pueblo of Nambe Mitigation Measure 1 Sector Effects: snapshot in the years 2030 and 2050 (non-cumulative)



Measure 2: Installation of 3.7 kW solar photovoltaics on six homes

In 2020 The Pueblo of Nambe expanded their PV on a pole program.[12] Due to the COVID-19 Pandemic solar panel demonstrations that were being held for the Northern New Mexico College's Trade Training were halted. Revamping this program with the installation of six 3.7 kW solar panels will help supplement electrical energy from residential buildings.

Table 11. Pueblo of Nambe Mitigation Measure 2

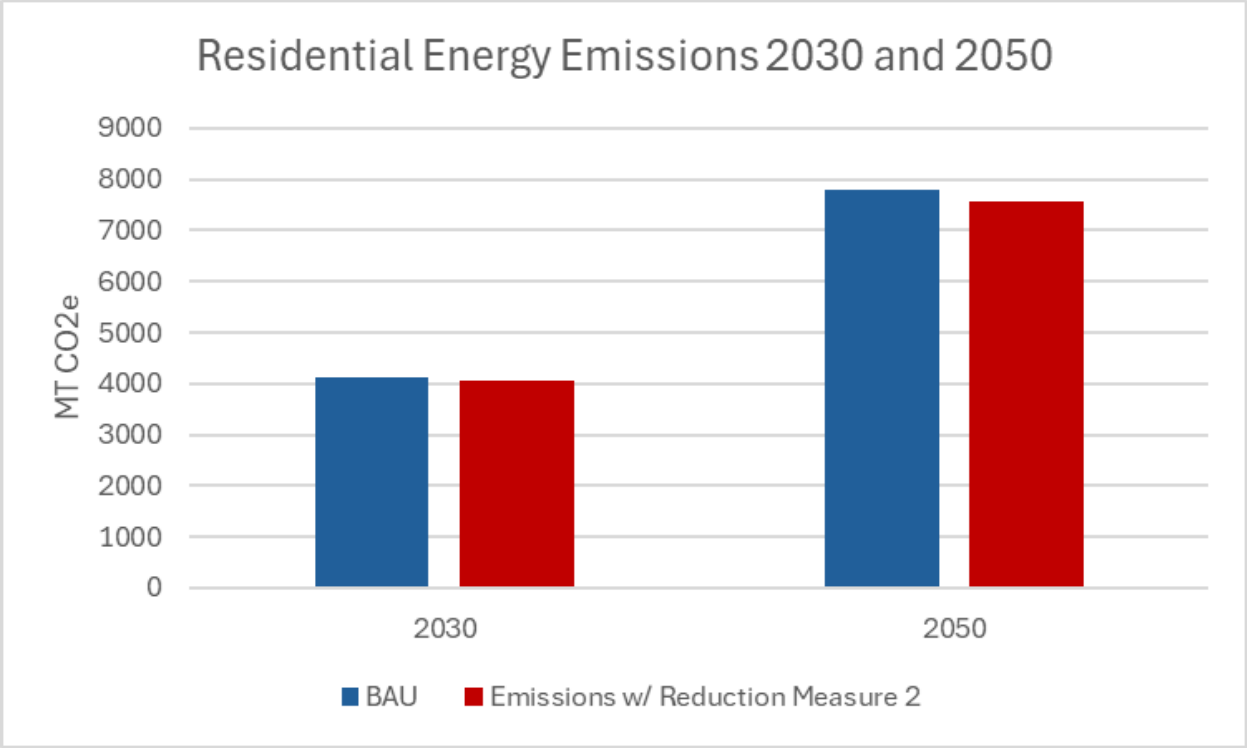
Measure 2: Installation of 3.7 kW solar photovoltaics on six homes	
Implementing agency	Pueblo of Nambe
Estimated Cumulative GHG Reductions	2025-2030: 269 MT CO_2e 2025-2050: 3,525 MT CO_2e

[12] Office of State and Community Energy Programs. (n.d.). *EERE Success Story—Expanding Alternative Fuel Corridors and Community Solar in New Mexico*. Energy.Gov. Retrieved March 7, 2024, from https://www.energy.gov/scep/articles/eere-success-story-expanding-alternative-fuel-corridors-and-community-solar-new

Implementation Schedule	Implementation begins in 2025 or when funding is received, survey of land areas with highest solar potential within the Pueblo, installation of six 3.7 kW Solar Panels.
Geographic Location	Within the Pueblo of Nambe
Milestones for obtaining implementing authority	Pueblo of Nambe plan approval, designated ground for installation of the solar panels.
Funding Sources	US EPA CPRG Implementation Grant
Metrics for Tracking Progress	Published project overview, status updates from construction crew members, and final report tracking construction progress.
Applicable Sector	Residential Energy

The effects of this mitigation measure on the Residential Energy sector for the end year of the goal period can be seen in Figure 20.

Figure 20. Pueblo of Nambe Mitigation Measure 2 Sector Effect: snapshot in the years 2030 and 2050 (non-cumulative)



Measure 3: EV Bus Transit System

The third mitigation measure for the Pueblo of Nambe is implementing an EV Bus Transit service. Utilizing an EV Bus transit system will help lessen transportation emissions in the Pueblo of Nambe and offer transportation options to the people of Nambe Pueblo. Currently, a transportation program exists to help tribal members access medical needs through the Community Health Representative (CHR) Program. However, there is no other transportation service. Implementation of EV bus and/or van service would address the unmet transportation needs.

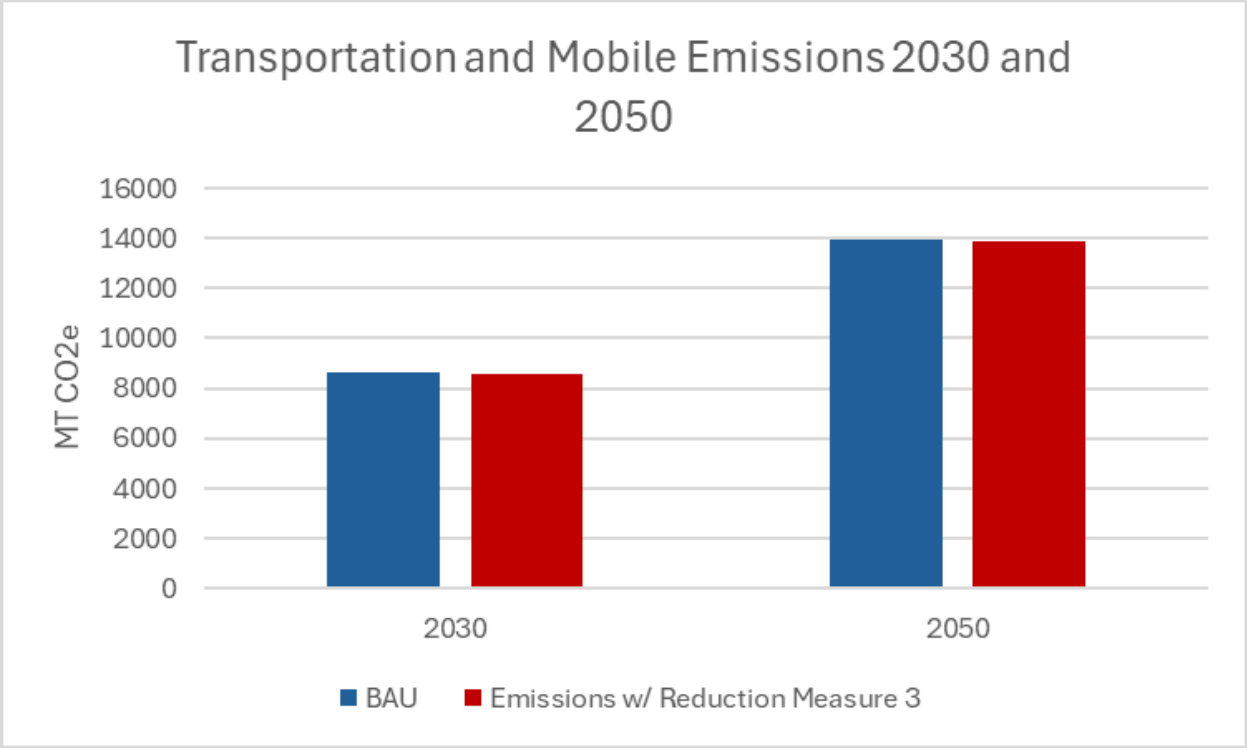
Table 12. Pueblo of Nambe Mitigation Measure 3

Measure 3: EV Bus Transit System	
Implementing agency	Pueblo of Nambe
Estimated Cumulative GHG Reductions	2025-2030: 152 MT CO_2e 2025-2050: 556 MT CO_2e
Implementation	1st Stage (1-4 months): Feasibility report to address traffic patterns,

Schedule	community feedback, preliminary bus routes and schedules plan. 2nd Stage (4-8 months): Finalize routes and schedules, acquire EV Buses. 3rd Stage (8-12 months): public awareness campaign, pre-launch testing 4th stage (12-14 months): official launch of bus system, monitoring riding patterns
Geographic Location	Within the Pueblo of Nambe
Milestones for obtaining implementing authority	Funding received for the Pueblo of Nambe.
Funding Sources	US EPA CPRG Implementation Grant
Metrics for Tracking Progress	Planning: Community survey participation and report on traffic patterns in Nambe Pueblo. Preparation: amount of qualified Bus drivers, finalized bus route, and bus acquisitions. Implementation: Trained bus drivers, established bus stops with signs, public awareness, and monitoring bus usage each quarter of the year.
Applicable Sector	Transportation & Mobile Sources

The effects of this mitigation measure on the Transportation and Mobile emissions sector for the end year of the goal period can be seen in Figure 21.

Figure 21. Pueblo of Nambe Mitigation Measure 3 Sector Effects: snapshot in the years 2030 and 2050 (non-cumulative)



For the Pueblo of Nambe, the greatest GHG emissions reductions are achieved by EV and VMT Reduction. The second greatest GHG emissions reductions are achieved by Residential Solar PV system installation. These two mitigation measures address the two sectors with the greatest Scope 1 and 2 emissions according to the baseline inventory: Transportation and Mobile and Residential Energy Sources.

Picuris

Measure 1: Sustainable Housing Program

Table 13. Pueblo of Picuris Mitigation Measure 1

Measure 1: Sustainable Housing Program	
Implementing agency	Pueblo of Picuris
Estimated Cumulative GHG Reductions	2025-2030: 1,911 MT CO_2e 2025-2050: 32,030 MT CO_2e

Implementation Schedule	Implementation begins in 2025 or when funding is received. Implementation includes but is not limited to pre-weatherization, weatherization, efficiency retrofit, electrification, and wood stove changeout in 20% of homes each year.
Geographic Location	Pueblo of Picuris Residences
Milestones for obtaining implementing authority	Pueblo of Picuris plan approval, individual resident plan approval.
Funding Sources	US EPA CPRG Implementation Grant
Metrics for Tracking Progress	Published project overview, yearly status updates tracking project implementation progress. Electrification progress tracked via gas and electricity utilization.
Applicable Sector	Residential Energy

The assumptions for the efficiency and electrification aspect of this measure include:

- Propane is the fuel type being electrified
- 20% of existing houses receive efficiency retrofit and electrified fuel type per year
- 25% energy savings from efficiency retrofit of existing buildings
- 37% energy savings in new buildings
- 100% of new construction electrified
- 3.0 heat pump coefficient of performance
- 80% furnace efficiency
- 100 year effective useful life

The assumptions for the weatherization aspect of this mitigation measure include:

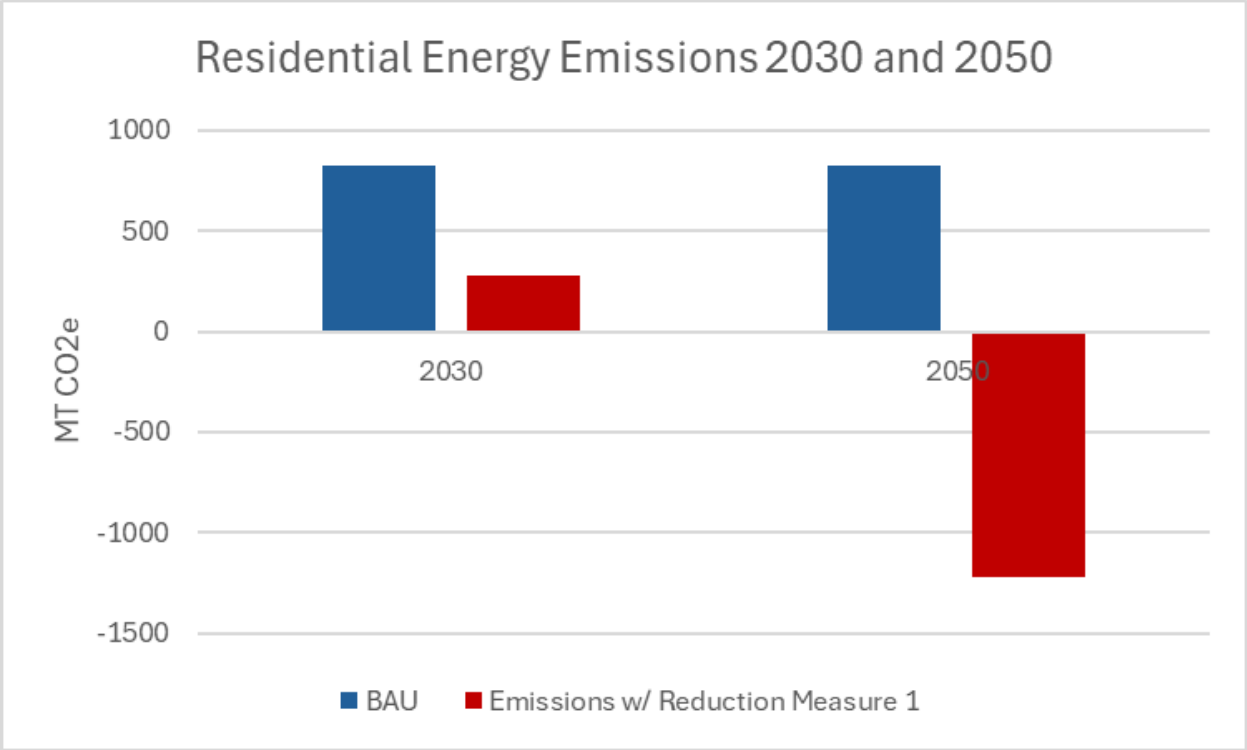
- 20% of homes are weatherized each year
- The effective useful life is 15 years
- 271 kWh/home/year in electricity savings
- 7.2 MMBtu/home/year in propane savings

The wood stove changeout aspect of this Sustainable Housing Program was not able to be modeled because according to the EPA there is not enough “robust emissions test data to make quantitative benefits analysis on [greenhouse gas emissions] at this time” in regard to a

woodstove changeout program, although reductions in CO_2 emissions are expected[13]. Therefore, the GHG emissions reductions for this mitigation measure are underestimated. This proposed wood stove changeout program would replace non-EPA certified in home wood stoves with pellet stoves.

The effects of the Sustainable Housing Program on the Residential Energy sector for the end year of the goal period can be seen in Figure 22.

Figure 22. Pueblo of Picuris Mitigation Measure 1 Residential Energy Sector Effects: snapshot in the years 2030 and 2050 (non-cumulative)



While decreasing emissions from energy used from housing alone cannot sequester carbon, the negative value reflects modeling design that includes various factors, such as a rate of decreasing carbon intensity of the regional and local grid and the replacement of propane use with electricity use.

Measure 2: Electric Vehicles and VMT Reduction

[13] US EPA. (2015, March 16). *Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces*. Federal Register. https://www.federalregister.gov/documents/2015/03/16/2015-03733/standards-of-performance-for-new-residential-wood-heaters-new-residential-hydronic-heaters-and

Table 14. Pueblo of Picuris Mitigation Measure 2

Measure 2: Electric Vehicles and VMT Reduction	
Implementing agency	Pueblo of Picuris
Estimated Cumulative GHG Reductions	2025-2030: 3,103 MT CO_2e 2025-2050: 13,949 MT CO_2e
Implementation Schedule	Implementation begins in 2025 or when funding is received. Implementation includes local transit system infrastructure, high efficiency EV charging ports to incentivize EV ownership and an electric excavator.
Geographic Location	Within the Pueblo of Picuris
Milestones for obtaining implementing authority	Pueblo of Picuris plan approval
Funding Sources	US EPA CPRG Implementation Grant
Metrics for Tracking Progress	Number of Electric Vehicles owned by those on the Pueblo every 5 years, Number of passengers using Transit every 5 years, Daily commute distance and method of transportation every 5 years.
Applicable Sector	Transportation & Mobile Sources

The assumptions for this mitigation measure include:

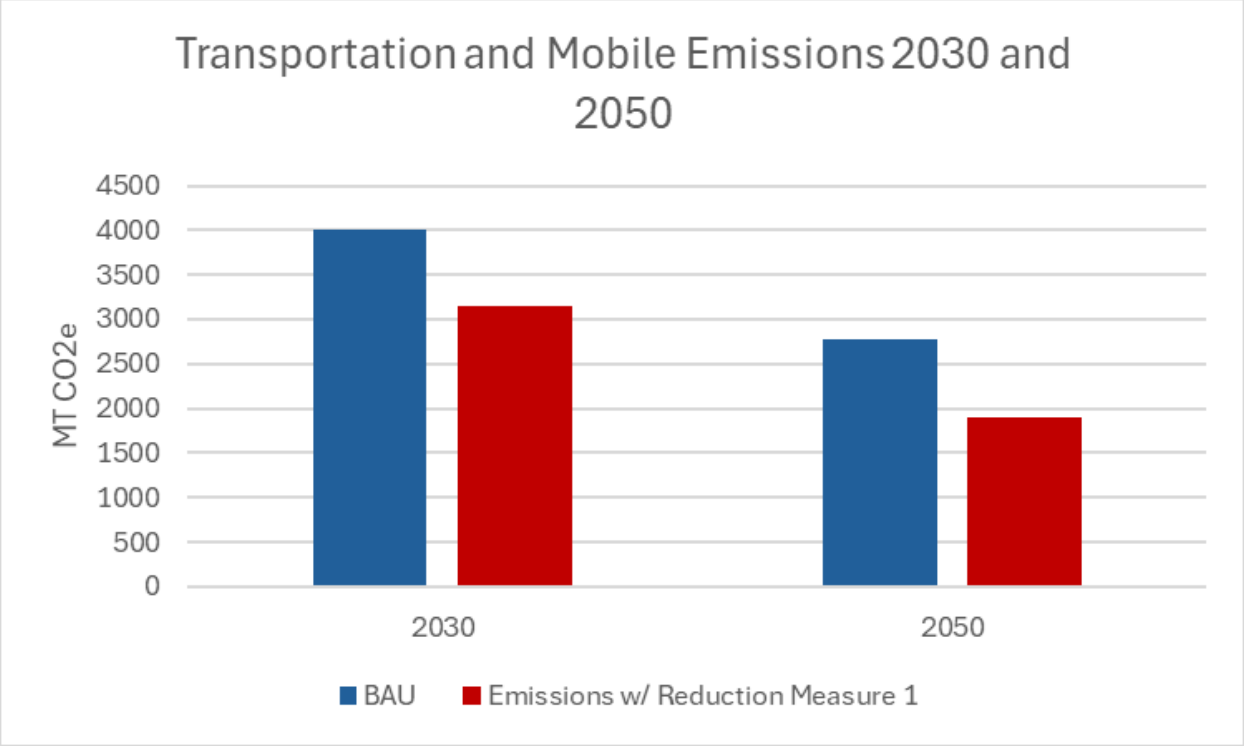
- Only gasoline vehicles are electrified
- 10% and 20% VMT reduction from 2025 to 2030 and 2025 to 2050 respectively
- 16% and 20% of VMT by electric vehicles by 2030 and 2050 respectively
- 92 MPGGe fuel economy of electric vehicles
- 80% of charging from residential buildings

The estimated GHG reductions for this measure only take into account the reductions in the Transportation sector and not the increase in electricity use in the Residential and Commercial

Energy sectors. However, studies show that even on the highest-carbon grids, EVs emit about half the amount of carbon pollution of ICE vehicles.[14]

The effects of this mitigation measure on the Transportation and Mobile Emissions sector for the end year of the goal period can be seen in Figure 23.

Figure 23. Pueblo of Picuris Mitigation Measure 2 Transportation and Mobile Emissions Effects: snapshot in the years 2030 and 2050 (non-cumulative)



For the Pueblo of Picuris, the greatest GHG emissions reductions are achieved by the Sustainable Housing Program. The second greatest GHG emissions reductions are achieved by Electric Vehicles and VMT Reduction. These two mitigation measures address the two sectors with the greatest Scope 1 and 2 emissions according to the baseline inventory: Residential Energy and Transportation and Mobile Sources.

San Ildefonso

Measure 1: Electric Vehicles and VMT Reduction

[14] US Department of Energy. (n.d.). *Alternative Fuels Data Center: Emissions from Electric Vehicles*. Retrieved March 6, 2024, from https://afdc.energy.gov/vehicles/electric_emissions.html

The reduction measure to address transportation emissions within the Pueblo of San Ildefonso involves a hybrid approach to reduce transportation emissions: encouraging the use of electric vehicles (EVs) and promoting a reduction in vehicle miles traveled (VMT). While this approach will increase electricity consumption in residential and commercial sectors, studies show that even on grids with high carbon intensity, EVs produce significantly less pollution compared to gasoline-powered vehicles (internal combustion engine or ICE vehicles)[15]. Here are the assumptions used in ClearPath's calculations for this mitigation measure:

- Electrification of gasoline vehicles only.
- Vehicle miles traveled (VMT) reduction:
    - 10% by 2030 and 20% by 2050 (compared to a 2025 baseline).
- Electric vehicle (EV) use:
    - 16% of VMT by EVs by 2030 and 20% by 2050.
    - EV fuel economy: 92 MPG equivalent (MPGGe).
    - EV charging: 80% occurring in residential buildings.

Table 15. Pueblo of San Ildefonso Mitigation Measure 1

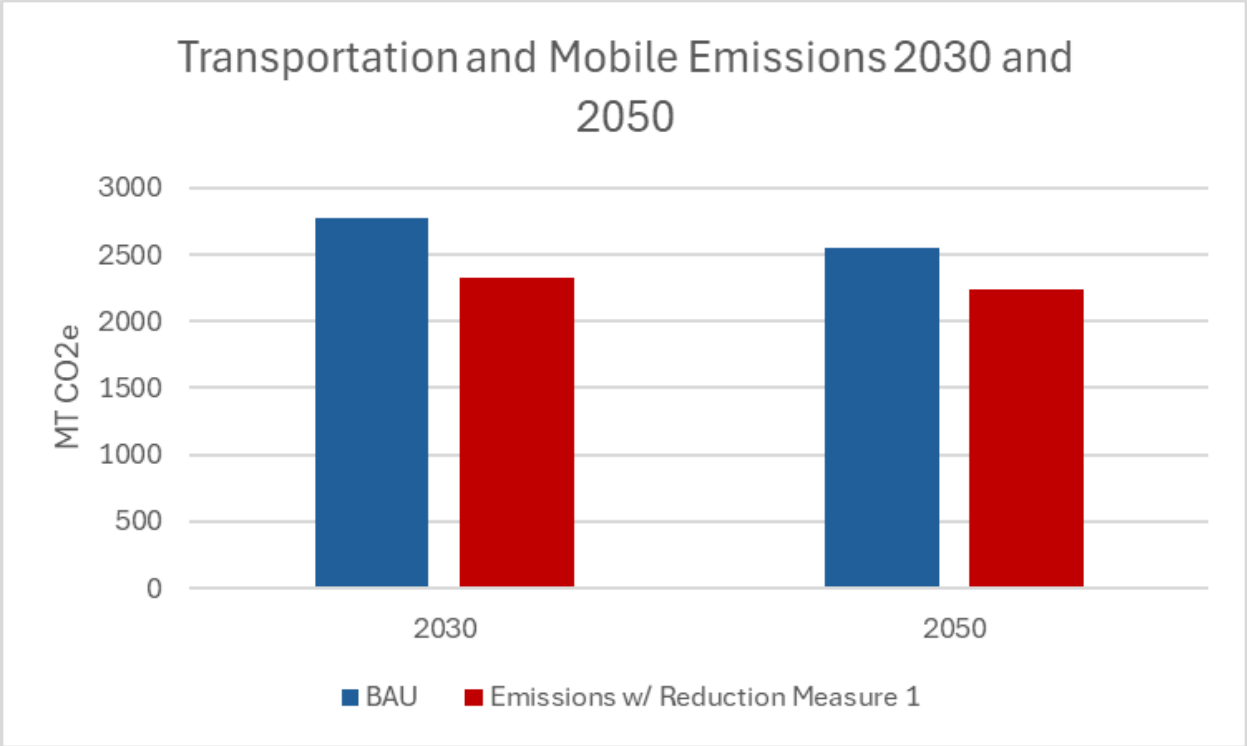
Measure 1: Electric Vehicles and VMT Reduction	
Implementing agency	Pueblo of San Ildefonso
Estimated Cumulative GHG Reductions	2025-2030: 1,614 MT CO_2e 2025-2050: 4,921 MT CO_2e
Implementation Schedule	Implementation begins in 2025 or when funding is received. Implementation includes: Feasibility Assessment & Funding Strategy (Month 1-2), Community Engagement & VMT Reduction Initiatives (Month 2-5), and Installation of EV charging stations (Month 3- 4), EV charging usage and traffic patterns evaluation (Ongoing).
Geographic Location	Within the Pueblo of San Ildefonso
Milestones for obtaining implementing authority	Pueblo of San Ildefonso plan development and approval, community meetings with Tribal members, awarded grant and sponsorship funding.

[15] US Department of Energy. (n.d.). *Alternative Fuels Data Center: Emissions from Electric Vehicles*. Retrieved March 6, 2024, from https://afdc.energy.gov/vehicles/electric_emissions.html.

Funding Sources	US EPA CPRG Implementation Grant
Metrics for Tracking Progress	Number of charging stations installed, measured usage of each EV charging station. Number of tribal members participation in VMT reduction initiatives which include: surveys for passenger carpooling patterns every 5 years, Daily commute distance and method of transportation every 5 years.
Applicable Sector	Transportation & Mobile Sources

The effects of this mitigation measure on the Transportation and Mobile Emissions sector for the end year of the goal period can be seen in Figure 24.

Figure 24. Pueblo of San Ildefonso Mitigation Measure 1 Sector Effects: snapshot in the years 2030 and 2050 (non-cumulative)



Measure 2: Weatherize 10 Residential Homes each Year

Weatherizing homes can significantly reduce residential energy use within San Ildefonso. Implementing a targeted home weatherization program can achieve lower energy consumption within each home that is weatherized. This translates to reduced electricity costs for residents and lower greenhouse gas (GHG) emissions. The proposed weatherization program would focus on weatherizing 10 homes annually within the Pueblo of San Ildefonso, primarily for those with

the most need. Implementing measures such as air sealing and energy-efficient window replacements to reduce energy consumption in each home.

ClearPath's assumptions for this calculation of GHG emissions reduction for this measure include:

- Effective useful life of a weatherized home is 15 years.
- 271 kWh of annual electricity savings per home.
- 72 therms of annual natural gas savings per home.

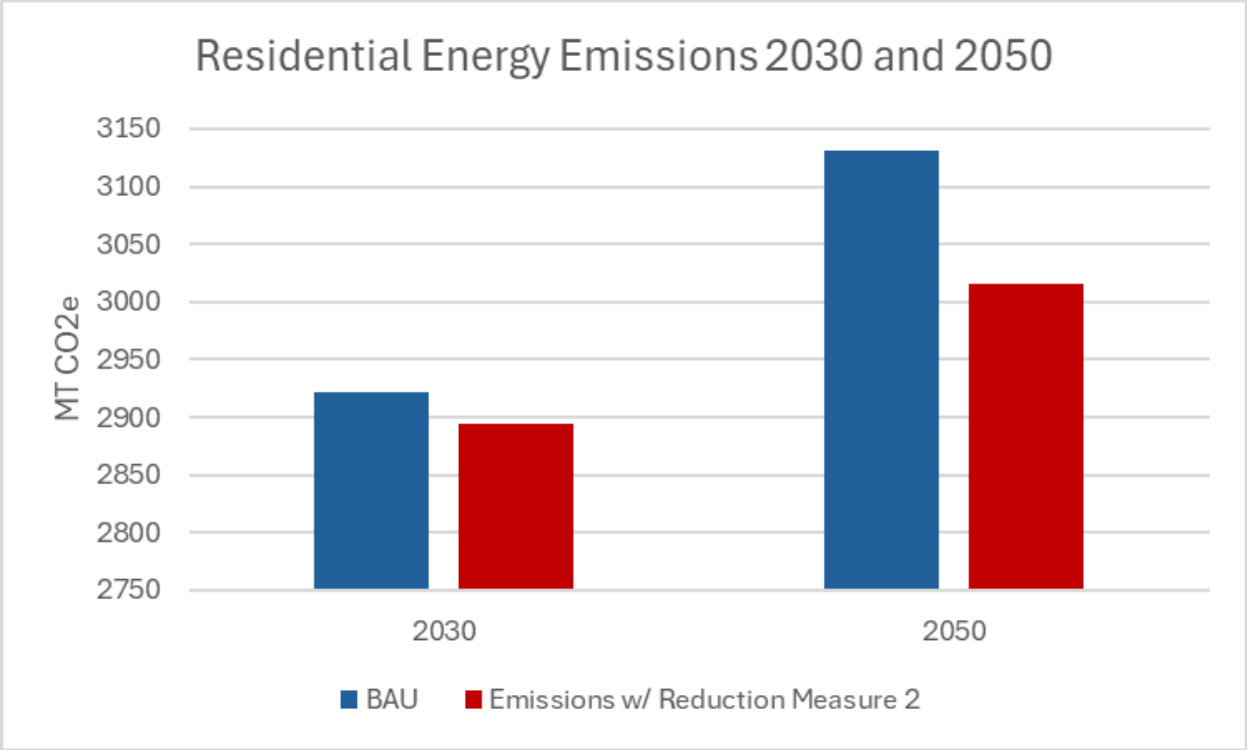
Table 16. Pueblo of San Ildefonso Mitigation Measure 2

Measure 2: Weatherize 10 Residential Homes each Year	
Implementing agency	Pueblo of San Ildefonso
Estimated Cumulative GHG Reductions	2025-2030: 99 MT CO_2e 2025-2050: 1,586 MT CO_2e
Implementation Schedule	Planning, Development, and Community Outreach (Month 1- 2), Community Recruitment and Home Pre-screening (Month 3-4), Home energy audits and recommendations (Month 4-5), Program Launch (Month 5-6), Program evaluation (Ongoing).
Geographic Location	Within the Pueblo of San Ildefonso
Milestones for obtaining implementing authority	Pueblo of San Ildefonso plan approval, grant funding received, Community outreach and needs assessed, community participation in the program, weatherization service providers secured.
Funding Sources	US EPA CPRG Implementation Grant
Metrics for Tracking Progress	Community awareness and participation including: number of applicants for program, number of pre-screened eligible participants. Weatherization Program Evaluation: Number of home energy audits completed, number of weatherization measures recommended per home audit, energy savings achieved for each weatherized home, and resident satisfaction surveys. Ongoing Evaluation: Regularly assess the program's effectiveness and make adjustments as needed.

Applicable Sector	Residential Energy

The effects of this mitigation measure on the Residential Energy sector for the end year of the goal period can be seen in Figure 25.

Figure 25. Pueblo of San Ildefonso Mitigation Measure 2 Sector Effects: snapshot in the years 2030 and 2050 (non-cumulative)



Measure 3: Installation of five 10 kW Solar PVs for Commercial Buildings

The Pueblo of San Ildefonso is currently working on a proposal for the installation of five (5) 10-kilowatt (kW) solar panels. The solar capacity and generation potential of the solar panels were calculated in the National Renewable Energy Lab's (NREL) PVWatts Calculator, which provides a month-by-month breakdown of solar radiation and AC energy (kWh)[16].This project would significantly decrease commercial energy emissions within the Pueblo. The installation of these solar panels would decrease commercial energy greenhouse gas (GHG) emissions by 3.62% from 2025-2030 and by 2050 reduce emissions by 12.47%.

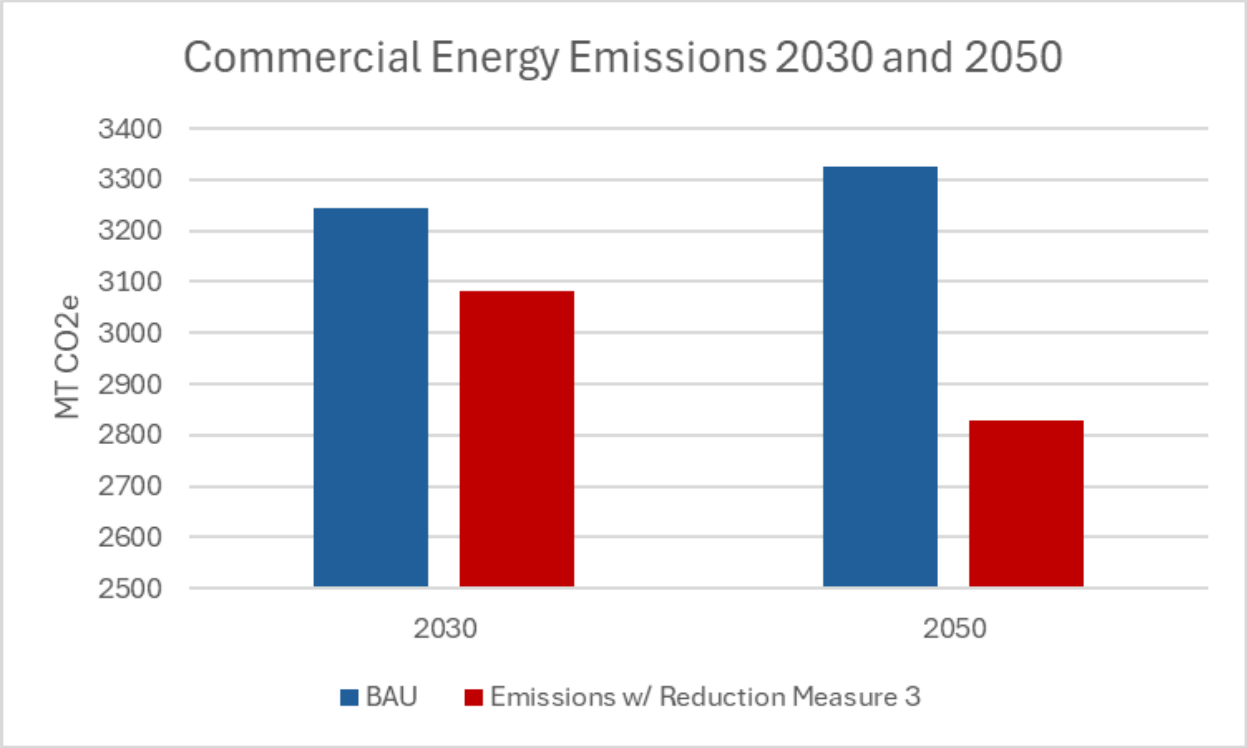
[16] National Renewable Energy Laboratory. PVWatts. Retrieved from https://pvwatts.nrel.gov/

Table 17. Pueblo of San Ildefonso Mitigation Measure 3

Measure 3: Installation of five 10 kW Solar PVs for Commercial Buildings	
Implementing agency	Pueblo of San Ildefonso
Estimated Cumulative GHG Reductions	2025-2030: 596 MT CO_2e 2025-2050: 7,865 MT CO_2e
Implementation Schedule	Implementation begins in 2025 or when funding is received, survey of land areas with highest solar potential within the Pueblo, installation of five 10 kW Solar Panels.
Geographic Location	Within the Pueblo of San Ildefonso
Milestones for obtaining implementing authority	Pueblo of San Ildefonso plan approval, designated ground for installation of the solar panels.
Funding Sources	US EPA CPRG Implementation Grant
Metrics for Tracking Progress	Published project overview, status updates from construction crew members, and final report tracking construction progress.
Applicable Sector	Commercial Energy

The effects of this mitigation measure on the Commercial Energy sector for the end year of the goal period can be seen in Figure 26.

Figure 26. Pueblo of San Ildefonso Mitigation Measure 3 Sector Effects: snapshot in the years 2030 and 2050 (non-cumulative)



For the Pueblo of San Ildefonso, the greatest GHG emissions reductions are achieved by EV and VMT Reduction. The second greatest GHG emissions reductions are achieved by Commercial Solar PV system installation. These two mitigation measures address the two sectors with the greatest Scope 1 and 2 emissions according to the baseline inventory: Transportation and Mobile and Commercial Energy Sources.

Tesuque

Measure 1: Electric Vehicles and VMT Reduction

Table 18. Pueblo of Tesuque Mitigation Measure 1

Measure 1: Electric Vehicles and VMT Reduction	
Implementing agency	Pueblo of Tesuque
Estimated Cumulative GHG Reductions	2025-2030: 11,925 MT CO_2e 2025-2050: 53,597 MT CO_2e

Implementation Schedule	Implementation begins in 2025 or when funding is received. Implementation includes local transit system infrastructure and EV charging ports to incentivize EV ownership.
Geographic Location	Within the Pueblo of Tesuque
Milestones for obtaining implementing authority	Pueblo of Tesuque plan approval
Funding Sources	US EPA CPRG Implementation Grant
Metrics for Tracking Progress	Number of Electric Vehicles owned by those on the Pueblo every 5 years, Number of passengers using Transit every 5 years, Daily commute distance and method of transportation every 5 years.
Applicable Sector	Transportation & Mobile Sources

The assumptions for this mitigation measure include:

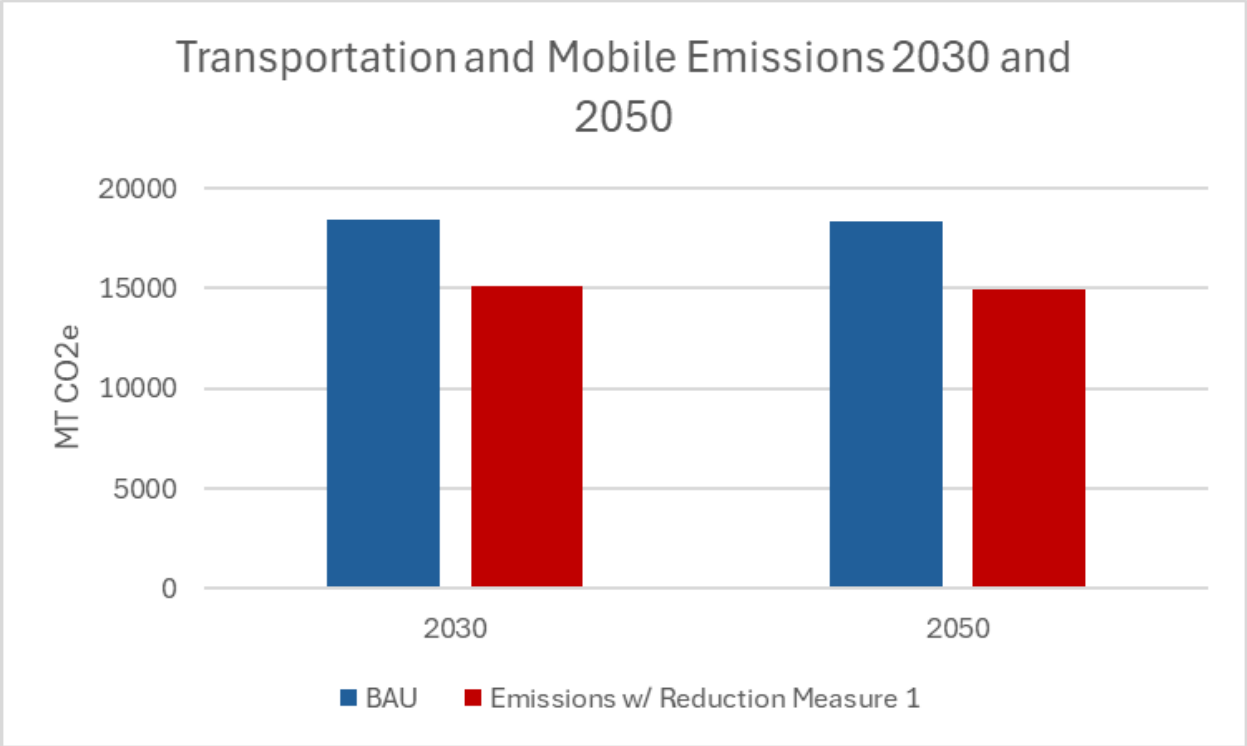
- Only gasoline vehicles are electrified
- A 10 and 20% VMT reduction from 2025 to 2030 and 2025 to 2050 respectively
- 16 and 20% of VMT by electric vehicles by 2030 and 2050 respectively
- 92 MPGGe fuel economy of electric vehicles
- 80% of charging from residential buildings

The estimated GHG reductions for this measure only take into account the reductions in the Transportation sector and not the increase in electricity use in the Residential and Commercial Energy sectors. However, studies show that even on the highest-carbon grids, EVs emit about half the amount of carbon pollution compared to ICE vehicles.[17]

The effects of this mitigation measure on the Transportation and Mobile Emissions sector for the end year of the goal period can be seen in Figure 27.

[17] US Department of Energy. (n.d.). *Alternative Fuels Data Center: Emissions from Electric Vehicles*. Retrieved March 6, 2024, from https://afdc.energy.gov/vehicles/electric_emissions.html.

Figure 27. Pueblo of Tesuque Mitigation Measure 1 Transportation and Mobile Emissions Effects: snapshot in the years 2030 and 2050 (non-cumulative)



Measure 2: Install a 914 kW Solar PV System

Table 19. Pueblo of Tesuque Mitigation Measure 2

Measure 2: Install a 914 kW Solar PV System	
Implementing agency	Pueblo of Tesuque
Estimated Cumulative GHG Reductions	2025-2030: 11,045 MT CO_2e 2025-2050: 145,793 MT CO_2e
Implementation Schedule	Implementation begins in 2025 or when funding is received. Implementation includes installation of a 117 kW solar PV system on the Tesuque Intergenerational Center rooftop and a 797 kW solar PV system on the Camel Rock Studios rooftop, totaling 914 kW.
Geographic Location	Tesuque Intergenerational Center and Camel Rock Studios rooftops

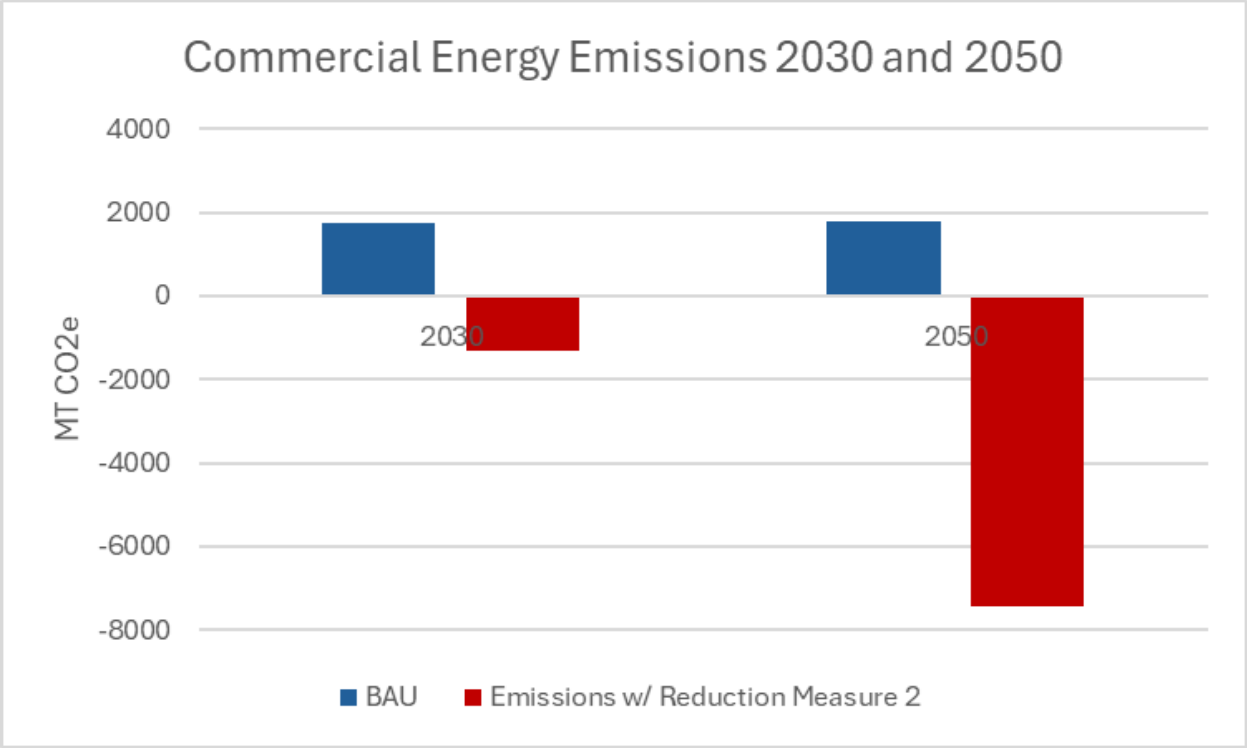
Milestones for obtaining implementing authority	Pueblo of Tesuque plan approval, interconnection agreement signed
Funding Sources	US EPA CPRG Implementation Grant
Metrics for Tracking Progress	Published project overview, 2 status updates, and final report tracking construction progress
Applicable Sector	Commercial Energy

The solar capacity and generation potential of the solar PV system were calculated in the National Renewable Energy Lab's (NREL) PVWatts Calculator, which takes into account the size and location of the solar PV system[18].

The effects of this mitigation measure on the Commercial Energy sector for the end year of the goal period can be seen in Figure 28.

[18] National Renewable Energy Lab. (n.d.). *PVWatts Calculator*. Retrieved March 4, 2024, from https://pvwatts.nrel.gov/.

Figure 28. Pueblo of Tesuque Mitigation Measure 2 Commercial Energy Sector Effects: snapshot in the years 2030 and 2050 (non-cumulative)



While decreasing emissions from energy used from housing alone cannot sequester carbon, the negative value reflects modeling design that includes various factors, such as a rate of decreasing carbon intensity of the regional and local grid.

Measure 3: Weatherize 10 Residential Homes each Year

Table 20. Pueblo of Tesuque Mitigation Measure 3

Measure 3: Weatherize 10 Residential Homes each Year	
Implementing agency	Pueblo of Tesuque
Estimated Cumulative GHG Reductions	2025-2030: 100 MT CO_2e 2025-2050: 1,593 MT CO_2e
Implementation Schedule	Implementation begins in 2025 or when funding is received. Implementation includes sealing cracks around windows and doors, adding insulation, and sometimes replacing inefficient appliances.

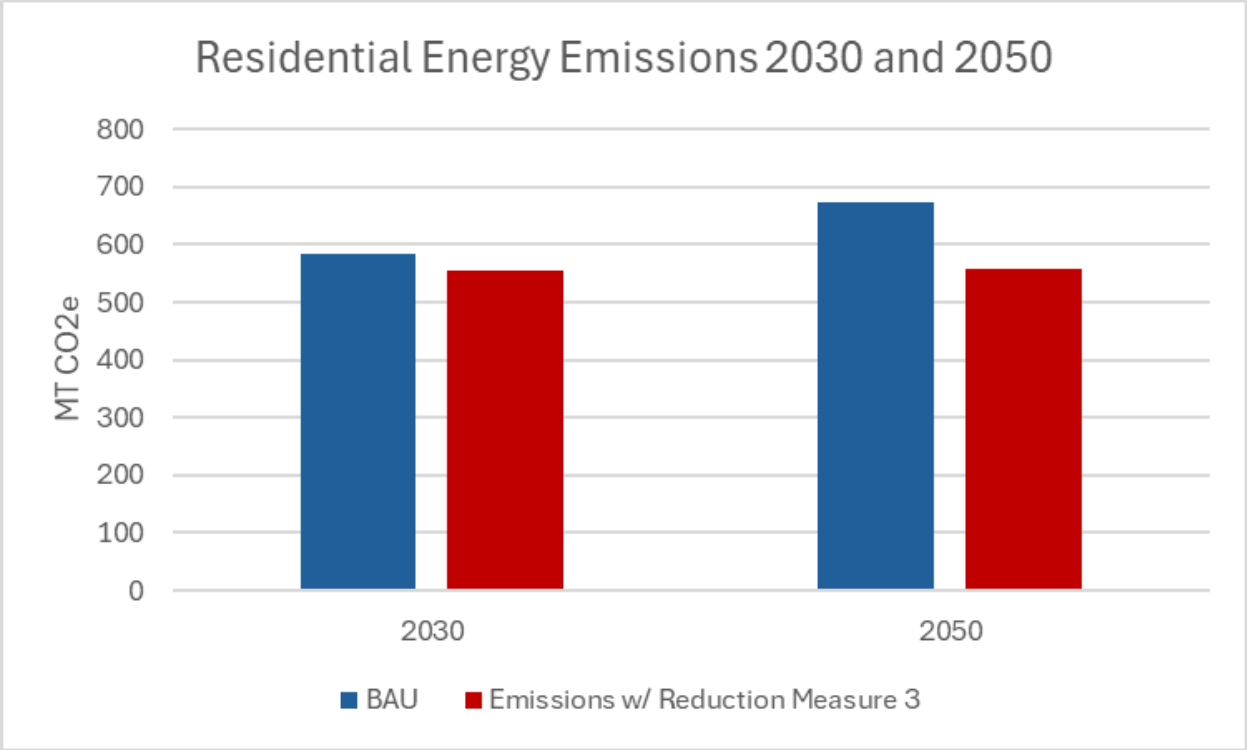
Geographic Location	Pueblo of Tesuque Residences
Milestones for obtaining implementing authority	Pueblo of Tesuque plan approval, individual resident plan approval
Funding Sources	US EPA CPRG Implementation Grant
Metrics for Tracking Progress	Published project overview, yearly status updates tracking weatherization progress
Applicable Sector	Residential Energy

The assumptions for this mitigation measure include:

- 10 homes are weatherized each year
- The effective useful life is 15 years
- 271 kWh/home/year in electricity savings
- 72 therms/home/year in natural gas savings

The effects of this mitigation measure on the Residential Energy sector for the end year of the goal period can be seen in Figure 29.

Figure 29. Pueblo of Tesuque Mitigation Measure 3 Residential Energy Sector Effects: snapshot in the years 2030 and 2050 (non-cumulative)



For the Pueblo of Tesuque, the greatest GHG reductions are achieved by installing a 914 kW Solar PV system, followed closely by Electric Vehicles and VMT Reduction. The Pueblo has expressed interest in a residential weatherization program, although our calculations show only marginal GHG emissions reductions. These top two mitigation measures address the two sectors with the greatest Scope 1 and 2 emissions according to the baseline inventory: Commercial Energy and Transportation and Mobile Sources.

3.4 Benefits Analysis

This benefits analysis uses the 2020 NEI county data for criteria air pollutants (CAPs), scales down the CAPs attributable to the Pueblo based on land area, and assumes that the percentage of GHG emissions reductions is equal to the percentage of CAP reductions. The CAPs included in this analysis include Ammonia, Sulfur Dioxide, Volatile Organic Compounds, Particulate Matter-10, Particulate Matter-2.5, Nitrogen Oxides, and Carbon Monoxide.

The Clean Air Act mandates the Environmental Protection Agency (EPA) to establish national air quality benchmarks known as National Ambient Air Quality Standards (NAAQS)[19]. These standards focus on limiting public exposure to six key pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide.

NAAQS encompasses two distinct categories of standards:
Primary standards: These are designed to safeguard public health, particularly for vulnerable populations like those with compromised immune systems.
Secondary standards: These focus on protecting public welfare by addressing environmental harms caused by air pollutants, such as damage to ecosystems (animals, crops, vegetation), and even buildings.

According to the CDC, human health effects from air pollution are known to do significant damage to lung function and trigger asthmatic symptoms.[20] Historically, Tribal Reservations and Indigenous communities have faced a disproportionate burden of air pollution, despite their long standing role as environmental stewards. This disparity persists, with the increasing presence of air pollution continuing to have a greater impact on these communities.[21]

Nambe

Table 21. Nambe Co-pollutant Reductions for Mitigation measure 1

Co-pollutant reductions	**Emissions (tons)**
2025-2030	39.9
2025-2050	17.2

Table 22. Nambe Co-pollutant Reductions for Mitigation measure 2

Co-pollutant reductions	**Emissions (tons)**

[19] US EPA, O. (2014, April 10). NAAQS Table [Other Policies and Guidance]. https://www.epa.gov/criteria-air-pollutants/naaqs-table
[20] Centers for Disease Control and Prevention. (2020, December 21). Air Pollution | CDC. https://www.cdc.gov/climateandhealth/effects/air_pollution.htm
[21] Hilpert, M., Shearston, J., Goldsmith, J., & Brooks, J. (2022, March 23). Study Examines Disparities in Air Pollution Affecting Native American Communities. Columbia University Mailman School of Public Health. https://www.publichealth.columbia.edu/news/study-examines-disparities-air-pollution-affecting-native-american-communities

2025-2030	3.71
2025-2050	5.93

Table 23. Nambe Co-pollutant Reductions for Mitigation measure 3

Co-pollutant reductions	**Emissions (tons)**
2025-2030	1.05
2025-2050	0.46

Picuris

Table 24. Picuris Co-pollutant Reductions for Mitigation measure 1

Co-pollutant reductions	**Reduced Emissions (tons)**
2025-2030	20.21
2025-2050	30.39

Table 25. Picuris Co-pollutant Reductions for Mitigation measure 2

Co-pollutant reductions	**Reduced Emissions (tons)**
2025-2030	9.25
2025-2050	13.65

San Ildefonso

Table 26.San Ildefonso Co-pollutant Reductions for Mitigation measure 1

Co-pollutant reductions	**Emissions (tons)**
2025-2030	82.8
2025-2050	62.75

Table 27. San Ildefonso Co-pollutant Reductions for Mitigation measure 2

Co-pollutant reductions	**Emissions (tons)**
2025-2030	2.70
2025-2050	10.35

Table 28. San Ildefonso Co-pollutant Reductions for Mitigation measure 3

Co-pollutant reductions	**Emissions (tons)**
2025-2030	0.14
2025-2050	0.41

Tesuque

Table 29. Tesuque Co-pollutant Reductions for Mitigation measure 1

Co-pollutant reductions	**Reduced Emissions (tons)**
2025-2030	36.7
2025-2050	37.9

Table 30. Tesuque Co-pollutant Reductions for Mitigation measure 2

Co-pollutant reductions	**Reduced Emissions (tons)**

2025-2030	1.1
2025-2050	1.1

Table 31. Tesuque Co-pollutant Reductions for Mitigation measure 3

Co-pollutant reductions	**Reduced Emissions (tons)**
2025-2030	5.4
2025-2050	19.25

There are limitations to this method of estimation. For example, the CAP emissions attributed to commercial energy in the 2020 NEI are orders of magnitude lower than those for passenger vehicles. Therefore, even with a similar percentage reduction, the reduced CAPs for passenger vehicles will be much higher than those for commercial energy. These large discrepancies across sectors are likely due to the limitations of the NEI database. Additionally, the percentage of CAP emissions reductions is likely not exactly the same as the GHG emissions reductions due to each particular mitigation measure having a different effect on GHG and CAP emissions. The time constraints of the PCAP limited the precision of these co-pollutant reduction calculations.

3.5 Review of Authority to Implement

The climate pollution reduction measures suggested in this PCAP include:

Home and building weatherization

The authority to implement tribal government building weatherization programs lies with each respective Tribal Government. A tribal council resolution may be necessary. Funding may be available through the State of New Mexico WAP. The authority to implement home weatherization projects may be through tribal government, tribal council, the housing authority and/or specific residents.

Home and building wood stove changeout

The authority to implement tribal government wood stove changeout programs lies with each respective Tribal Government. A tribal council resolution may be necessary. The authority to implement in-home wood stove changeout programs may be through tribal government, tribal council, the housing authority and/or specific residents.

Home and Building electrification

The authority to implement the electrification of homes or businesses that used to run on natural gas lies with the tribal government and/or residence. A tribal council resolution may be necessary to conduct a broad program. However, electric grid capacity may also be relevant in some areas and/or in aggregate.

Rooftop solar: Businesses

The authority to implement rooftop solar for businesses lies with multiple entities: the tribal business and/or corporation and the tribal government. A tribal council resolution may be necessary. Suggested milestones to obtaining utility authority include early outreach and coordination with the utility's tribal liaison. Interconnection permits will need to be obtained through the Authority Having Jurisdiction (AHJ) and state licensing. The authority having jurisdiction (AHJs) are usually the electric utility: PNM. Tribes with tribal utilities are their own AHJs. AHJs approve applications for interconnection.

Rooftop and Pole solar: Homes

The authority to implement rooftop solar photovoltaic installations lies with the tribal government and individual home residences. Decisions may also involve the tribal housing authority and the environment division. Interconnection permits will need to be obtained by the electrical utility or AHJ.

Installation of EV charging stations

The authority to install EV charging stations in public areas of the Pueblo lies with the Pueblo's government. A tribal council resolution may be necessary. Permits may need to be obtained by the electrical utility for interconnection.

Improved public transportation programs to decrease VMT

The authority to implement public transportation programs lies with the Pueblo's government. A resolution may need to be obtained by tribal council.

Recycling Improvements and Composting

The authority to implement improvements to solid waste management lies with the Pueblo's government. A resolution may need to be obtained by tribal council.

3.6 Identification of Other Funding Mechanisms

The EPA Climate Pollution Reduction Program has set aside funding for tribes to implement PCAP measures as part of a competitive process, with applications due **May 1st, 2024**.

However, there are many alternative funding mechanisms for priority projects, of three general types:

Competitive Grants: This funding approach awards grants through a rigorous application process, prioritizing projects that demonstrate exceptional merit and potential impact. Competitive grants support clean energy infrastructure projects like carbon capture and storage as well as the deployment of renewable energy technologies like solar and wind power generation.

Formula Grants: These programs distribute pre-determined funding allocations based on a set formula, ensuring consistent support for essential clean energy initiatives. Examples include the Energy Efficiency and Conservation Block Grant Program and the Grid Resilience State and Tribal Formula Grants Program.

Loan Programs: These programs offer financial assistance for clean energy projects such as electricity generation and energy storage facilities. Loan recipients repay the borrowed funds with interest, allowing for continuous reinvestment in clean energy advancements.

In addition, the Inflation Reduction Act (IRA) changed the tax code to provide incentives for renewable energy. Tribal communities can utilize these tax incentives more readily due to "direct pay" also known as "elective pay". This provision allows tax-exempt and governmental entities such as Tribes, to use the tax credits while building clean energy projects such as solar, wind, battery storage, community solar, and EV charging infrastructure or purchasing EVs for government fleets and receive a payment equal to the full value of tax credits for building qualifying clean energy projects. You can learn more about using elective pay on pages 14-17 of the U.S. Department of Energy Tribal Resource Guide.[22]

A short list of relevant funding mechanisms for the priority measures in this PCAP include:

Competitive Grants:

Department of Energy - Clean Energy Technology Deployment on Tribal Lands - 2024 (DE-FOA-0003298) (Competitive Grant)[23]

> On Feb. 27, DOE announced $25 million in funding to support clean energy technology deployment on Tribal lands. This investment will strengthen Tribal energy sovereignty through local clean energy generation, while increasing energy access, reliability, and security.
>
> Under this Funding Opportunity Announcement (FOA), the Office of Indian Energy is soliciting applications from Indian Tribes, which include Alaska Native Regional

[22]US Department of Energy. (2024). Department of Energy's Tribal Nations and Native Communities Resource Guide. https://www.energy.gov/sites/default/files/2024-02/DOE-Tribal-Resource-Guide-2024-web.pdf

[23] Office of Indian Energy and Policy Programs. (n.d.). *Current Funding Opportunities*. Energy.Gov. Retrieved March 19, 2024, from https://www.energy.gov/indianenergy/current-funding-opportunities, US Department of Energy Office of Indian Energy. (n.d.). *IE-Exchange: Funding Opportunity*. Retrieved March 19, 2024, from https://ie-exchange.energy.gov/

Corporations and Village Corporations, Intertribal Organizations, and Tribal Energy Development Organizations, to:

Install clean energy generating system(s) and/or energy efficiency measure(s) for Tribal building(s) (Topic Area 1); or, Deploy community-scale clean energy generating system(s) or community energy storage on Tribal lands (Topic Area 2); or, Install integrated energy system(s) for autonomous operation (independent of the traditional centralized electric power grid) to power a single or multiple essential Tribal buildings during emergency situations or for tribal community resilience (Topic Area 3); or, Provide electric power to Tribal Building(s), which otherwise would be unelectrified (Topic Area 4).

Download the full Funding Opportunity Announcement for Clean Energy Technology Deployment on Tribal Lands – 2024 (DE-FOA-0003298) to learn more and apply.

Register for the **informational webinar March 14, 2024**. The Office of Indian Energy will provide interested applicants with more information on the FOA and how to apply.

Department of Energy - Clean Energy Innovator Fellowship (March 5th, next cycle)

Apply to host a Clean Energy Innovator Fellow! The goal of this program is to increase access to Tribal clean energy career opportunities and accelerate the national transition to resilient and affordable clean energy.

Indian Tribes, Alaska Native Villages, Regional or Village Corporations, Tribal Energy Offices and Utilities, and Non-profit Regional Intertribal Organizations are eligible to apply as Host Institutions. Fellows will be funded by the U.S. Department of Energy (DOE) for up to two years, including a professional development allowance to advance their skills and expertise.

Department of Energy - Powering Unelectrified Tribal Buildings[24]

The DOE Office of Indian Energy is soliciting applications from Indian Tribes, which include Alaska Native Regional Corporations and Village Corporations (hereafter referred collectively as "Indian Tribes"), Intertribal Organizations, and Tribal Energy Development Organizations to provide electric power to Tribal Buildings, which otherwise would be unelectrified, by deploying (1) integrated energy system(s) (Topic Area 1) or (2) energy infrastructure (Topic Area 2). See Section III.A. of the FOA for eligibility information and Appendix A for the definitions.

Unless DOE approves a requested cost share reduction, a 20% cost share of the total allowable costs of the project (i.e., the sum of the DOE share, and the Recipient share of

[24] US Department of Energy Office of Indian Energy. (2022). *IE-Exchange: Funding Opportunity*. https://ie-exchange.energy.gov/Default.aspx?foaId=31f3a2b2-eb1f-4f95-a766-5828870dd225

allowable costs equals the total allowable cost of the project) is required. If requested by the Applicant as part of its application, a cost share reduction to not less than 10% may be considered, based on poverty rate and median household income of the tribal community relative to the statewide median household income (see Section III.B.2. of the FOA and 'Application Forms and Templates' for this FOA on IE-Exchange).

DOE expects to make approximately $15 million of federal funding available for new awards under this FOA, subject to the availability of appropriated funds. The actual level of funding, if any, depends on Congressional appropriations. DOE anticipates making approximately 4 to 10 awards under this FOA. DOE may issue awards in one, multiple, or none of the aforementioned topic areas.

Transitioning Tribal Colleges and Universities to Clean Energy (next cycle)[25]

Under this Funding Opportunity Announcement (FOA), the DOE Office of Indian Energy is soliciting applications from Tribal Colleges and Universities for: (1) clean energy project and curriculum planning (Topic Area 1); and (2) clean energy technology and curriculum deployment (Topic Area 2) See Section III.A. of the FOA for eligibility information and Appendix A for definitions.

DOE expects to make approximately $15 million in federal funding available for new awards under this FOA. DOE anticipates making approximately 10 to 25 awards under this FOA. DOE may issue awards in one, multiple, or none of the aforementioned topic areas.

A 10% cost share of the total allowable costs of the project (i.e., the sum of the federal share, and the non-federal Recipient cost share of allowable costs equals the total allowable cost of the project) is required.

EPA Clean School Bus Program[26]

A grant OR rebate program. The program solicited applications nationwide for a grant competition to fund the replacement of existing school buses with clean and zero-emission (ZE) school buses. In the previous round, applications were due in August, 2023. Tribes are eligible entities. New replacement buses must be battery 0 electric, CNG, or propane and EPA model year 2021 and newer. Eligible replacement buses must be 2010 or older diesel powered and over 10,001lbs, operable and in use at least 3 days a week.

[25] US Department of Energy Office of Indian Energy. (2023). *IE-Exchange: Funding Opportunity*. https://ie-exchange.energy.gov/Default.aspx?foaId=647f25a5-1fb1-48ea-b75a-905f643e4b54

[26] US EPA, O. (2023, April 11). *Clean School Bus Program Grants* [Overviews and Factsheets]. https://www.epa.gov/cleanschoolbus/clean-school-bus-program-grants

USDA Grant Programs for agriculture including those that support land conservation, food production, processing, aggregation and distribution, and markets and consumers are numerous. A few that are particularly relevant to address climate mitigation are listed below.

USDA Local Food Promotion Program[27]

> The U.S. Department of Agriculture (USDA), Agricultural Marketing Service (AMS), requests applications for the fiscal year (FY) 2024 Local Food Promotion Program (LFPP). LFPP's purpose is to support the development, coordination, and expansion of local and regional food business enterprises that engage as intermediaries in indirect producer-to-consumer marketing to increase access to and availability of locally and regionally produced agricultural products. AMS will competitively award grants to eligible applicants for projects that meet the purpose of the grant program. Approximately $10.5 million is available to fund applications under this solicitation. Applicants may select from one of four project types. Planning projects range from $25,000 to $100,000, while implementation projects range from $100,000 to $500,000. Two Turnkey (simplified) project types are available: Turnkey Marketing and Promotion projects and a new option for Turnkey Recruitment and Training projects. Each of the turnkey project options are available for a defined set of activities, with funding amounts ranging between $50,000 and $100,000. Eligible entities and activities remain the same as in previous years. LFPP is a part of the Local Agriculture Market Program (LAMP). In the FY 2023 application cycle, AMS funded 33 (13%) of the 264 applications received. To be competitive, applications must meet all program requirements, be of high quality, and include 25% matching funds, as required by legislation. All applications will undergo review according to merit and customary evaluation procedures. This announcement provides information regarding the eligibility criteria for applicants and projects, details on matching fund requirements, and the forms and instructions needed to apply for an award.

USDA Solid Waste Management Grants

> This program reduces or eliminates the pollution of water resources by funding eligible organizations that provide technical assistance or training to improve planning for – and management of – solid waste disposal sites. Tribes are eligible. Funds can be used to evaluate current landfill conditions to identify threats to water resources, provide technical assistance or training to enhance the operation and maintenance of active landfills, provide technical assistance or training to help communities reduce the amount of solid waste coming into a landfill and provide technical assistance or training to

[27] US Department of Agriculture Agricultural Marketing Service. (2024). *Local Food Promotion Program Fiscal Year 2024 Request for Applications*. https://www.ams.usda.gov/sites/default/files/media/FY24_LFPP_RFA.pdf

prepare for closure and future use of a landfill site Application window is from October-December annually.

USDA Environmental Quality Incentives Program (for agricultural producers) EQIP

The Environmental Quality Incentives Program (EQIP) is NRCS' flagship conservation program that helps farmers, ranchers and forest landowners integrate conservation into working lands. EQIP provides technical and financial assistance to agricultural producers and forest landowners to address natural resource concerns, such as: Improved water and air quality; Conserved ground and surface water; Increased soil health; Reduced soil erosion and sedimentation; Improved or created wildlife habitat; and Mitigation against drought and increasing weather volatility. NRCS works one-on-one with producers to develop a conservation plan that outlines conservation practices and activities to help solve on-farm resource issues. Producers implement practices and activities in their conservation plan that can lead to cleaner water and air, healthier soil and better wildlife habitat, all while improving their agricultural operations. EQIP helps producers make conservation work for them. Financial assistance for practices may be available through EQIP. Some producers may also qualify for advance payment.

Rural Energy for America Program (REAP) (for agricultural producers and small businesses)

The program provides guaranteed loan financing and grant funding to agricultural producers and rural small businesses for renewable energy systems or to make energy efficiency improvements. Agricultural producers may also apply for new energy efficient equipment and new system loans for agricultural production and processing. Open t Agricultural producers, An entity directly engaged in production of agricultural products where at least 50 percent of their gross income coming from agricultural operations, Small businesses Must be located in eligible rural areas and one of the following: Private for-profit entity (sole Proprietorship, Partnership, or Corporation) A Cooperative [including those qualified under Section 501(c)(12) of IRS Code] An electric utility (including a Tribal or governmental electric utility) that provides service to rural consumers and operates independent of direct government control) A Tribal corporation or other Tribal business entities that are chartered under Section 17 of the Indian Reorganization Act (25 USC 477) or have similar structures and relationships with their Tribal entity without regard to the resources of the Tribal government. Must meet the Small Business Administration size standards in accordance with 13 CFR 121. NOTE: Agricultural producers and small businesses must have NO outstanding delinquent federal taxes, debt, judgment or debarment.

Regional Food Systems Partnership Grants[28]

[28] US Department of Agriculture Agricultural Marketing Service. (2024). *Regional Food System Partnerships | Agricultural Marketing Service*. https://www.ams.usda.gov/services/grants/rfsp

The Regional Food System Partnerships (RFSP) program supports partnerships that connect public and private resources to plan and develop local or regional food systems. The program focuses on building and strengthening the viability and resilience of local or regional food economies through collaboration and coordination. RFSP supports public-private partnerships that plan and develop relationships between local and regional producers, processors, intermediaries, and institutional markets or institutional food service operations through local and regional producers and local and regional food systems. RFSP is part of the Local Agriculture Market Program (LAMP). RFSP offers two types of projects, 24-month Planning and Design and 36-month Implementation and Expansion Projects. Planning and Design projects range from $100,000 to $250,000, while Implementation and Expansion projects range from $250,000 to $1,000,000. **Applications are due May 14th, 2024.**

DOE Loan Programs Office (LPO): Tribal Energy Financing[29]

LPO supports Tribal investment in energy-related projects by providing direct loans or partial loan guarantees to federally recognized tribes or a Tribal Energy Development Organization (TEDO) that is wholly or substantially owned by a federally recognized Indian tribe. The kinds of projects that are eligible include but are not limited to: Electricity generation, transmission and/or distribution facilities, utilizing renewable or conventional energy sources, Energy storage facilities, whether or not integrated with any of the above, Energy resource extraction, refining or processing facilities, Energy transportation facilities, including pipelines, District heating and cooling facilities, Cogeneration facilities, and distributed energy project portfolios, including portfolios of smaller distributed generation and storage facilities employed pursuant to a unified business plan.

Weatherization Assistance Program[30]

The U.S. Department of Energy (DOE) Weatherization Assistance Program (WAP) provides grants to states, territories, and some Indian tribes to improve the energy efficiency of the homes of low-income families. These governments, in turn, contract with local governments and nonprofit agencies to provide weatherization services to those in need using the latest technologies for home energy upgrades. To be eligible for this benefit program, you must be a resident of New Mexico. Preference may be given to: People over 60 years of age, Families with one or more members with a disability, Families with children (in most states). Under DOE guidelines, people who receive supplemental security income or temporary assistance to needy families are automatically

[29] US Department of Energy. (2024) Tribal *Energy Financing Service.* https://www.energy.gov/LPO/Tribal
[30] Benefits.gov. (n.d.). *New Mexico Weatherization Assistance Program | Benefits.gov*. Retrieved March 19, 2024, from https://www.benefits.gov/benefit/1871

eligible. The New Mexico Weatherization Administrator is MFA Housing NM.[31] More information on the process to apply can be found on energy.gov.[32] NREL produced a case study of High efficiency housing at the Fort Peck Indian Reservation which may be of interest in developing energy efficient homes programs.[33]

Formula Funding Programs:

Energy Efficiency and Conservation Block Grant (EECBG) Program

Approximately $10,000 allocations are available under the EECBG Program for financial assistance to eligible Tribes, including Alaska Native Regional and Village Corporations to implement strategies to reduce energy use, to reduce fossil fuel emissions, and to improve energy efficiency. Tribes may opt to receive their allocation under this program in the form of a formula grant or voucher for technical assistance or equipment rebate. Tribes may team up with other Tribes or EECBG-eligible local governments to pool their funds and streamline the application process. These flexible funds may be used across 14 eligible areas, including energy planning, energy efficiency upgrades to public or private infrastructure, and workforce development.[34]

Grid Resilience State and Tribal Formula Grants[35]

DOE's Grid Deployment Office (GDO) funds this block program, which is distributed to states, territories, and federally recognized Indian tribes, over five years to strengthen and modernize America's power grid against wildfires, extreme weather, and other natural disasters that are exacerbated by the climate crisis. Indian tribes may apply together as a tribal consortium and may accumulate funds from multiple allocations years to develop larger projects. Pueblo allocations range from $158,000 to $217,000 for our consortium members.[36] **Allocation requests due April 17th, 2024.**

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[31]Housing New Mexico. (n.d.). New Mexico Mortgage Finance Authority. Retrieved March 19, 2024, from https://housingnm.org/home-repair-and-energy-efficiency/energymart-weatherization-assistance/apply

[32] Office of State and Community Energy Programs. (n.d.). *How to Apply for Weatherization Assistance*. Energy.Gov. Retrieved March 19, 2024, from https://www.energy.gov/scep/wap/how-apply-weatherization-assistance

[33] National Renewable Energy Laboratory. (2018). *High-Efficiency Housing at the Fort Peck Indian Reservation: Opportunities and Lessons Learned*. https://www.nrel.gov/docs/fy18osti/70617.pdf

[34]Office of State and Community Energy Programs. (n.d.). Energy Efficiency and Conservation Block Grant Program Comprehensive Guide for Indian Tribes. Energy.Gov. Retrieved March 19, 2024, from https://www.energy.gov/scep/energy-efficiency-and-conservation-block-grant-program-comprehensive-guide-indian-tribes

[35]Grid Deployment Office. (2024). Biden-Harris Administration Announces $562 Million for States and Tribes to Strengthen and Modernize America's Power Grid. Energy.Gov. https://www.energy.gov/gdo/articles/biden-harris-administration-announces-562-million-states-and-tribes-strengthen-and

[36] Grid Deployment Office US Department of Energy. (2024). *Allocation of Funds*. https://netl.doe.gov/sites/default/files/2023-12/FY24%20Allocations%20Table.pdf

Tribal Home Electrification and Appliance Rebates Program

> Under the Inflation Reduction Act, the Tribal Home Electrification and Appliance Rebates program provides $225 million to Indian Tribes and Alaska Native Corporations to develop, implement, and subsidize residential electrification and appliance upgrade projects. A "rebate" is a buying discount that can go to households, building owners, and contractors to 1) decrease the cost of residential energy improvements and, in turn, 2) help low- and moderate income Tribal households enjoy lower energy bills and more comfortable homes. This program will provide up to $14,000 per eligible household for energy efficiency and electrification home upgrades, which can include HVAC systems, electric appliances like stove or oven, electric clothes dryers, electric circuit paneling and wiring upgrades, and/or insulation products. Tribes can restrict rebates to certain technologies for local needs, such as only using rebates for wiring of non-electrified tribal households. Tribes first apply to DOE for a grant (above), then administer the program to their members. **Letters of Intent are due May 15th, 2024.**

More funding opportunities for tribes can be found in the White House Inflation Reduction Act Tribal Guidebook[37] and the US Department of Energy's Tribal Nations and Native Communities Resource Guide,[38] and the EPA's Inflation Reduction Act Climate Action Funding Resource Guide[39] and USDA Programs in the Local Food Supply Chain Guide Fact Sheet.[40]

Other sources of assistance include technical and decision support, with federal entities such as the National Renewable Laboratory[41] and the DOE Office of Indian Energy.

3.7 Workforce Planning Analysis

Nambe

Pueblo of Nambe Workforce Information

According to the 2022 census data the Pueblo of Nambe has a population of 2,148 for an area of 32.3 square miles (31,192.68 acres calculated in GIS) with about 66 people per square mile. The average median household income was $42,740 which is three-fifths of the national average. The per capita income was at $33,064 which is about 19.8% less than the national average. About

[37] The White House. (2023). *GUIDEBOOK TO THE INFLATION REDUCTION ACT'S CLEAN ENERGY AND CLIMATE INVESTMENTS IN INDIAN COUNTRY*. https://www.whitehouse.gov/wp-content/uploads/2023/04/Inflation-Reduction-Act-Tribal-Guidebook.pdf

[38] US Department of Energy. (2024). *Department of Energy's Tribal Nations and Native Communities Resource Guide*. https://www.energy.gov/sites/default/files/2024-02/DOE-Tribal-Resource-Guide-2024-web.pdf

[39] US EPA. (2023, August 3). *Investing in America: Climate Action Funding Resource Guide* (United States) [Other Policies and Guidance]. https://www.epa.gov/inflation-reduction-act/investing-america-climate-action-funding-resource-guide

[40] USDA. (2021). *USDA Programs in the Local Food Supply Chain*. https://www.ams.usda.gov/sites/default/files/media/FoodSupplyChainFactSheet.pdf

[41] National Renewable Energy Laboratory. (2023). *Decision Support for Tribes*. https://www.nrel.gov/state-local-tribal/decision-support-tribes.html

15.5% persons were below the poverty line, making this percentage 25% higher than the national percentage. 88.3% of the population has a high school diploma and 22% have bachelor's degree or higher.[42] The estimated number of employees within the Pueblo of Nambe is 65 employees, excluding tribal members commuting out of the Pueblo for work.

Mitigation Measure 1: Installation of EV Charging Station and VMT Reduction

Potential Economic Impact

Nambe's Tesla dealership presents a unique opportunity to support the growth of electric vehicle (EV) use within the community. By partnering with the dealership, the town can incentivize the installation of EV charging stations. Establishment of a robust charging network would provide incentive for local EV adoption and also allow outside traffic with EVs to conveniently stop and recharge. Increased EV traffic would translate into new jobs for charging station installation and maintenance, while local businesses would benefit from the spending of these visitors. This initiative has the potential to stimulate the Pueblo of Nambe's economy. With the installation of EV charging stations, the cost of EV charging infrastructure and maintenance can be a high investment which can be aided by applying for grant funding explained in 3.6. Identification of Other Funding Mechanisms.

Job Creation Potential

Charging Station Installers: Skilled workers are needed to install and maintain the charging infrastructure for the EVs.

Charging Station Maintenance Manager: These managers maintain the EV charging ports and ensure they are operating properly and respond to issues associated with the charging ports.

Data Analysts: Data analysts may be needed for EV charging port usage data, charging patterns, and overall system performance to optimize efficiency and identify improvement opportunities.

Mitigation Measure 2: Installation of 3.7 kW solar photovoltaics on six homes

Potential Economic Impact

By installing solar photovoltaic (PV) systems on six residential homes in the Pueblo of Nambe, can achieve several economic benefits. These include:

- Reduced Electricity Bills: Residents will see lower electricity bills as they generate their own electrical energy.
- Job Creation: Installing and maintaining these systems creates new jobs for electricians, roofers, and other skilled workers, boosting the local economy.

[42] Census Reporter. (n.d.). *Census profile: Nambe Pueblo and Off-Reservation Trust Land*. Census Reporter. Retrieved March 20, 2024, from http://censusreporter.dokku.censusreporter.org/profiles/25000US2400-nambe-pueblo-and-off-reservation-trust-land/

- Increased Solar Power Usage: Widespread adoption of solar power encourages others to follow suit, leading to a strong solar PV program with the Pueblo.

The installation of a solar PV system presents significant upfront costs. However, potential funding awards through grants can help offset these costs, explained in section 3.6. Identification of Other Funding Mechanisms.

Job Creation Potential

The installation and ongoing maintenance of the commercial solar PV system present opportunities for new job creation in several areas, including:

Solar Photovoltaic (PV) Installers: These skilled workers handle the physical installation of solar panels, electrical wiring, and mounting structures. They typically require experience and certifications in electrical work and rooftop safety.

Electricians: Licensed electricians are needed to connect the solar PV system to the electrical grid and ensure all electrical components comply with safety regulations.

Project Managers: Experienced project managers oversee the entire installation process, coordinating with engineers, installers, and other stakeholders to ensure timely completion within budget.

Engineers: Depending on the project's complexity, engineers might be involved in designing the system layout, specifying equipment, and ensuring structural integrity of the roof to support the panels.

Roofing Inspectors: Certified roof inspectors will likely be required to assess the condition of the roof before installation and ensure it can handle the additional weight of the solar panels.

Laborers: General laborers may be needed to assist with tasks like transporting materials, cleaning the installation site, and performing basic maintenance duties.

Mitigation Measure 3: EV Bus/Van Transit Service

Potential Economic Impact

Pueblo of Nambe currently offers a transportation service for tribal households and members to access healthcare facilities through the Community Health Representative (CHR) program. Implementing an electric bus (EV) transit system can significantly build upon this existing program by expanding the range of needs it can address while also reducing the emissions associated with transportation. This measure could affect the Pueblo of Nambe's economy by:

- Providing accessible transportation for residents who might not have cars, allowing them to reach jobs, shops, healthcare facilities, and other essential services.
- Increased mobility can lead to a rise in labor participation and ultimately, more spending within the Pueblo.

Potential economic challenges include the initial financial investment in EV buses/van along with EV bus/van operating and maintenance costs, and marketing costs to bring awareness to the new transit system. For financial assistance for this mitigation measure grant funding can be useful in offsetting the upfront costs of vehicles and charging infrastructure, explained in section 3.6 Identification of Other Funding Mechanisms.

Job Creation Potential

The implementation and operation of the EV bus system present opportunities for new job creation in several areas, including:

EV Bus Drivers: Qualified drivers are needed to operate the electric buses safely and efficiently.

EV Bus Mechanics: These technicians maintain and repair electric buses, requiring specialized knowledge of electric vehicle systems and high-voltage batteries.

Charging Station Installers: Skilled workers are needed to install and maintain the charging infrastructure for the electric buses.

Fleet Managers: Experienced fleet managers oversee the operation and maintenance of the electric bus fleet, ensuring efficient scheduling, dispatching, and vehicle maintenance.

Dispatchers: Dispatchers manage bus schedules, monitor real-time traffic conditions, and communicate with drivers to ensure smooth operations and on-time arrivals.

Data Analysts: Data analysts may be needed to track bus usage data, charging patterns, and overall system performance to optimize efficiency and identify improvement opportunities.

Picuris

Pueblo of Picuris Workforce Information

U.S. Census data from 2020 showed a population of 128 at the Pueblo of Picuris for an area of 26,871 acres. The median household income for the Pueblo of Picuris was $28,125 which is half of the average of the median income of the surrounding city of Taos and the State of New Mexico. The poverty line within the Pueblo, is 20% higher than the poverty line for the State of New Mexico. In education 92.8% of the population had a high school diploma or higher which is a little higher than the New Mexico average. 21.7% of the population had a bachelor's degree or higher which was three quarters of the NM percentage.[43]

Mitigation Measure 1: Sustainable Housing Program

[43] Census Reporter. (n.d.). *Census profile: Picuris Pueblo, NM*. Census Reporter. Retrieved March 20, 2024, from http://censusreporter.dokku.censusreporter.org/profiles/16000US3556810-picuris-pueblo-nm/, Data USA. (n.d.). *Picuris Pueblo, NM | Data USA*. Retrieved March 7, 2024, from https://datausa.io/profile/geo/picuris-pueblo-nm/

Potential Economic Impact

The implementation of a sustainable housing program for the Pueblo of Picuris has the potential to impact the local economy by:

- Reducing residential energy cost associated with housing with purchased electricity.
- Job creation associated with this measure can provide income to local residents for the completion of this project.
- Improved housing stock renovating homes to be more energy-efficient and durable can lower the cost of maintenance for these houses and improve overall living conditions.

The economic challenges with implementation of this measure comes with the cost of this initiative and the resources needed to complete the project. Potential grant funding available for projects like this measure are explained in section 3.6. Identification of Other Funding Mechanisms.

Job Creation Potential

Electricians: Electricians may be needed to electrify propane-reliant homes and retrofitting existing houses for improved electrical efficiency.

Construction Laborers: General laborers may be needed to assist with tasks like insulating homes for weatherization, changing out wood stoves, transporting materials, cleaning the installation site, and performing basic maintenance duties.

Mitigation Measure 2: Electric Vehicles and VMT Reduction

Potential Economic Impact

Increased EV transportation within the Pueblo of Picuris can affect the economy by encouraging more charging infrastructure and EV related businesses such as EV repair and maintenance services. More EVs on the road will create a demand for charging infrastructure. Additionally, the rise of EVs opens doors for new businesses specializing in EV maintenance and repair. This could expand the range of services offered in the Pueblo of Picuris and create additional job opportunities for residents. The potential economic challenges would include decreased sales of gasoline and diesel fuel-types. As more residents switch to EVs, the demand for gasoline and diesel fuel may decline. Grant funding that could assist with the cost of this mitigation measure is explained in 3.6. Identification of Other Funding Mechanisms.

Job Creation Potential

Charging Station Installers: Skilled workers are needed to install and maintain the charging infrastructure for the EVs.

Charging Station Maintenance Manager: These managers maintain the EV charging ports and ensure they are operating properly and respond to issues associated with the charging ports.

Data Analysts: Data analysts may be needed for EV charging port usage data, charging patterns, and overall system performance to optimize efficiency and identify improvement opportunities.

San Ildefonso

Pueblo of San Ildefonso Workforce Information

The Pueblo of San Ildefonso includes 39,438.52 acres of reservation land. In 2019 the population was 816 and in 2023 the population by 11.54% with the population growing to 722. The average median household income was $47,250. About 15.62% persons were below the poverty line, making this percentage 25% higher than the national percentage.[44]

Mitigation Measure 1: Electric Vehicles and VMT Reduction

Potential Economic Impact

Increased EV transportation within the Pueblo of San Ildefonso can affect the economy by encouraging more charging infrastructure and EV related businesses such as EV repair and maintenance services. More EVs on the road will create a demand for charging infrastructure. Additionally, the rise of EVs opens doors for new businesses specializing in EV maintenance and repair. This could expand the range of services offered in the Pueblo of San Ildefonso and create additional job opportunities for residents. The potential economic challenges would include decreased sales of gasoline and diesel fuel-types. As more residents switch to EVs, the demand for gasoline and diesel fuel may decline. Grant funding that could assist with the cost of this mitigation measure is explained in 3.6. Identification of Other Funding Mechanisms.

Job Creation Potential

Charging Station Installers: Skilled workers are needed to install and maintain the charging infrastructure for the EVs.

Charging Station Maintenance Manager: These managers maintain the EV charging ports and ensure they are operating properly and respond to issues associated with the charging ports.

Data Analysts: Data analysts may be needed for EV charging port usage data, charging patterns, and overall system performance to optimize efficiency and identify improvement opportunities.

Mitigation Measure 2: Weatherize 10 Residential Homes each Year

Potential Economic Impact

[44] World Population Review. (2024). *San Ildefonso Pueblo, New Mexico Population 2024*. https://worldpopulationreview.com/us-cities/san-ildefonso-pueblo-nm-population

Weatherization programs can impact the local economy by reducing residential electricity bills associated with high residential energy costs throughout the year. Another potential impact is the increased need for weatherization services. The potential economic challenges include material cost fluctuations associated with weatherization and initial cost of weatherization for homeowners. Implementation grant funding can help the residents' participation in weatherization programs for the Pueblo of San Ildefonso, explained in section 3.6 Identification of Other Funding Mechanisms.

Job Creation Potential

Insulation Installers: These workers specialize in installing various types of insulation materials

Air Sealing Specialists: These professionals identify and seal air leaks around windows, doors, and other openings in the home.

HVAC Technicians: They service and potentially upgrade heating, ventilation, and air conditioning systems to improve efficiency and performance.

Energy Auditors: These auditors conduct assessments to identify areas for improvement for home energy use.

Construction Laborers: These workers assist with various tasks during the weatherization process.

Mitigation Measure 3: Installation of 3.7 kW solar photovoltaics on six homes

Potential Economic Impact

By installing solar photovoltaic (PV) systems on six residential homes in the Pueblo of San Ildefonso, can achieve several economic benefits. These include:

- Reduced Electricity Bills: Residents will see lower electricity bills as they generate their own electrical energy.
- Job Creation: Installing and maintaining these systems creates new jobs for electricians, roofers, and other skilled workers, boosting the local economy.
- Increased Solar Power Usage: Widespread adoption of solar power encourages others to follow suit, leading to a strong solar PV program with the Pueblo.

The installation of a solar PV system presents significant upfront costs. However, potential funding awards through grants can help offset these costs, explained in section 3.6 Identification of Other Funding Mechanisms.

Job Creation Potential

The installation and ongoing maintenance of the commercial solar PV system present opportunities for new job creation in several areas, including:

Solar Photovoltaic (PV) Installers: These skilled workers handle the physical installation of solar panels, electrical wiring, and mounting structures. They typically require experience and certifications in electrical work and rooftop safety.

Electricians: Licensed electricians are needed to connect the solar PV system to the electrical grid and ensure all electrical components comply with safety regulations.

Project Managers: Experienced project managers oversee the entire installation process, coordinating with engineers, installers, and other stakeholders to ensure timely completion within budget.

Engineers: Depending on the project's complexity, engineers might be involved in designing the system layout, specifying equipment, and ensuring structural integrity of the roof to support the panels.

Roofing Inspectors: Certified roof inspectors will likely be required to assess the condition of the roof before installation and ensure it can handle the additional weight of the solar panels.

Laborers: General laborers may be needed to assist with tasks like transporting materials, cleaning the installation site, and performing basic maintenance duties.

Tesuque

Pueblo of Tesuque Workforce Information

According to the Pueblo's records, the population was 162 for an area of 26.9 square miles, averaging roughly 44 people per square mile. The estimated employees within Tesuque Pueblo are 190 employees among the commercial and government workforce. The population of the Tesuque Pueblo census block is 46% Native American and 44% Hispanic.[45] The median household income is $56,797 that is 3 quarters of the average US median household income of $75,149 with a per capita income of $28,351 which is two-thirds less than the national average of $41,261. The Pueblo of Tesuque had 14% of persons below poverty line which is 10% higher than the US average. Looking at educational level, 83.4% of the population has a high school diploma or higher and 20.4% have a bachelor's degree or higher.

Mitigation Measure 1: Electric Vehicles and VMT Reduction

Potential Economic Impact

Increased EV transportation within the Pueblo of Tesuque can affect the economy by encouraging more charging infrastructure and EV related businesses such as EV repair and maintenance services. More EVs on the road will create a demand for charging infrastructure. Additionally, the rise of EVs opens doors for new businesses specializing in EV maintenance and repair. This could expand the range of services offered in the Pueblo of Tesuque and create

[45]https://censusreporter.org/profiles/25000US4170-tesuque-pueblo-and-off-reservation-trust-land/

additional job opportunities for residents. The potential economic challenges would include decreased sales of gasoline and diesel fuel-types. As more residents switch to EVs, the demand for gasoline and diesel fuel may decline. Grant funding that could assist with the cost of this mitigation measure is explained in 3.6. Identification of Other Funding Mechanisms.

Job Creation Potential

Charging Station Installers: Skilled workers are needed to install and maintain the charging infrastructure for the EVs.

Charging Station Maintenance Manager: These managers maintain the EV charging ports and ensure they are operating properly and respond to issues associated with the charging ports.

Data Analysts: Data analysts may be needed for EV charging port usage data, charging patterns, and overall system performance to optimize efficiency and identify improvement opportunities.

Mitigation Measure 2: Install an 844 kW Solar PV System

Potential Economic Impact

The installation of an 844 kW Solar PV system in the Pueblo of Tesuque presents several economic benefits, including:

- Reduced Electricity Bills: Commercial buildings will see lower electricity bills as they generate their own electrical energy.
- Job Creation: Installing and maintaining these systems creates new jobs for electricians, roofers, and other skilled workers, boosting the local economy.
- Increased Solar Power Usage: Widespread adoption of solar power encourages others to businesses to utilize solar power.

The installation of a solar PV system presents significant upfront costs. However, potential funding awards through grants can help offset these costs, explained in section 3.6 Identification of Other Funding Mechanisms.

Job Creation Potential

The installation and ongoing maintenance of the commercial solar PV system present opportunities for new job creation in several areas, including:

Solar Photovoltaic (PV) Installers: These skilled workers handle the physical installation of solar panels, electrical wiring, and mounting structures. They typically require experience and certifications in electrical work and rooftop safety.

Electricians: Licensed electricians are needed to connect the solar PV system to the electrical grid and ensure all electrical components comply with safety regulations.

Project Managers: Experienced project managers oversee the entire installation process, coordinating with engineers, installers, and other stakeholders to ensure timely completion within budget.

Engineers: Depending on the project's complexity, engineers might be involved in designing the system layout, specifying equipment, and ensuring structural integrity of the roof to support the panels.

Roofing Inspectors: Certified roof inspectors will likely be required to assess the condition of the roof before installation and ensure it can handle the additional weight of the solar panels.

Laborers: General laborers may be needed to assist with tasks like transporting materials, cleaning the installation site, and performing basic maintenance duties.

Mitigation Measure 3: Weatherize 10 Residential Homes each Year

Potential Economic Impact

Weatherization programs can impact the local economy by reducing residential electricity bills associated with high residential energy costs throughout the year. Another potential impact is the increased need for weatherization services. The potential economic challenges include material cost fluctuations associated with weatherization and initial cost of weatherization for homeowners. Implementation grant funding can help the residents' participation in weatherization programs for the Pueblo of Tesuque, explained in section 3.6 Identification of Other Funding Mechanisms.

Job Creation Potential

Insulation Installers: These workers specialize in installing various types of insulation materials

Air Sealing Specialists: These professionals identify and seal air leaks around windows, doors, and other openings in the home.

HVAC Technicians: They service and potentially upgrade heating, ventilation, and air conditioning systems to improve efficiency and performance.

Energy Auditors: These auditors conduct assessments to identify areas for improvement for home energy use.

Construction Laborers: These workers assist with various tasks during the weatherization process.

4. Next Steps

Under the Tesuque-lead Pueblo Coalition Climate Task Force project, funded by the EPA Climate Pollution Reduction Planning grant, the team will work together to:

- Decarbonization Planning Community Workshop
    - Output: Climate action plan mitigation methods and decarb goal
    - Steps: Coalition reaches out for technical assistance request through DOE and Sandia National Labs
- Expanded sections

- Draft CCAP
- CCAP review
- Final CCAP

Summary of Findings

The analysis conducted for this PCAP identified transportation and commercial energy sectors as the highest emitters of CO_2e within the Pueblos of Nambe, San Ildefonso, and Tesuque from Scopes 1 and 2. Transportation and residential energy were identified as the highest emitters of CO_2e within the Pueblo of Picuris from Scopes 1 and 2.

Transportation: This sector contributes the most significant emissions in all of the Pueblos comprising the Tribal Climate Change Task Force, with 4,027 MT of CO_2e within the Pueblo of Nambe, 4,966 MT of CO_2e within the Pueblo of Picuris, 3,998 MT of CO_2e within the Pueblo of San Ildefonso, and 19,157 MT of CO_2e within the Pueblo of Tesuque. Emissions due to the transportation and mobile emissions sector varied widely among Pueblos due to different levels of traffic on highways through the Pueblos.

Commercial Energy: The commercial energy sector emits 3,457 MT of CO_2e for the Pueblo of Nambe, 3,238 MT of CO_2e for the Pueblo of San Ildefonso, and MT of CO_2e 1,731 for the Pueblo of Tesuque.

In contrast, emissions from solid waste, wastewater, and process and fugitive emissions were identified as relatively low.

Building on the identified high-emitting sectors, priority mitigation measures have been developed to reduce greenhouse gas (GHG) emissions for each Pueblo. These include mitigation measures such as:

Solar PV System Installation: Installing a solar photovoltaic (PV) system either on top of homes, commercial, or community buildings depending on the priorities of each Pueblo will generate clean electricity, reducing the facility and the Pueblo's carbon footprint. In adding additional layers of renewable energy such as battery storage or a microgrid, the Pueblos can achieve further decarbonization and add value in resilience and exercise of energy sovereignty.

Electric Vehicle (EV) Usage Increase and VMT Reduction: Encouraging and promoting the increased use of electric vehicles while reducing VMT within any of the Pueblos in the Tribal Climate Change Task Force will significantly reduce transportation-related emissions within the Pueblo's authority. Transitioning government fleets to electric vehicles could also provide significant decarbonization and catalyze more electric vehicle infrastructure.

Implementation of an EV Transit Bus Service: The establishment of an electric vehicle (EV) transit bus service can provide a clean and sustainable transportation option for residents, further reducing reliance on personal vehicles and associated emissions.

Sustainable Housing Program: A sustainable housing program including weatherization, efficiency retrofits, electrification, and a wood stove changeout program can significantly reduce GHG emissions due to the residential energy sector.

CCAP and Timeline

The Tesuque-lead Tribal Climate Change Task Force Climate Pollution Reduction Planning Project work plan includes the following items to complete a Comprehensive Climate Action Plan (CCAP) by December, 2024:

- Decarbonization Planning Community Workshop
    - Output: Climate action plan mitigation methods and decarbonization goal(s)
- Expanded sections
- Draft CCAP
- CCAP review
- Final CCAP

A Decarbonization Planning Workshop focuses on receiving input from the community, businesses, and leadership in a CCAP for the Tribal Climate Change Task Force. An interactive workshop could address some key aspects of implementation:

Implementation Methods: collaboratively developing specific steps and timelines for putting each mitigation measure into action.

Training & Onboarding: exploring potential training programs to equip new hires with the knowledge and skills needed to support the successful implementation of these measures.

Decarbonization Goals: facilitating the establishment of clear and measurable decarbonization goals for the Tribal Climate Change Task Force.

Holistic Planning: a workshop where community input is sought can provide an interface between various related values such as economic development, environmental stewardship, language preservation, education, and senior services.

Timeline

April 1, 2024

- *PCAP Due:* The Pueblo of Tesuque submits the Priority Climate Action Plan (PCAP) on behalf of the Tribal Climate Change Task Force to the EPA.

May-July, 2024

- *Data Collection and Analysis*: Gathering of additional information on GHG emissions, transportation patterns, and energy usage.
- *Stakeholder engagement:* Communication to inform stakeholders about CCAP progress and receive input on reduction goals in a workshop or other format directed by each Environment Department within the Tribal Climate Change Task Force.

August-September, 2024

- *Develop implementation strategies for mitigation measures:* outline specific actions for mitigation measures, timelines, and establish responsible parties for implementing each mitigation measure.
- *Draft CCAP Development:* Expand on PCAP sections GHG inventory and GHG Reduction Measures to include in the CCAP. Finalize appendices. Establish specific near and long-term GHG Emission Reduction Goals for the Tribal Climate Change Task Force, and detail a monitoring and reporting plan.

October 2024 - June 2025

- *CCAP Implementation (when funding is received):* Begin implementing mitigation measures according to established plan and timeline, coordination with stakeholders, and monitor progress of mitigation measures.
- *Submittal of Tribal Climate Change Task Force CCAP:* Submit the final CCAP to the EPA by December, 2024.