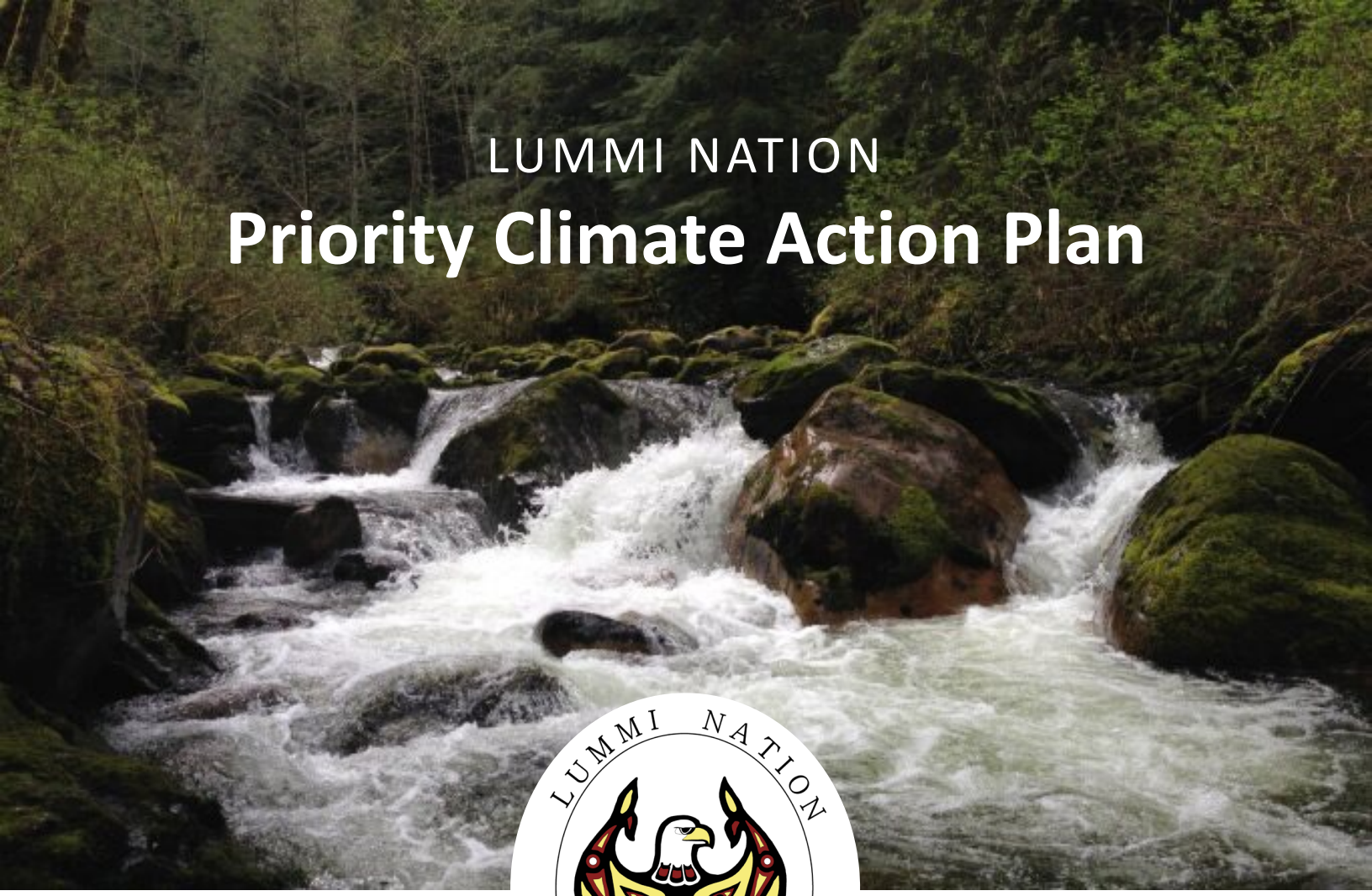

LUMMI NATION

Priority Climate Action Plan

April 1, 2024

Prepared for:
U.S. Environmental Protection Agency
Climate Pollution Reduction Grant Program

Prepared by:
Lummi Nation Natural Resources
With support from Cascadia Consulting Group

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Table of Contents

Contents

1 Executive Summary

1.1 EPA's Climate Pollution Reduction Program

The Lummi Nation finds that the potential impacts of climate change have a direct, serious, and substantial adverse effect on the political integrity, economic security, health, and welfare of the Lummi Nation, its treaty rights, its members, and all persons present on the Reservation. The Lummi Nation has been acting on climate change since at least 2009 and is using the EPA's Climate Pollution Reduction (CPRG) program as a key opportunity to continue to advance the Lummi Nation's energy independence, resilience, and emissions reduction goals. The eight measures selected for inclusion in the Priority Climate Action Plan (PCAP) are aligned with these goals, build on past successes and existing work, and represent investment-ready emissions reduction and carbon storage opportunities that will benefit all tribal members.

The PCAP establishes a baseline understanding of greenhouse gas (GHG) emissions and potential measures the Lummi Nation can use to reduce emissions and store carbon. To develop the PCAP, the Lummi Nation prepared a GHG inventory, projected GHG emissions based on anticipated growth, qualitatively evaluated and prioritized measures to include in the PCAP, quantitatively estimated emissions reductions, cost, cost effectiveness, and co-pollutant reductions, and assessed authority to implement. The PCAP will also serve as a foundation for the Lummi Nation to create a robust Comprehensive Climate Action Plan (CCAP).

1.2 Our Carbon Footprint

In 2022, the Lummi Nation **community** (residents, businesses, and visitors) generated an estimated 64,731 metric tons of carbon dioxide equivalent ($MTCO_2e$); the Lummi Nation's **government operations** generated an estimated 8,275 $MTCO_2e$ in the same year.

Figure 1. Communitywide GHG emissions by emission source (64,731 $MTCO_2e$ in 2022).

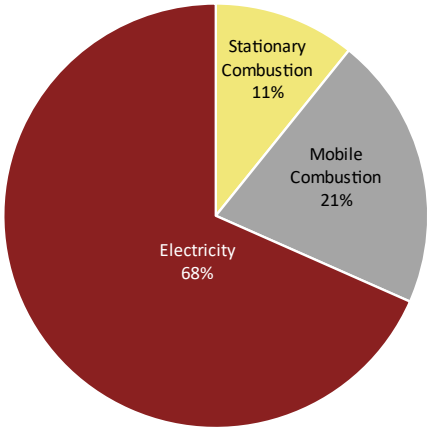
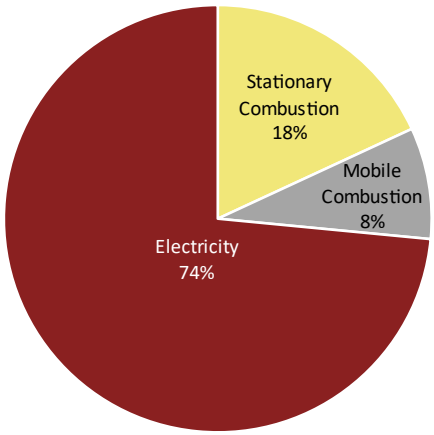


Figure 2. Government operations GHG emissions by emission source (8,275 $MTCO_2e$ in 2022).



Lummi Nation landcover was also analyzed, revealing that, per year from 2016–2019, an estimated 7,835 $MTCO_2e$ was emitted from forest disturbances and land use alterations and 33,231 $MTCO_2e$ was sequestered from undisturbed forest and reforestation. This PCAP also included a co-pollutant analysis; see the *Co-Pollutant Estimation* section for results.

The Lummi Nation completed a wedge analysis that forecasts anticipated future GHG emissions and emissions reductions, based on 2022 emissions and projected growth. The analysis included business-as-usual (BAU) and adjusted business-as-usual (ABAU) scenarios and analyzed the impact of PCAP measures. An ABAU scenario accounts for the impact of key state and federal climate regulations; it is a best practice to account for these emissions in sustainability planning. If ABAU emissions are not accounted for, emissions reductions achieved through PCAP measures will appear higher.

1.3 PCAP Measures

In developing PCAP measures, the Lummi Nation sought emissions reduction and carbon storage opportunities that strongly align with tribal climate goals, are well-supported by tribal staff, are fully within Lummi Nation's control to implement, and would benefit community members, especially those in low- and moderate-income households. The Lummi Nation's climate goals are:

- Improved economic and energy self-sufficiency
- Reduced emissions from energy production and use
- Identification of carbon sinks

The Lummi Nation identified eight PCAP measures to prioritize: one carbon removal measure, four buildings measures, one electric power measure, and two transportation measures. They are described below in Table 1, along with their emissions reductions, costs, and cost effectiveness. Anticipated co-pollutant reductions for each measure are summarized in Table 2.

The expected GHG emissions reductions and cost estimates were modeled based on available information and case studies, including data on historic and projected energy usage, forecasted population and job growth, and technology and policy impact. The GHG impact and cost modeling analyses were drawn from literature, case studies, and experience and expertise of Lummi Nation and consultant staff. The cost estimates include initial start-up costs, ongoing costs, and staffing costs.

To improve the accuracy of expected emissions reductions and to avoid double counting, the GHG reductions in the tables below are *in addition to* the expected reductions from state and federal climate policies modeled, described below in the *GHG Emissions Projections* section and mentioned above.

Table 1. Overview of PCAP measures, GHG reductions, net costs, and cost effectiveness for 2025–2050.

Measure	Emissions Reduction ($MTCO_2e$)		Net Costs ($)[1,2]		Cost Effectiveness ($/$MTCO_2e$)
	2025–2030	2031–2050	Government	Non-Government	
1. Forest, wetland, and eelgrass conservation and restoration • *Timeline: 2025–2035*	13,734	137,344	$6,075,212	$0	$40
2. Residential energy efficiency and electrification upgrades in existing buildings • *Timeline: 2025–2030*	192	2,031	$190,935	($106,858)	$38
3. Energy efficiency and electrification upgrades in existing tribal facilities and commercial buildings • *Timeline: 2025–2030*	420	2,211	$186,835	($1,563,057)	($542)
4. Geothermal pilot program for existing homes • *Timeline: 2025–2030*	60	779	$107,706	($198,673)	($109)
5. Green building policy adoption for new development and substantial remodels • *Timeline: 2025–2028*	7,033	37,793	$1,806,057	($8,162,265)	($142)
6. Rooftop solar installations on key facilities • *Timeline: 2025–2030*	241	0	$712,384	$0	$2,959
7. Tribal fleet electrification and expanded EV charging • *Timeline: 2025–2029*	490	4,958	($4,163)	$0	($1)
8. Fishing boat motor retrofits and replacements • *Timeline: 2025–2028*	2,024	8,342	$3,495,375	($3,099,288)	$38
Total	**24,194**	**193,369**	**$12,570,341**	**($13,130,142)**	**($2.57)**

[1] If the net cost value has parentheses around it, it indicates cost savings (i.e., the estimated cost savings outweigh the estimated costs).
[2] Estimated costs are separated by government and non-government costs. The non-government costs include the costs and cost savings associated with PCAP measures that impact community members and businesses; for example, measure 3 will result in energy cost savings for residents and businesses, but the Lummi Nation government will incur the costs of building upgrades and retrofits.

Table 2. Anticipated co-pollutant reductions for each measure (through 2050, beginning in each measure's implementation start year).

		Estimated Co-Pollutant Reductions						
#	Measure	CO	NOx	SOx	VOC	$PM_{2.5}$	PM_{10}	Units
1	Forest, wetland, and eelgrass conservation and restoration	N/A	N/A	N/A	N/A	N/A	N/A	MT
2	Residential energy efficiency and electrification upgrades in existing buildings	0.70	2.46	<0.01	0.10	<0.01	<0.01	MT
3	Energy efficiency and electrification upgrades in existing tribal facilities and commercial buildings	1.53	2.73	<0.01	0.10	<0.01	<0.01	MT
4	Geothermal pilot program for existing homes	0.25	0.89	<0.01	0.03	<0.01	<0.01	MT
5	Green building policy adoption for new development and substantial remodels	0.98	1.76	<0.01	0.06	<0.01	<0.01	MT
6	Rooftop solar installations on key facilities	N/A	N/A	N/A	N/A	N/A	N/A	MT
7	Tribal fleet electrification and expanded EV charging	65.45	67.70	0.05	4.87	0.46	1.22	MT
8	Fishing boat motor retrofits and replacements	1.17	0.12	<0.01	0.18	<0.01	<0.01	MT
	Total	**70.09**	**75.66**	**0.08**	**5.35**	**0.49**	**1.25**	**MT**

1.4 Next Steps

Building on the analyses completed for the PCAP, the Lummi Nation will develop the CCAP. The CCAP will outline a clear, equitable, and feasible pathway to implementing a comprehensive set of emissions reduction and carbon storage measures, with clear, robust analyses showing how measures will contribute to achieving community-supported emissions reduction targets and delivering community benefits. The CCAP will include all required elements, as well as an engagement process with community members, tribal staff, and tribal leadership. It is anticipated that input from community members, tribal staff, and tribal leadership will inform selection of GHG reduction targets, CCAP measures, and implementation plans.

2 Introduction

2.1 CPRG Overview

The Inflation Reduction Act of 2022 (IRA) appropriated $5 billion to the U.S. Environmental Protection Agency (EPA) for the CPRG program. The CPRG program supports states, tribes, territories, tribal consortia, and local governments to plan and implement climate actions through a two-phase program: a non-competitive grant program allocating $250 million to the development of Priority and Comprehensive Climate Action Plans (PCAP and CCAP); and a $4.6 billion competitive implementation grant program. To be eligible for the implementation grants, applicants must complete a PCAP or be within the jurisdiction of an applicable PCAP. PCAPs emphasize near-term, investment-ready GHG emissions reduction and carbon storage measures.

The Lummi Nation finds that the potential impacts of climate change have a direct, serious, and substantial adverse effect on the political integrity, economic security, health, and welfare of the Lummi Nation, its treaty rights, its members, and all persons present on the Reservation. The Lummi Nation has a long history of taking actions to address climate change. For example, in 2009 the Lummi Nation completed a Wind Energy Development Feasibility Assessment. Additionally, Lummi Indian Business Council (LIBC) Resolution No. 2014-084 *Guiding Principles to Address Climate Change* directed the LIBC administration to undertake efforts to reduce the Lummi Nation's contribution to global climate change. Since then, the Lummi Nation has implemented portions of a Strategic Energy Plan (2016–2016), Climate Change Mitigation and Adaptation Plan (2016–2026), and Residential Energy Efficiency Pilot Program. Each of these programs takes the stance that economic and energy self-sufficiency is aided by reduced emissions from energy production and use (including increased energy efficiency) and generating renewable energy on Reservation lands for tribal use.

The CPRG program is a key opportunity to continue to advance the Lummi Nation's energy independence, resilience, and emissions reduction goals. The eight measures selected for inclusion in the PCAP are aligned with these goals, build on past successes and existing work, and represent investment-ready emissions reduction and carbon storage opportunities that will benefit all tribal members.

2.2 PCAP Overview and Definitions

The Lummi Nation PCAP includes all required elements for all eight measures—the GHG inventory, quantified GHG reduction measures, benefits analysis, and a review of authority to implement. It also includes some optional elements—GHG emissions projections and description of additional benefits to the community such as public health improvements. Additional details are in the *PCAP Elements* section.

Key definitions used in this PCAP are:

- **Co-pollutant:** Carbon monoxide (CO), nitrogen oxides (NOx), sulfur oxides (SOx), particulate matter ($PM_{2.5}$, PM_{10}), and volatile organic compounds (VOC)
- **Comprehensive Climate Action Plan (CCAP):** a narrative report that provides an overview of the Tribe or Territory's significant GHG sources/sinks and sectors, establishes near-term and long-term GHG emission reduction goals, and provides strategies and identifies measures that address the highest priority sectors to help the Tribe or Territory meet those goals
- **EV:** Electric vehicle

- **GHG:** Greenhouse gases like carbon dioxide (CO_2), which cause climate change
- **LIBC:** Lummi Indian Business Council, the elected governing body of the Lummi Nation, upholding the Tribe's inherent rights since time immemorial. LIBC consists of eleven members duly elected to serve for a three-year term
- **LNR:** Lummi Nation Natural Resources Department
- **$MTCO_2e$:** Metric tons of CO_2 equivalent (a common unit used to express GHG emissions)
- **Priority Climate Action Plan (PCAP):** a narrative report that includes a focused list of near-term, high-priority, and implementation-ready measures to reduce GHG pollution and an analysis of GHG emissions reductions

2.3 Approach to Developing the PCAP

LNR led development of the PCAP in late 2023 and early 2024, working in close collaboration with Planning, Public Works, Economic Development, and the LIBC. LNR staff also coordinated extensively with local utilities, Lummi-owned businesses, and other tribal staff to gather data for the GHG inventory and vet and refine assumptions underlying the quantitative estimates of emissions reduction, cost, cost effectiveness, and co-pollutant reduction. The Lummi Nation retained Cascadia Consulting Group, a Seattle-based sustainability planning firm, to support development of the following PCAP tasks: conduct the GHG inventory; identify and qualitatively evaluate draft PCAP measures to aid prioritization by tribal staff; prepare quantitative estimates of emissions reduction, cost, cost effectiveness, and co-pollutant reduction; and draft the PCAP report.

2.4 Scope of the PCAP

The Lummi Nation geography includes the Lummi Nation Reservation and Lummi-owned lands outside of the Reservation boundaries. PCAP measures 2–7 focus on the buildings and municipal fleet operations located within the Reservation geography; Measures 1 and 8 extend beyond Reservation boundaries due to their focus on natural lands and fishing grounds. See *Figure 1* below for a map of the reservation.

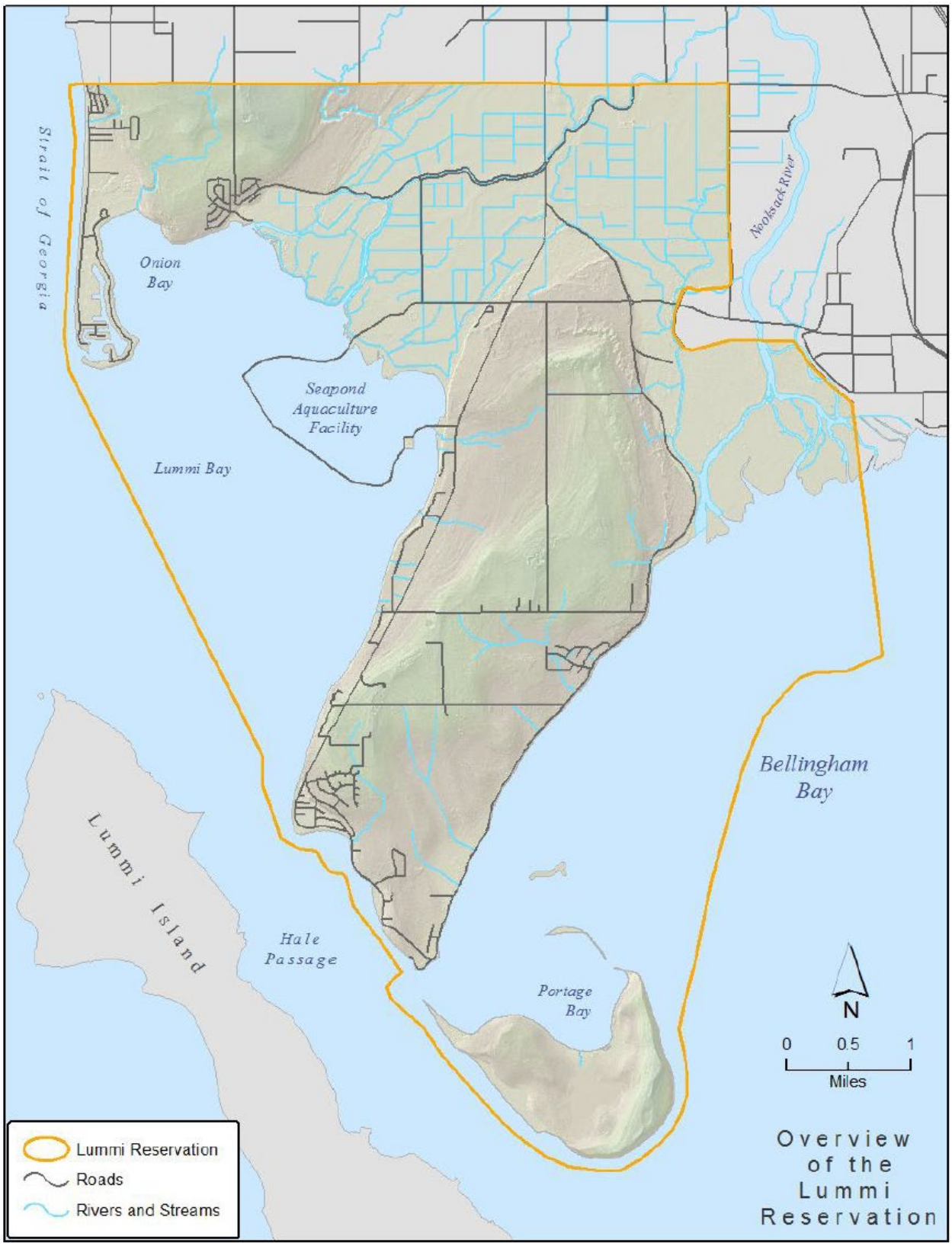
PCAP measures are focused on investment-ready emissions reduction and carbon storage measures that are strongly aligned with Lummi Nation goals, strongly supported by staff and tribal members for implementation, and are within Lummi Nation's authority to implement (through the Lummi Code of Laws). Six of the eight measures will implement actions identified in other Lummi Nation planning documents, and two of the eight measures will expand successful pilot programs. Overall, the measures emphasize energy independence, economic self-sufficiency, and carbon storage through habitat restoration. The selected PCAP measures will also have numerous benefits beyond emissions reduction and carbon storage. They will:

- Save households money through weatherization and energy efficiency upgrades, with a focus on low- and moderate-income households
- Modernize the fleet with electric vehicles and electric and propane buses, while also saving money on fuel and lifetime maintenance
- Improve the reliability of fishing boat motors, while saving fishers and LNR staff money on fuel with new, fuel-efficient boat motors

PCAP measures will be implemented over the five-year implementation grant period, from 2025–2030, with most measures starting to see emissions reductions by the end of Year 1 (2025). A detailed implementation approach, including a timeline, is provided for each measure in Section 3.3.

Since the PCAP measures either build on previous work or are similar to previously implemented programs or initiatives, existing decision-making methods and processes will be used for PCAP implementation. The Natural Resources, Planning, Public Works, and Economic Development departments will lead implementation of PCAP measures, collaborating with other departments as needed to come to agreement on implementation decisions and elevating to the LIBC—the Lummi Nation's 11-person elected governing body—any decisions or issues requiring their deliberation.

Figure 3. Map from the [2018 Lummi Nation Atlas](#) (Lummi Indian Reservation Overview).



3 PCAP Elements

To develop the PCAP elements, the Lummi Nation:

- Completed community and government operations GHG inventories using the Global Protocol for Community-Scale GHG Emissions and Local Government Operations Protocol, respectively
- Prepared two emissions projection scenarios through 2050, a business-as-usual (BAU) scenario assuming no further action to reduce emissions and an adjusted-business-as-usual (ABAU) scenario that accounts for emissions reductions anticipated from state and federal policies
- Identified eight measures for inclusion in the PCAP, based on a review of 14 key tribal planning documents, tribal staff input, and qualitative screening for alignment with the Tribe's goals and priorities, CPRG implementation grant evaluation criteria, and overall benefits to the Tribe. The document review process identified 86 potential measures, most of which were synthesized and combined into 21 potential PCAP measures. Those 21 measures were then narrowed to eight measures through the qualitative screening and tribal staff input
- Calculated estimated emissions reductions (MTCO2e) and expected costs and cost effectiveness ($/MTCO2e) for the four measures
- Estimated baseline co-pollutants (CO, NOx, SOx, $PM_{2.5}$, PM_{10}, VOC) and calculated estimated reductions in co-pollutants from measures, in accordance with the EPA's reference document (Climate Pollution Reduction Grants Program: Technical Reference Document: Benefits Analyses: Co-Pollutant Impacts)
- Developed detailed implementation plans for each measure, including review of authority to implement and identification of funding mechanisms (CPRG or other)

The following sections summarize the results from these elements.

3.1 Greenhouse Gas (GHG) Inventory

A **greenhouse gas (GHG) inventory** refers to a list of emission sources and sinks and the associated emissions quantified using standard methods and protocols.

The Lummi Nation completed **communitywide** and **government operations** GHG inventories for the year 2022. Both inventories used the U.S. EPA's Tribal GHG Inventory Tool; the Community Module calculates emissions in accordance with the Global Protocol for Community-Scale GHG Emissions, and the Government Operations Module calculates emissions in accordance with the Local Government Operations Protocol. The tables below outline the emissions sectors, data sources, and methods for each inventory.

Table 3. Communitywide GHG inventory emissions sectors, data sources, and methods.

Emissions Sector	Data & Method
Stationary Combustion	Downscaled WA State energy data using number of households for residential energy and number of jobs for commercial energy (Census and Energy Information Administration (EIA))
Mobile Combustion	Scaled Lummi-specific 2019 vehicle miles traveled data to 2022 (Whatcom's Council of Governments (WCOG)) and distributed based on vehicle and fuel type (EPA State Energy Tool); estimated fuel consumption using EPA default fuel economies

Emissions Sector	Data & Method
Electricity	Used electricity consumption data provided by Puget Sound Energy (PSE); obtained Puget Sound Energy's utility-specific emissions factor from the Edison Electric Institute (EEI)

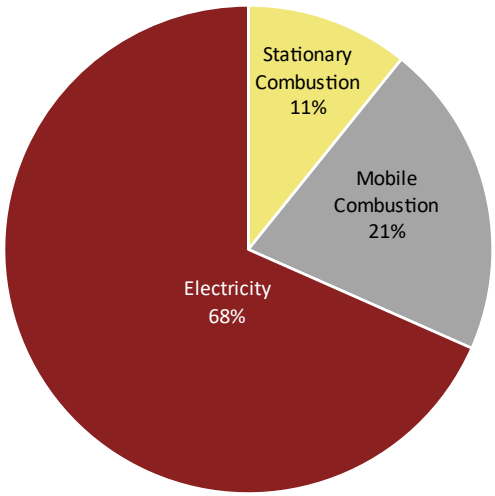
Table 4. Government operations GHG inventory emissions sectors, data sources, and methods.

Emissions Sector	Data & Method
Stationary Combustion	Used government operations propane consumption data with EPA emission factors to estimate emissions from propane; natural gas billing data was provided for Silver Reef Casino, Loomis Golf Course, and three Lummi Mini Mart locations, and was used to estimate emissions from municipal natural gas consumption; EPA default emission factors were used to estimate natural gas emissions
Mobile Combustion	Allocated Lummi on-road fleet mileage based on vehicle and fuel type (EPA State Energy Tool); estimated fuel consumption using EPA default fuel economies
Electricity	Used electricity consumption data provided by Puget Sound Energy (PSE); obtained Puget Sound Energy's utility-specific emissions factor from the Edison Electric Institute (EEI)

In 2022, the Lummi Nation **community** (residents, businesses, and visitors) generated an estimated 64,731 $MTCO_2e$.

- Electricity was the largest source of 2022 communitywide emissions included in this inventory and was responsible for 68% of total emissions (44,257 MTCO2e).
- Mobile combustion (transportation) was the next largest source and was responsible for 21% of emissions (13,498 MTCO2e).
- The remaining emissions came from stationary combustion (11%; 6,976 MTCO2e).

Figure 4. Communitywide GHG emissions by emission source (2022).



The table below summarizes communitywide GHG emissions in 2022 by type of gas.

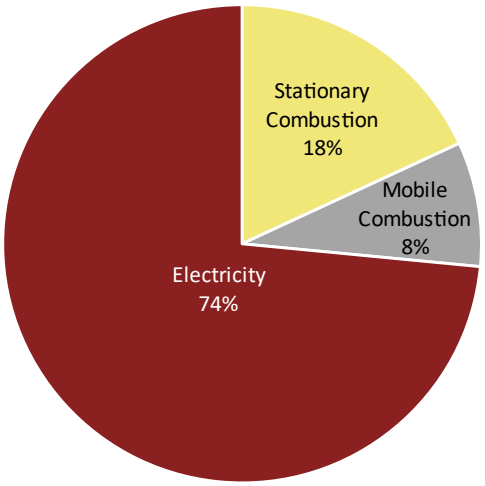
Table 5. Communitywide GHG emissions in 2022 by source ($MTCO_2e$).

Source	CO_2	CH_4	N_2O	Total
Stationary Combustion	6,951	11	14	6,976
Mobile Combustion	13,167	126	205	13,498
Electricity	44,206	24	27	44,257
Total	**64,324**	**162**	**246**	**64,731**

In 2022, the Lummi Nation **government operations** generated an estimated 8,275 $MTCO_2e$.

- Electricity was the largest source of 2022 government operations emissions included in this inventory and was responsible for 74% of total emissions (6,080 MTCO2e).
- Stationary combustion (propane and fuel oil) was the next largest source and was responsible for 18% of emissions (1,497 MTCO2e).
- The remaining emissions came from mobile combustion (8%; 698 MTCO2e).

Figure 5. Government operations GHG emissions by emission source (2022).



The table below summarizes government operations GHG emissions in 2022 by type of gas.

Table 6. Government operations GHG emissions in 2022 by source ($MTCO_2e$).

Source	CO_2	CH_4	N_2O	Total
Stationary Combustion	1,493	3	1	1,497
Mobile Combustion	678	5	15	698
Electricity	6,073	3	4	6,080
Total	**8,244**	**12**	**20**	**8,275**

In addition to estimating emissions produced within the Lummi Nation community boundaries, this PCAP also includes an annual sequestration estimate from the community's natural lands. The Lummi

Nation used the Land Emissions and Removals Navigator (LEARN) tool, which was developed by ICLEI to help communities in the United States estimate the local GHG impacts of their forests and trees. The tool estimates GHG emissions and carbon sequestration from forests, trees, and land use changes. Because permanent land use changes occur over multiple years, the LEARN tool calculates annual emissions over a range of three or more years. This analysis used 2016–2019.

The LEARN tool estimated that land use changes in the Lummi Nation boundaries produced 7,835 $MTCO_2e$ annually between 2016–2019 from land use changes. The LEARN tool estimated that trees in the Lummi Nation boundaries sequestered 33,231 $MTCO_2e$ annually in that same period.

These estimates are provided for informational purposes only and are not included in the emissions summaries above.

3.2 GHG Emissions Projections

To better understand future emissions, the Lummi Nation completed a wedge analysis that forecasts anticipated future GHG emissions and emissions reductions, based on 2022 emissions and projected growth. The analysis included business-as-usual (BAU) and adjusted business-as-usual (ABAU) scenarios and analyzed the expected GHG reduction impact of PCAP measures (see the *GHG Reduction Measures* section below). An ABAU scenario accounts for the impact of key state and federal climate regulations; it is a best practice to account for these emissions in sustainability planning. Each regulation is described below and reduces the amount of GHGs the Tribe is responsible for neutralizing through their PCAP measures. If ABAU emissions are not accounted for, emissions reductions achieved through PCAP measures would appear higher.

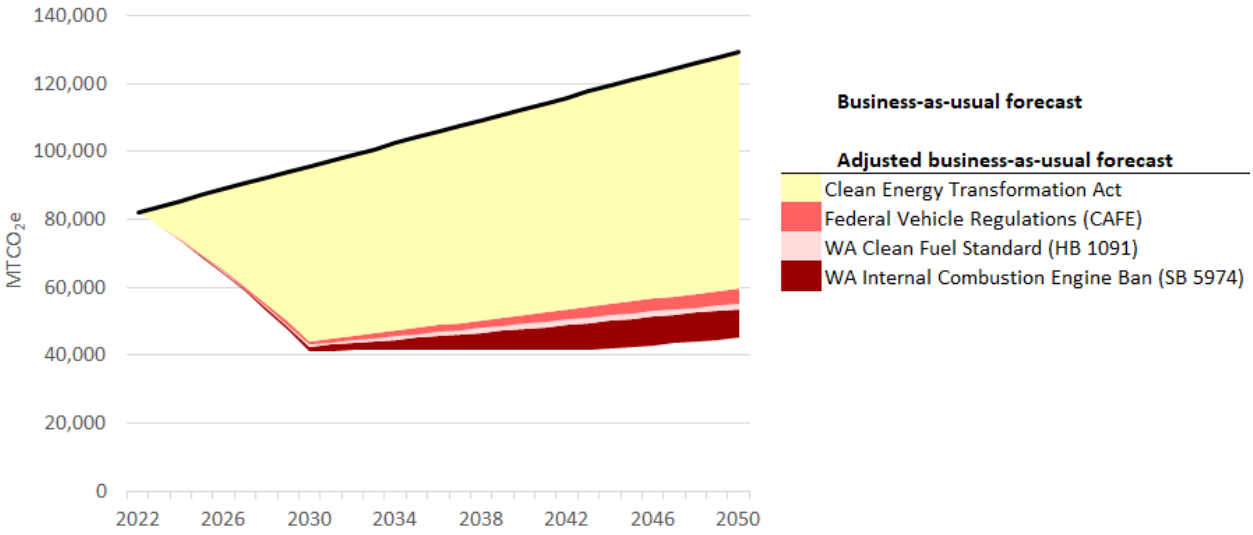
Table 7. Scenarios, policies, and assumptions used in GHG emissions projections.

Scenario & Policy	Description & Assumptions
BAU No action	The BAU assumes no policy interventions. The model used population projections from Lummi Nation Comprehensive Economic Development Strategy; assumed jobs will grow at the same rate as population; and assumed a static resident/household rate, based on resident growth. Baseline population and jobs numbers are from the census.
ABAU Clean Energy Transformation Act	CETA applies to all electric utilities serving retail customers in Washington and sets specific milestones: by 2030, utilities must be GHG neutral, with flexibility to use limited amounts of electricity from natural gas if it is offset by other actions. The model assumed this goal was achieved.
ABAU Federal Vehicle Regulations (CAFE)	Corporate Average Fuel Economy (CAFE) standards are regulated by the DOT and supported by the EPA, calculate average fuel economy levels for manufacturers, and set related GHG standards. Based on PSRC Vision 2050 modeling, the model assumed the following changes in vehicle emissions intensity (gCO2e/mile): • Light duty vehicles: 28% reduction from 2018 to 2050. • Heavy duty vehicles: 23% reduction from 2018 to 2050.
ABAU WA Clean Fuel Standard (HB 1091)	The Clean Fuel Standard requires a 20% reduction in the carbon intensity of transportation fuels by 2038, compared to a 2017 baseline level. The model assumed the 2022 transportation fuel emissions factors are applicable for 2017-2023 (2017 is policy baseline year). Compared to baseline, the model assumed the following fuel carbon intensities:

Scenario & Policy	Description & Assumptions
	• 3.5% reduction in per-gallon gasoline and diesel vehicle (passenger, heavy duty, transit) emissions from cleaner fuels by 2030. • 10% reduction in per-gallon gasoline and diesel vehicle (passenger, heavy duty, transit) emissions from cleaner fuels by 2040. • Maintain 10% reduction levels to 2050.
ABAU WA Internal Combustion Engine Ban (SB 5974)	As part of the Move Ahead Washington program, WA would ban sale of gasoline/diesel ICE passenger vehicles starting in 2030. The model assumed a 15-year vehicle turnover rate, with the following proportion of new sales being EVs (a conservative estimate given that the ICE ban is currently a goal and lacks a clear accountability mechanism): • 25% by 2026. • 65% by 2030. • 100% by 2035. • Maintained by 100% thereafter.

Under the BAU scenario, the Lummi Nation's emissions are forecasted to increase 57% by 2050 compared to the 2022 GHG baseline. Under the ABAU scenario, assuming significant emissions reductions from the key federal and state climate policies listed above, the Lummi Nation's emissions are projected to decrease 45% by 2050. The model also forecasted expected emissions reductions from local PCAP measures; these results are summarized below in the *GHG Reduction Measures* section.

Figure 6. BAU and ABAU emissions forecasts through 2050.



3.3 GHG Reduction Measures

The Lummi Nation's PCAP priority measures are identified in Table 6. These measures were collected from existing Tribal plans and materials and identified as priority measures for achieving the Lummi Nation's goals for GHG emissions reductions. This is not an exhaustive list of the Lummi Nation's priorities. The selected priority measures included in this PCAP meet the following criteria:

- They are implementation ready; the design work for the policy, program, or project is complete enough that a full scope of work and budget can be included in a CPRG implementation grant application.
- They can be completed in the near term; all funds could be expended, and the project completed, within the five-year performance period for the CPRG implementation grants.

For each PCAP measure, the Lummi Nation estimated the following expected impacts resulting from implementation of the measure (through 2050):

- GHG emissions reductions
- Costs and cost savings for the government
- Costs and cost savings for the community
- Pollutant reductions (see the *Benefits Analysis* section below for these results)

The expected GHG emissions reductions and cost estimates were modeled based on available information and case studies, including data on historic and projected energy usage, forecasted population and job growth, and technology and policy impact. The GHG impact and cost modeling assumptions were drawn from literature, case studies, and experience and expertise of Lummi Nation and consultant staff. The cost estimates include initial start-up costs, ongoing costs, and staffing costs.

To improve the accuracy of expected emissions reductions and avoid double counting, the GHG reductions in the tables below are *in addition to* the expected reductions from state and federal climate policies modeled, described above in the *GHG Emissions Projections* section.

Table 8. Priority GHG reduction measures.

Measure ID	Sector	Priority Measure
1	Carbon Removal	Forest, wetland, and eelgrass conservation and restoration
2	Buildings	Residential energy efficiency and electrification upgrades in existing buildings
3	Buildings	Energy efficiency and electrification upgrades in existing tribal facilities and commercial buildings
4	Buildings	Geothermal pilot program for existing homes
5	Buildings	Green building policy adoption for new development and substantial remodels
6	Electric Power	Rooftop solar installations on key facilities
7	Transportation	Tribal fleet electrification and expanded EV charging
8	Transportation	Fishing boat motor retrofits and replacements

3.3.1 Carbon Removal

Measure 1. Forest, wetland, and eelgrass conservation and restoration

To store carbon in natural systems, continue to implement forest, wetland, and eelgrass conservation and restoration projects on Lummi Nation Reservation and Lummi Nation-owned lands.

Protection and restoration of forests, wetlands, and other natural systems is a significant, ongoing focus of tribal staff work within Lummi Nation's traditional territory, both independently and with local partners. This measure builds on Lummi Nation's Climate Change Mitigation and Adaptation Plan and ongoing efforts by tribal staff of successfully acquiring, protecting, and restoring land. For example,

there is an ongoing eelgrass study, habitat assessments, coastal resilience plan, wetland assessments, and additional land use assessments that aid in the implementation of this measure. This measure is scalable and replicable on other lands within the Tribe's traditional territories.

Measure 1: Forest, wetland, and eelgrass conservation and restoration	
Implementing agency	Lummi Natural Resources
Implementation timeline	2025–2035
Implementation milestones	N/A—continuous implementation
Implementation authority	Lummi Planning coordinates the issuance of permits for tideland work/access, wetland restoration and timber harvests on the Lummi Reservation. Tree planting when conducted in conjunction with a tree harvest is included in a Lummi Land Use Permit. Restoration tree planting is in consultation with Lummi Nation Tribal Historic Preservation Office and the Water Resources division of Lummi Natural Resources. Army Corps of Engineers provides permits for wetland restoration and tidelands restoration
Metrics tracking	Acres protected Acres restored Acres acquired Carbon stored $/MTCO$_2$e
Funding sources *(if relevant)*	Variety of grant sources as they become available
Geographic location	Lummi Nation Reservation and Lummi-owned lands outside of the Reservation boundaries
Net cost to government	$6,075,212
Net cost to community	$0
Total net cost	$6,075,212
Estimated GHG emission reductions	2025–2030: 13,734 MTCO$_2$e 2031–2050: 137,344 MTCO$_2$e
Estimated cost effectiveness	$40/MTCO$_2$e

3.3.2 Buildings

Measure 2. Residential energy efficiency and electrification upgrades in existing buildings

Institutionalize the Residential Energy Efficiency Pilot Program to implement a permanent, expanded energy efficiency, weatherization, and electrification retrofits and upgrades program for existing residential buildings, including:

- **Incentives and financial assistance for low- and middle-income households, including funding assistance if energy bills increase due to upgrade**
- **Education and outreach**
- **Deferred health and safety upgrades and maintenance**

Pursuing a permanent program for providing energy audits and subsidizing the costs of energy efficiency retrofitting and weatherization for low-to-moderate income households on the Reservation aligns with

equity and energy reduction goals. Low-income households spend a disproportionately high amount of income on energy costs and may have to choose between sufficient heating and other necessities. Residential Energy Efficiency Program may be added to services already provided by the Lummi Nation Community Services Department, such as the Energy Assistance Program, stemming from Lummi Nation's Strategic Energy Plan as well as other programs. In 2012, for example, approximately 740 low-income tribal households received electricity and heating subsidies through the Community Services Department. Subsidizing residential energy efficiency retrofitting and weatherization could immediately improve living conditions in currently energy inefficient homes, provide energy cost savings to low-income residents, and potentially decrease the need for energy assistance in the future.

Education and outreach addressing energy conservation is important, not only for providing community members with specific methods for reducing energy use (i.e., "How can I conserve energy?"), but also for instilling a sense of responsibility for energy conservation (i.e., "Why should I conserve energy?") among participants. There are several environmental educational materials that have been developed for a wide range of audiences and purposes that are readily available for use.

Measure 2: Residential energy efficiency and electrification upgrades in existing buildings	
Implementing agency	Lummi Planning, Lummi Public Works, Lummi Housing
Implementation timeline	2025–2030
Implementation milestones	2025: re-start program, first homes participate 2026–2030: Implementation
Implementation authority	Lummi Planning in coordination with Lummi Housing and approval by the US HUD; approval by property owner
Metrics tracking	kW electricity conserved $ saved on energy bills, overall and by income level $MTCO_2e$ avoided
Funding sources *(if relevant)*	Inflation Reduction Act High-Efficiency Electric Home Rebate Program (HEEHRA)
Geographic location	Lummi Nation Reservation
Net cost to government	$190,935
Net cost to community	($106,858)
Total net cost	$84,077
Estimated GHG emission reductions	2025–2030: 192 $MTCO_2e$ 2031–2050: 2,031 $MTCO_2e$
Estimated cost effectiveness	$38/$MTCO_2e$

Measure 3. Energy efficiency and electrification upgrades in existing tribal facilities and commercial buildings

Implement an energy efficiency, weatherization, and electrification retrofits and upgrades program for existing tribal facilities and commercial buildings.

This action can be implemented with the residential energy efficiency/electrification program (Measure 2) and is aligned with Lummi Nation's Strategic Energy Plan. Energy audits are instrumental in identifying and prioritizing energy efficiency improvement projects. Audits can be performed by or under the

supervision of the Energy Management Specialist (an LIBC position that was recommended in the Strategic Energy Plan but has not yet been filled), or by a qualified private consultant or non-profit organization. Initial energy audits can focus on high energy users such as the Silver Reef Hotel, Casino & Spa, the Lummi Nation School, and the Little Bear Creek Elder Home where efficiency improvements may have a significant impact on energy demand. As the program expands and provision of energy audits and application of energy efficiency technology and services increases, the LIBC can consider creating positions for Energy Management Technicians in the Planning and Public Works Department, as capacity building is needed within the Lummi Nation.

Measure 3: Energy efficiency and electrification upgrades in existing tribal facilities and commercial buildings	
Implementing agency	LNR/Lummi Planning in contract with Sustainable Connections or other organization that performs the energy audits and defines prioritized options for upgrades.
Implementation timeline	2025–2030
Implementation milestones	2025: Program design and energy audits 2026: Finish program design and audits; first buildings participate 2027–2030: Implementation
Implementation authority	Lummi Planning Department
Metrics tracking	kW electricity conserved $ saved on energy bills, overall and per occupancy avg $MTCO_2e$ avoided
Funding sources *(if relevant)*	Washington Department of Commerce Energy Efficiency Grants
Geographic location	Lummi Nation Reservation; Skookum Creek Hatchery
Net cost to government	$186,835
Net cost to community	($1,563,057)
Total net cost	($1,376,222)
Estimated GHG emission reductions	2025–2030: 420 $MTCO_2e$ 2031–2050: 2,121 $MTCO_2e$
Estimated cost effectiveness	($542)/ $MTCO_2e$

Measure 4. Geothermal pilot program for existing homes

Implement a pilot program to install geothermal heat pumps in existing single- and multi-family homes. Prioritize homes currently heated with propane or wood, as well as households with low- and moderate-income, special needs, and elders to more equitably distribute benefits to the most vulnerable. This will be an incentive program, resulting in a no-cost retrofit for community recipients. Provide education and outreach to raise awareness, identify participating households, and support the transition.

This action can be implemented with the residential energy efficiency/electrification and can be targeted to households with higher GHG emissions (e.g., propane) and to those households with low- and moderate-income to achieve both climate and equity goals. This action builds on a successful geothermal heat pump installation in the Tribal Administration Building.

Measure 4: Geothermal pilot program for existing homes	
Implementing agency	Lummi Planning, Housing, and Public Works Departments
Implementation timeline	2025–2030
Implementation milestones	2025: Program design 2026: First 2 homes participate 2027–2030: 2 homes/year participate
Implementation authority	Lummi Planning Department, approval by property owner
Metrics tracking	Homes piloted $ saved on energy bills Co-pollutants avoided $MTCO_2e$ avoided (for propane and gas only)
Funding sources *(if relevant)*	Inflation Reduction Act High-Efficiency Electric Home Rebate Program (HEEHRA); Washington Department of Commerce Rural Clean Energy
Geographic location	Lummi Nation Reservation
Net cost to government	$107,706
Net cost to community	($198,673)
Total net cost	($90,967)
Estimated GHG emission reductions	2025–2030: 60 $MTCO_2e$ 2031–2050: 779 $MTCO_2e$
Estimated cost effectiveness	($109)/$MTCO_2e$

Measure 5. Green building policy adoption for new development and substantial remodels

Adopt a green building policy for new commercial developments and substantial remodels that mandates high energy efficiency building performance standards and commits to use of geothermal and/or solar resources, when technically feasible.

This measure is aligned with Lummi Nation's Strategic Energy Plan and provides a proactive approach to reducing energy consumption through building codes, materials, and design for new construction. Implementation can incorporate Leadership in Energy and Environmental Design (LEED) standards in the development of new or substantially improved tribal facilities is recommended to reduce future energy use on the Reservation.

Measure 5: Green building policy adoption for new development and substantial remodels	
Implementing agency	Planning Department
Implementation timeline	2025–2028
Implementation milestones	2025–2026: Draft policy 2027–2028: Reviews, revisions, and adoption
Implementation authority	Lummi Planning recommendations to Lummi Planning Commission, final approval by LIBC Council
Metrics tracking	Policy adopted # and % new buildings/remodels to new code $MTCO_2e$ avoided

Measure 5: Green building policy adoption for new development and substantial remodels	
Funding sources *(if relevant)*	Inflation Reduction Act; Administration for Native Americans Environmental Regulatory Enhancement
Geographic location	Lummi Nation Reservation
Net cost to government	$1,806,057
Net cost to community	($8,162,265)
Total net cost	($6,356,208)
Estimated GHG emission reductions	2025–2030: 7,033 $MTCO_2e$ 2030–2050: 37,793 $MTCO_2e$
Estimated cost effectiveness	($142)/$MTCO_2e$

3.3.3 Electric Power

Measure 6. Rooftop solar installations on key facilities

Install rooftop solar on key tribal and community facilities, including the Cooperative Extension Building, Silver Reef Hotel, Casino & Spa, Lummi Bay Salmon Hatchery, Shellfish Hatchery, Skookum Creek Hatchery, Lummi Housing Authority residential developments, Lummi Fitness Center, Sewage Treatment Center and Offices, and Gateway Center. Include storage systems where technically feasible.

This measure builds on recent successful solar installations (e.g., Lummi Health and Dental Facility in 2023), has wide support from the LIBC, and is aligned with Lummi Nation's Strategic Energy Plan. There are several tribal facilities with high demand for electricity and/or water heating that are in appropriate areas and have available roof space for solar installations. These facilities include, but are not limited to, the Silver Reef Hotel, Casino & Spa, the Tribal Administration Building, the Lummi Nation School, the Lummi Bay Salmon Hatchery, the Shellfish Hatchery, the Skookum Creek Hatchery, Lummi Housing Authority residential developments, and the Gateway Center.

Measure 6: Rooftop solar installations on key facilities	
Implementing agency	Lummi Planning, Public Works, Natural Resources and Water and Sewer to work with contractor to implement
Implementation timeline	2025–2030
Implementation milestones	N/A—continuous implementation
Implementation authority	Lummi Planning Department
Metrics tracking	kW generation installed Annual kW energy generated $ saved on energy bills
Funding sources *(if relevant)*	Inflation Reduction Act; Washington State Department of Commerce Energy Retrofits for Public Buildings
Geographic location	Lummi Nation Reservation
Net cost to government	$712,384
Net cost to community	$0
Total net cost	$712,384

Measure 6: Rooftop solar installations on key facilities	
Estimated GHG emission reductions	2025–2030: 241 $MTCO_2e$ 2031–2050: 0 $MTCO_2e$
Estimated cost effectiveness	\$2,959/$MTCO_2e$

3.3.4 Transportation

Measure 7. Tribal fleet electrification and expanded EV charging

Replace older and under-used LIBC combustion engine vehicles with electric alternatives. Aim to transition five (5) passenger vehicles and five (5) work trucks per year between 2026–2030. Purchase one (1) electric bus and transition all remaining buses from diesel to propane. To support the transition, install 2–4 level 2 chargers at five (5) key facilities in year 1 (2025) of PCAP implementation. Facilities may include the Cooperative Extension Building, Silver Reef Hotel, Casino & Spa, Lummi Nation School, Lummi Bay Salmon Hatchery, Shellfish Hatchery, Skookum Creek Hatchery, Lummi Housing Authority residential developments, and Gateway Center.

This measure builds on Lummi Nation's Climate Change Mitigation and Adaptation Plan and Lummi Nation's Strategic Energy Plan. The LIBC already owns at least one hybrid car and has installed two electric car charging stations at the new Tribal Administration Building. A commitment to purchase hybrid and/or electric vehicles by the LIBC could have a significant impact on transportation sector carbon emissions from the Reservation. Lummi Nation could align this measure with the Clean City Coalition is a public/private partnership that works together with the U.S. Department of Energy's (DOE) Clean Cities Program with the goal of reducing petroleum consumption by providing education, access to grant funds, and technical assistance to corporate and municipal fleets for implementation support.

Measure 7: Tribal fleet electrification and expanded EV charging	
Implementing agency	Lummi Planning and Public Works.
Implementation timeline	2025–2029
Implementation milestones	2025: Install chargers 2025–2029: Purchase vehicles
Implementation authority	Lummi Planning Department
Metrics tracking	Vehicles purchased Chargers installed $MTCO_2e$ avoided \$ fuel saved
Funding sources *(if relevant)*	
Geographic location	Lummi Nation Reservation and satellite facilities (e.g. Skookum Creek Hatchery
Net cost to government	(\$4,163)
Net cost to community	\$0
Total net cost	(\$4,163)
Estimated GHG emission reductions	2025–2030: 490 $MTCO_2e$ 2031–2050: 4,958 $MTCO_2e$
Estimated cost effectiveness	(\$1)/$MTCO_2e$

Measure 8. Fishing boat motor retrofits and replacements

Building on successes and lessons learned from 2014 retrofits, replace and retrofit older, inefficient boat motors with more energy efficient, electric, and hybrid electric models or parts.

- **Aim to retrofit up to 15 LNR boats in year 1 (2025) of PCAP implementation**
- **Offer financial incentives and assistance for community members to perform retrofits on personal/commercial vessels, aiming to support 20 Lummi fishing fleet boat retrofits in year 1 (2025), 30 retrofits in year 2 (2026) of PCAP implementation, 30 retrofits in year 3 (2027), and 30 retrofits in year 4 (2028)**

This measure builds on the Lummi Nation's previous experience with engine retrofits on fishing vessels as part of the EPA's Diesel Emissions Reduction Act. This measure supports the Lummi Nation's goals of reduced emissions from energy use and economic self-sufficiency.

Measure 8: Fishing boat motor retrofits and replacements	
Implementing agency	Lummi Natural Resources Department
Implementation timeline	2025–2028
Implementation milestones	2025–2028 Retrofit boats
Implementation authority	LNR Director
Metrics tracking	Motors purchased $MTCO_2e$ avoided $ fuel saved
Funding sources *(if relevant)*	EPA DERA Grant; BIA Tribal Resilience
Geographic location	Lummi Nation Reservation and surrounding fishing grounds
Net cost to government	$3,495,375
Net cost to community	($3,099,288)
Total net cost	$396,087
Estimated GHG emission reductions	2025–2030: 2,024 $MTCO_2e$ 2031–2050: 8,342 $MTCO_2e$
Estimated cost effectiveness	$38/$MTCO_2e$

3.4 Benefits Analysis

This section explores each of the measures discussed in the previous section and expands on the additional benefits of the measures. The implementation of the measures included in the Lummi Nation's PCAP will have a broad range of benefits beyond GHG emission reductions, including reductions of criteria and hazardous air pollutants and economic and ecosystem benefits.

3.4.1 Co-Pollutant Estimation

The co-pollutant impacts were estimated using the EPA's reference document (Climate Pollution Reduction Grants Program: Technical Reference Document: Benefits Analyses: Co-Pollutant Impacts). The Lummi Nation estimated 2022 baseline co-pollutants and expected reductions in co-pollutants from implementation of PCAP measures. The baseline co-pollutant estimates are summarized below in Table 9, Table 10, Table 11, and Table 12, and expected reductions from PCAP measures are summarized below in Table 13.

Table 9. Baseline co-pollutants from stationary combustion—community (2022).

Sector	Fuel Type	CO	NOX	SO2	VOC	$PM_{2.5}$	PM_{10}	Units
Commercial/ Institutional	Distillate fuel oil	0.06	0.21	<0.01	<0.01	0.03	0.03	MT
Residential	Distillate fuel oil	0.09	0.33	<0.01	<0.01	0.04	0.04	MT
Commercial/ Institutional	LPG (propane)	0.40	0.72	<0.01	0.03	<0.01	<0.01	MT
Residential	LPG (propane)	1.15	4.07	0.02	0.16	<0.01	<0.01	MT
Commercial/ Institutional	Natural gas	1,097.68	1,306.76	7.84	71.87	5.62	6.80	MT
Residential	Natural gas	72.10	169.44	1.08	9.91	0.78	0.94	MT
Residential	Wood	126.07	2.20	0.34	-	19.97	19.97	MT
Total		**1,297.56**	**1,483.74**	**9.29**	**81.99**	**26.44**	**27.79**	**MT**

Table 10. Baseline co-pollutants from stationary combustion—government operations (2022).

Facility	Fuel Type	CO	NOX	SO2	VOC	$PM_{2.5}$	PM_{10}	Units
Loomis Golf Course	Natural gas	14.30	33.60	0.21	1.97	0.15	0.19	MT
Silver Reef Casino	Natural gas	356.48	837.73	5.35	49.02	3.83	4.63	MT
Mini Mart	Natural gas	24.22	56.92	0.36	3.33	0.26	0.31	MT
All facilities	LPG (propane)	0.09	0.32	<0.01	<0.01	<0.01	<0.01	MT
Total		**395.09**	**928.56**	**5.93**	**54.32**	**4.25**	**5.14**	**MT**

Table 11. Baseline co-pollutants from mobile combustion—community (2022).

Vehicle Class	Fuel Type	CO	NOx	SOx	VOC	$PM_{2.5}$	PM_{10}	Units
Heavy-Duty	Gasoline	0.82	0.03	<0.01	0.08	<0.01	<0.01	MT
Light Truck	Gasoline	30.61	0.78	0.02	1.19	0.05	0.22	MT
Passenger Car	Gasoline	93.08	1.79	0.05	3.97	0.12	0.66	MT
Heavy-Duty	Diesel	5.53	11.29	0.02	0.57	0.10	0.34	MT
Light Truck	Diesel	0.37	0.29	<0.01	0.02	<0.01	<0.01	MT
Passenger Car	Diesel	0.56	<0.01	<0.01	<0.01	<0.01	<0.01	MT
Total		**130.96**	**14.19**	**0.08**	**5.83**	**0.28**	**1.25**	**MT**

Table 12. Baseline co-pollutants from mobile combustion—government operations (2022).

Vehicle Class	Fuel Type	CO	NOx	SOx	VOC	$PM_{2.5}$	PM_{10}	Units
Heavy-Duty	Gasoline	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	MT
Light Truck	Gasoline	4.40	0.12	<0.01	0.17	<0.01	0.03	MT
Passenger Car	Gasoline	1.31	0.03	<0.01	0.06	<0.01	<0.01	MT

Vehicle Class	Fuel Type	CO	NOx	SOx	VOC	$PM_{2.5}$	PM_{10}	Units
Heavy-Duty	Diesel	0.17	0.86	<0.01	0.03	<0.01	0.02	MT
Light Truck	Diesel	0.04	0.08	<0.01	<0.01	<0.01	<0.01	MT
Passenger Car	Diesel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	MT
Total		**5.99**	**1.09**	**0.01**	**0.27**	**0.02**	**0.06**	**MT**

Table 13. Anticipated co-pollutant reductions for each measure (through 2050, beginning in each measure's implementation start year).

		Estimated Co-Pollutant Reductions						
#	Measure	CO	NOx	SOx	VOC	$PM_{2.5}$	PM_{10}	Units
1	Forest, wetland, and eelgrass conservation and restoration	N/A	N/A	N/A	N/A	N/A	N/A	MT
2	Residential energy efficiency and electrification upgrades in existing buildings	0.70	2.46	<0.01	0.10	<0.01	<0.01	MT
3	Energy efficiency and electrification upgrades in existing tribal facilities and commercial buildings	1.53	2.73	<0.01	0.10	<0.01	<0.01	MT
4	Geothermal pilot program for existing homes	0.25	0.89	<0.01	0.03	<0.01	<0.01	MT
5	Green building policy adoption for new development and substantial remodels	0.98	1.76	<0.01	0.06	<0.01	<0.01	MT
6	Rooftop solar installations on key facilities	N/A	N/A	N/A	N/A	N/A	N/A	MT
7	Tribal fleet electrification and expanded EV charging	65.45	67.70	0.05	4.87	0.46	1.22	MT
8	Fishing boat motor retrofits and replacements	1.17	0.12	<0.01	0.18	<0.01	<0.01	MT
	Total	**70.09**	**75.66**	**0.08**	**5.35**	**0.49**	**1.25**	**MT**

3.4.2 Other Benefits

The table below summarizes the other economic, community, and environmental benefits of PCAP measure implementation.

#	Measure	Other Benefits
1	Forest, wetland, and eelgrass conservation and restoration	• Preservation and support of natural systems and species; community beautification; public health impacts from increased tree cover and ecosystem health; potential for enhanced protection/resilience from natural disasters; supports cultural preservation • Supports carbon sinks, natural resource protection, linkage to carbon markets, and overall resilience

#	Measure	Other Benefits
		• Supports jobs in natural resource fields; restoration also improves habitat for fish and shellfish, which in turn increases numbers of fish and shellfish for Lummi fishers/harvesters
2	Residential energy efficiency and electrification upgrades in existing buildings	• Improved indoor air quality when replacing fossil-fuel powered appliances; reduced energy costs; better building quality/comfort and protection from climate impacts like extreme heat and smoke • Supports goal of energy independence and resilience • Supports jobs in engineering/design and construction
3	Energy efficiency and electrification upgrades in existing tribal facilities and commercial buildings	• Improved indoor air quality when replacing fossil-fuel powered appliances; reduced energy costs; better building quality/comfort and protection from climate impacts like extreme heat and smoke; potential future resilience hub • Supports energy independence and resilience goals; energy upgrades in hatchery buildings improve the efficiency of operations and allow for expansion of buildings • Supports jobs in engineering/design and construction
4	Geothermal pilot program for existing homes	• Improved indoor air quality when replacing fossil-fuel powered appliances; reduced energy costs • Supports energy independence and resilience goals • Supports jobs in engineering/design and construction
5	Green building policy adoption for new development and substantial remodels	• Improved indoor air quality when replacing fossil-fuel powered appliances; reduced energy costs; better building quality/comfort and protection from climate impacts like extreme heat and smoke; air quality benefits (though likely occurring outside Lummi Nation community boundaries for replacing purchased electricity with solar) • Supports goal of energy independence and resilience • Supports jobs in engineering/design and construction
6	Rooftop solar installations on key facilities	• Increased energy resilience when paired with storage; reduced energy costs; air quality benefits (though likely occurring outside Lummi Nation community boundaries for replacing purchased electricity with solar) • Supports energy independence and resilience goals • Supports jobs in engineering/design and construction
7	Tribal fleet electrification and expanded EV charging	• Public health benefits from reductions in fossil-fuel powered vehicles; reduced noise pollution; decreased energy costs; potential decreased lifetime maintenance costs; increased access to amenities (EV charging) • Supports reduced emissions from energy use goal
8	Fishing boat motor retrofits and replacements	• Public health benefits from reductions in fossil-fuel powered boats; reduced noise pollution; decreased energy costs • Environmental benefits from reducing fossil fuel spills and resulting impacts on fish, crustaceans, and other wildlife • Supports local fishers • Supports reduced emissions from energy use goal

3.5 Review of Authority to Implement

Many entities in the region work together to carry out climate projects, and implementation of the PCAP will necessitate broad collaboration across Lummi Nation departments, leadership, and LIBC. The tables above (by measure) capture current authorities to implement proposed measures based on ownership or historical project development. Broadly, this PCAP identified the entity in the region or community that has authority to carry out a proposed measure such as the LIBC or specific Lummi Nation departments. The Lummi Code of Laws grants authority to Lummi Nation departments to implement projects and measures.

#	Measure	Authority to Implement	Milestones to Obtain Authority
1	Forest, wetland, and eelgrass conservation and restoration	Lummi Planning, LNR Water Resources; LNR Forestry, Lummi Nation Tribal Historic Preservation Office; Army Corps of Engineers	N/A
2	Residential energy efficiency and electrification upgrades in existing buildings	Lummi Planning in coordination with Lummi Housing and approval by the US HUD; approval by property owner	N/A
3	Energy efficiency and electrification upgrades in existing tribal facilities and commercial buildings	Lummi Planning Department	N/A
4	Geothermal pilot program for existing homes	Lummi Planning Department; US HUD; approval by property owner	N/A
5	Green building policy adoption for new development and substantial remodels	Lummi Planning recommendations to Lummi Planning Commission, final approval by LIBC Council	N/A
6	Rooftop solar installations on key facilities	Lummi Planning Department	N/A
7	Tribal fleet electrification and expanded EV charging	Lummi Planning Department	N/A
8	Fishing boat motor retrofits and replacements	LNR Director	N/A