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# Pedro Bay Emissions Inventory and Climate Action Plan

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# Project Background and Goals

- In 2017, the Pedro Bay Village Council , under the terms of its IGAP funding, committed to completing a Greenhouse Gas Inventory and associated Climate Action Plan.
- The goal of this project is two-fold:
  - One is to profile the yearly emissions of the community.
  - The second is to develop a Climate Action Plan.
- Project will also serve as a case-study for the Alaska Department of Environmental Conservation (ADEC) to carry out emissions inventories in rural Alaska.
- Lastly, it will also serve as a data set for the EPA's National Emissions Inventory (NEI).





# Community Background

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- Pedro Bay is a community of some 30 full-time residents located on the eastern shore of Lake Iliamna.
- The village was moved to its current location from near Russian Creek in the last century.
- It was originally named for Petroski Riktrov, a Russian settler who lived in the area at the turn of the 20<sup>th</sup> Century.



# Community Information

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- Along with the full-time residents, three destination fishing lodges are located in the area.
- The lodges are:
  - Angry Eagle Lodge,
  - Iliamna River Lodge; and
  - Guth's Lodge.
- The three lodges provide seasonal employment opportunities to locals, along with a source of external revenue for the community as well.



# Pedro Bay Emissions Inventory

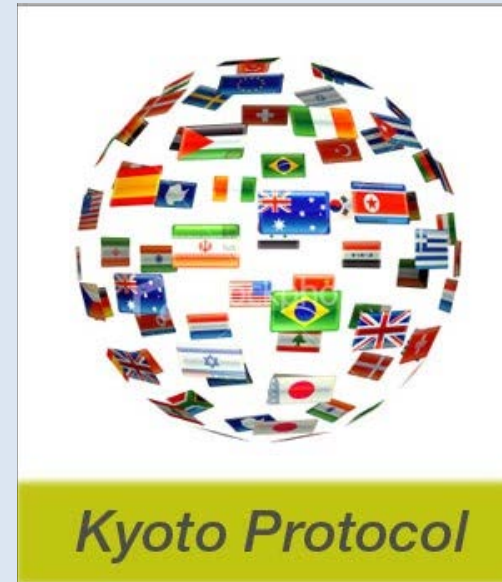
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- The Emissions Inventory data will be made up of both individual residents' households, as well as commercial and transportation operations.
- All of this data will be put together and used to estimate the community's total yearly emissions.

# Kyoto Protocols Pollutants

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- Under the terms of the United Nations' Kyoto Protocols, six major greenhouse gases were identified:
  - Carbon Dioxide
  - Methane Nitrous
  - Oxide
  - Hydrofluorocarbons
  - Perfluorocarbons, and
  - Sulfur Hexafluoride



# Criteria Air Pollutants

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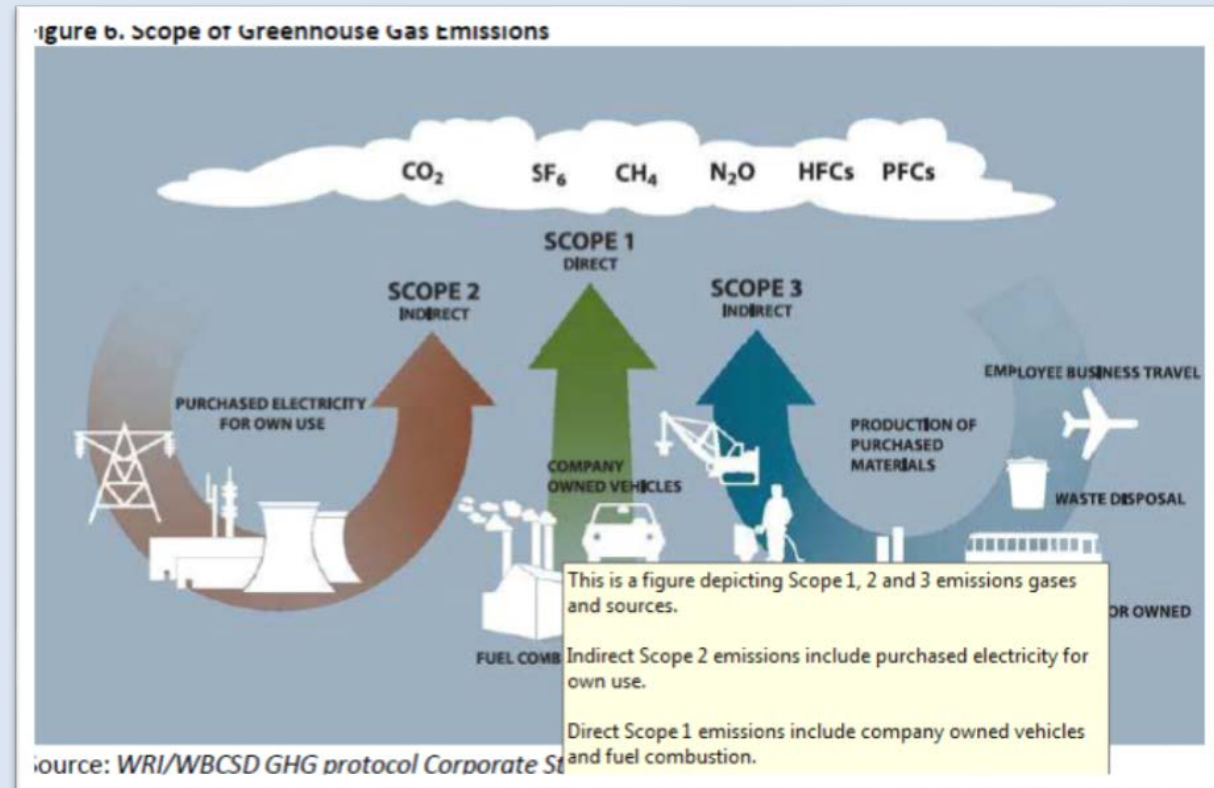
- In addition to the Kyoto Protocols pollutants, the EPA has identified an additional list of pollutants that will be inventoried as well:
  - Carbon Monoxide
  - Lead
  - Ground-Level Ozone
  - Particulate Matter
  - Nitrogen Dioxide; and
  - Sulfur Dioxide





# Criteria Air Pollutants and Kyoto Pollutants

- All of these pollutants end up in the air we breathe, adding to atmospheric pollution.
- For us to understand the role that large and small towns play in global climate change, we must first understand their share of yearly emissions.



# Climate Action Plan

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- The Climate Action Plan will outline the policies and measures that the community will enact to reduce its greenhouse gas emissions.
- It also includes the community's reaction to their changing environment.
- Residents will share their experiences, and plan how the community will react to those changes, both short-term and long-term.
- Goals could be to prepare for climate change's impact on community infrastructure, reduce emissions as a subset of state or national emissions, or strive for a reduction of energy related costs.

# Project Methodology

- Surveys filled out by Pedro Bay residents, private companies, and public agencies, including Pedro Bay's waste services.
- Emissions are calculated by analyzing fuel use reported by each company and individual household.
- DEC will take the information and then plug it into the EPA's Tribal Emissions Tool.
- This will be the first time that this tool will be used in an Alaska village.

## Emissions SURVEY – Pedro Bay Village Council Operations

### 1. TRANSPORTATION

This section includes transportation of PBVC on work related business. Employee commutes to work are included in the residential survey. If a resident commutes to work in a PBVC provided vehicle and in which the PBVC provides fuel, then the vehicle and fuel use is included in this survey and is considered a government operation.

#### AIRCRAFT TRANSPORTATION

How many flights have PBVC staff been passengers for business purposes?

Total average number trips during 2017 \_\_\_\_\_

The fuel use and trips will also be recorded in the airline commercial survey.

#### PBVC MARINE TRANSPORTATION

Please indicate the number of boat trips that PBVC staff have taken for work related purposes (2017)

Boat	# Vessels summer	# Vessels Winter	# activity of boat or # of trips per day, week, month	Engine running hours <i>Summer</i> (day or week)	Engine running hours <i>Winter</i> (day or week)
Boat 1					
Boat 2					
Boat 3					
Boat 4					
Boat 5					

Please provide vessel characteristics of PBVC owned vessels:

Vessel type	Fuel type (gasoline or diesel)	Vessel age	Average horsepower

#### PBVC TRANSPORTATION AND SERVICE VEHICLES

Please identify the types and number of vehicles that are owned and utilized by PBVC employees.

Vehicle Type	Vehicle Specific	Fuel Type		Engine Type (hp) or other measurement	<i>Summer</i> miles driven	# <i>Winter</i> miles driven
		gas	diesel			
Cars						
Pickup trucks/SUVs	Chevy suburban 1500 4x4	x				
Pickup trucks/SUVs	GMC V-8 1500 4x4	x				
Pickup trucks/SUVs	Chevy Van 1500 4x4	x				

# Project Methodology - Continued

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- Collected data will also be sent to the EPA for use in its annual National Emissions Inventory. Data sent to them will be:
  - Transportation
  - Waste Management
  - Commercial
  - Residential
- Calculate the emissions for both the Kyoto Protocol's greenhouse gases, as well as EPA's Criteria Air Pollutants. We do not expect to find dangerous levels of emissions of either category, or emissions that would be categorized as harmful to local health.
- Lastly, we will analyze community landfill practices to identify ways to reduce the emissions of greenhouse gases or criteria air pollutants from the community waste stream.



# Current Findings - Transportation

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- As of November 2018, we have had several companies provide information to us either via phone or email.
- Among these are both cargo and passenger airlines that provide services to the Pedro Bay Airport.
- We are still waiting for other airlines, and data from marine transportation.



# Current Findings - Transportation

- The information provided to DEC will allow us to analyze the total emissions profile of air services into the area and better estimate how these contribute to Pedro Bay's emissions footprint.
- In addition to these airlines, we are aware that several lodges operate their own independent air services during summer months which provide direct flights from Anchorage or Port Alsworth to Pedro Bay.
- There is also a barge service that operates on Lake Iliamna.



# Current Findings – Household Data

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- DEC has received eleven completed surveys from individual households located in Pedro Bay.
- These surveys include:
  - Heating Fuel Use (Including Wood)
  - Gasoline/Diesel Consumption
  - Vehicle Use (In Miles Per Year)
  - Motorized Household Equipment (In Hours Per Month)
- Excluded is information on personal travel, as any flights into or out of the community are already reflected in the transportation data.



# Current Findings – Pedro Bay Village Council

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- Along with the household and transportation data, we are also collecting data from the Pedro Bay Village Council.
- This data includes:
  - fuel use,
  - vehicles used
  - community construction equipment,
  - generators,
  - water pumps, and
  - space heaters.
- Collected Village Council data will be included alongside all other data for calculating total yearly emissions.





# Climate Action Plan: Overview

- The second stage of Pedro Bay's efforts will be the writing, with community input, of a Climate Action Plan (CAP).
- Plan will combine current efforts to upgrade and modernize local infrastructure with climate observations and long-term community planning.
- The overall goal is to use this CAP in community planning as a guide to reducing energy costs, and emissions.



# Weatherization and Hydropower Development

- Key climate actions for Pedro Bay include infrastructure upgrades that can lower/offset emissions.
- Current plans include:
  - the Knudsen River run-of-the-river hydroelectric power generator,
  - And the new landfill that will be opened near Russian Creek.
- Other climate actions will be to weatherize the building housing the community library, as well as the installation of a year-round community greenhouse.



# Household and Community Actions

- Climate actions at the household level include such options as: Upgrading household heating devices, weatherizing homes, and purchasing new fuel-efficient vehicles and ATVs to reduce household fuel consumption.
- Other climate actions might include encouraging gardens and other local food production to reduce household food shipments.
- While these may be small changes, they could create larger reductions in greenhouse gas emissions.



# Conclusion: What's next?

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- As of November 28, 2018, the project is currently in the initial stages of data analysis.
- The goal will be to use the data, broken down by sector, to analyze the areas of heaviest emissions and use these figures to better identify sector reductions.
- These sector-based reductions will comprise part of the Climate Action Plan.
- Plan will be written in cooperation with community members, and will retain flexibility for future changes to demographics or circumstance.



# Conclusion: Wrapping Up

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- Part of DEC's involvement in the project has been to use Pedro Bay as a case-study in conducting rural Alaska emissions inventories.
- It has also functioned as a first run for using the EPA's Tribal Emissions Tool, which has not yet been utilized in an Alaska context.
- Using the data that we have collected from Pedro Bay's emissions inventory, we will be providing feedback to the EPA for rewrites and changes to the tool for Alaska.
- It is our hope that, with suggested changes, the EPA's rewritten Tribal Emissions Tool can be used by tribes and villages in Alaska to analyze their emissions profiles.

# Thank you

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# Questions??

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