

# Unconventional Potential

## An Analysis of Glacier Meltwater as a Means of Energy Generation

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### Problem

There are underutilized natural and renewable energy resources in Alaska. Glaciers are like rechargeable batteries, fueled by the snow of past eons, they provide a virtually endless supply of running water via the hydrocycle. In addressing the methods that Alaskan communities generate power now, sustainable technologies should be implemented to lessen the impacts that fossil fuels have had on Alaska’s pristine environment.

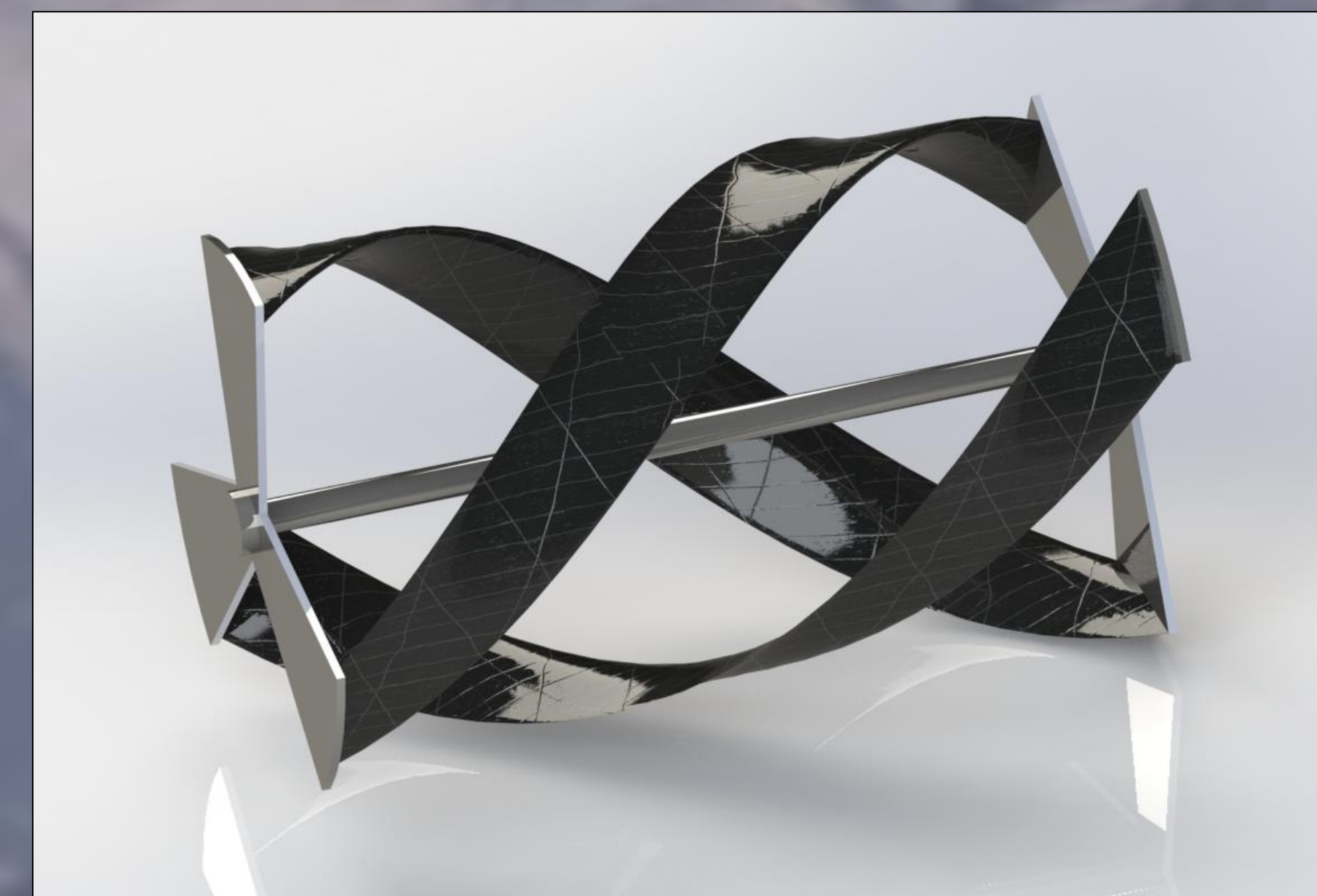
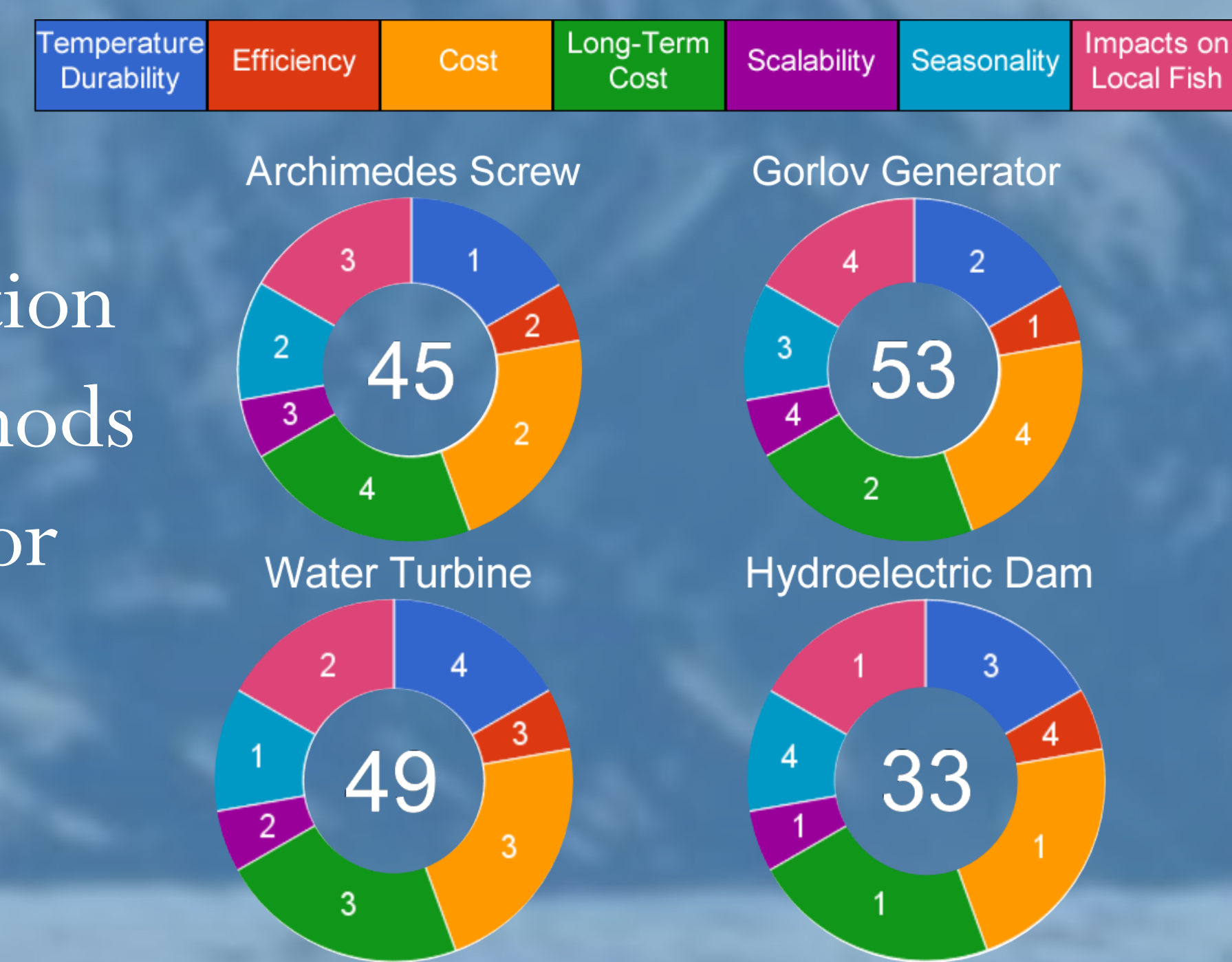
### Solution

We chose the Gorlov Generator as the method to create power. The design is best for a glacier setting due to its modular design and ability to generate power in low current situations.

The glacier has varied currents throughout the year so a design that can operate through a wide range of currents works best. In addition to its economic benefits the Gorlov generator is environmentally-friendly; it does not harm fish and does not disrupt the flow of the river.

### Methods

- Researched locations potential locations
- Researched methods of hydroelectric power generation
- Created decision matrix to evaluate generation methods
- Evaluated case studies regarding the Gorlov generator
- Addressed risks of implementation
- Calculated the projected effects of the project



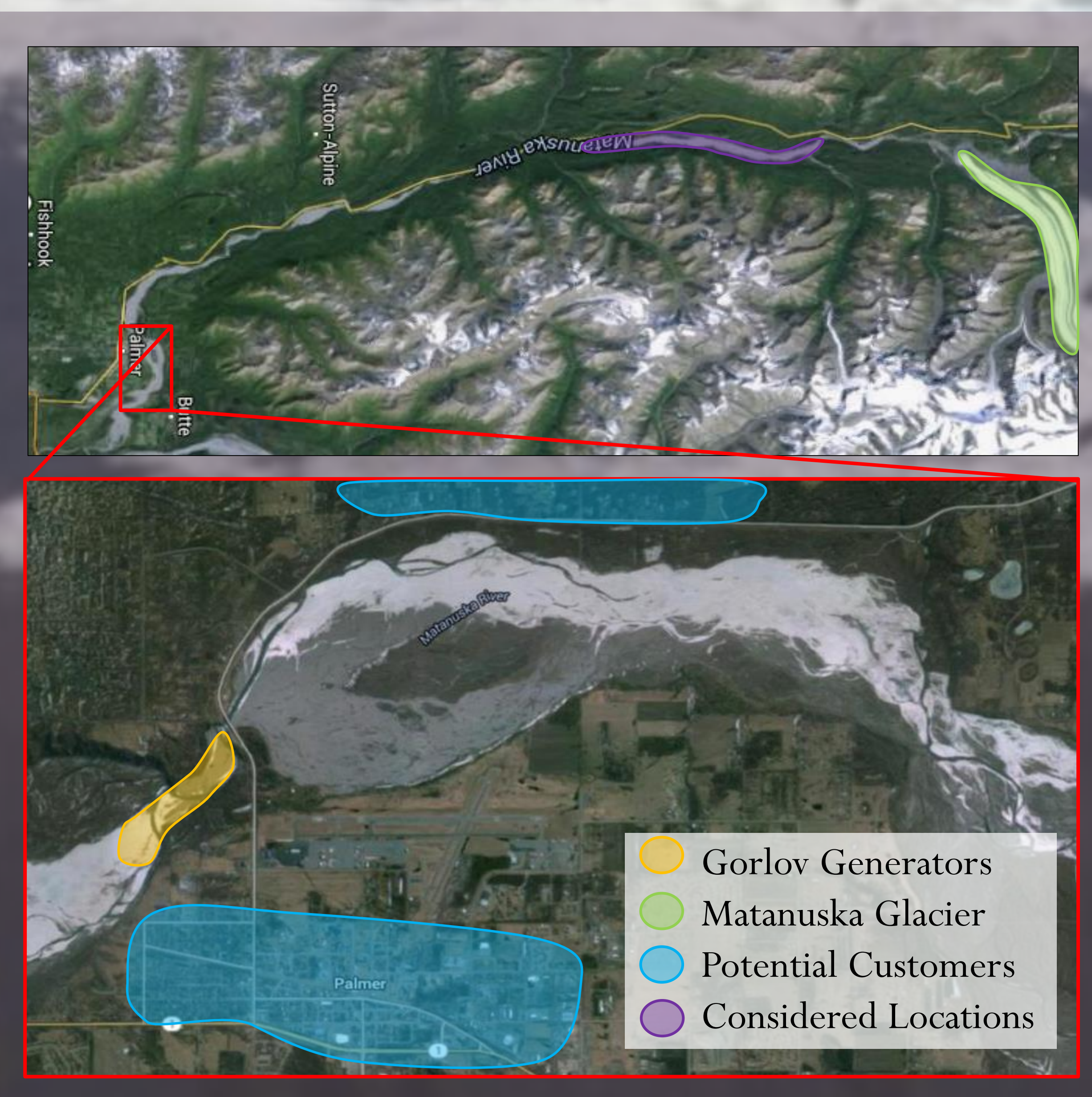
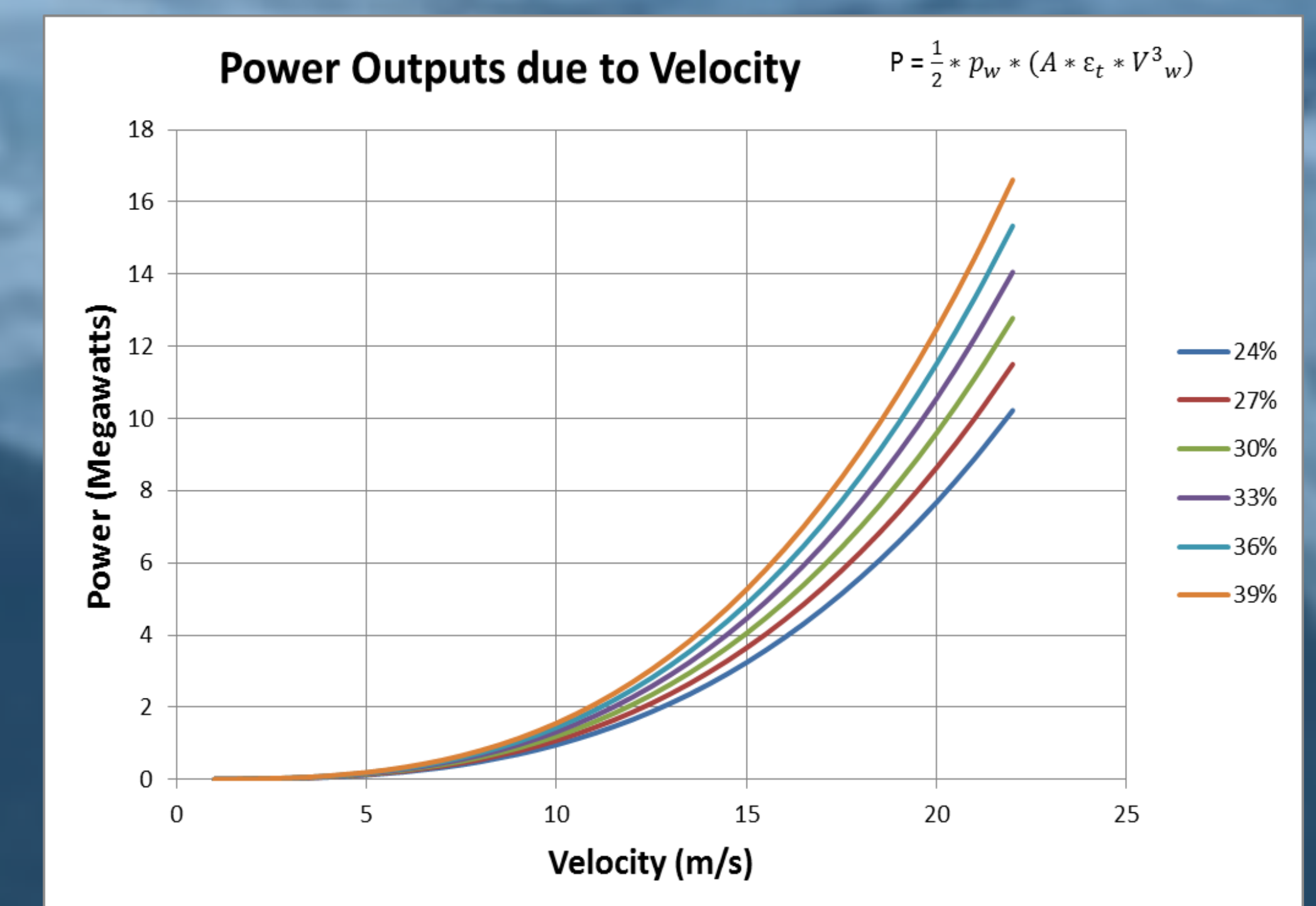
Gorlov Generator

### Background

Due to increasing production of greenhouse gases, created by the burning of fossil fuels as a means for power generation, global temperature has risen on average. These increased temperatures drive the quickened recession of glaciers high in the mountains of Alaska that hold a huge amount of potential energy. The Matanuska River is located close to civilization and fed by one of the largest glaciers in Alaska.

### Data

- Gorlov generators are:
- Modular
  - Optimal in low-flow situations
  - Constant and stable in generating power
  - Ecologically friendly
- 1000 homes could be powered by the implementation of a 8 m<sup>2</sup> generator



### Bibliography

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