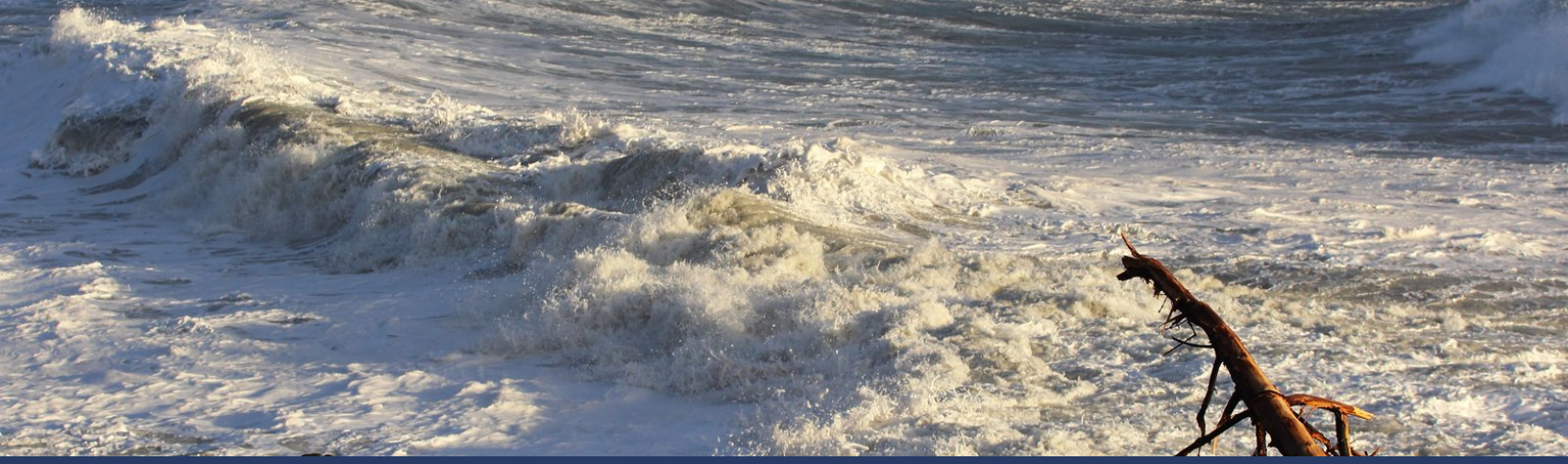


Yakutat Wave Energy Project

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Ground Truth Trekking

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Table of Contents

1. Background
2. 2009 Conceptual Study
3. 2012 Project Application
4. Current Status

Background

Yakutat, Alaska, with a population of 646 (2011), is the site of ongoing feasibility studies that may result in a wave energy pilot project. There is a vast amount of energy (http://www1.eere.energy.gov/water/pdfs/mappingandassessment.pdf) (8.4 MB) contained in ocean waves, but a variety of factors make harnessing this energy at most locations impractical. The technology is new, expensive and of uncertain reliability. Established conventional options are more attractive to communities already connected to larger grids. A small community must be located near big waves to make this form of energy practical, since transmission of electricity is expensive and only cost effective over long distances in large markets. The community of Yakutat, however, happens to be near open-ocean surf and is currently burdened with 27 cents/kWh diesel-powered electricity (twice the state average), making wave energy attractive and potentially feasible.

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STORM WAVES — Read more about our Life on Ice expedition (/Journeys/LifeOnIce.html). — Get Photo (/photos/storm-waves/)

2009 Conceptual Study

In
2009 the Electric Power Research Institute (EPRI) performed a study (http://oceanenergy.epri.com/attachments/wave/reports/006_Alaska_Yakutat_Conceptual_Wave_Power_Feasibility_Study_123109.pdf) of the technical and economic feasibility of a wave power project to supply electricity to Yakutat. This study concluded that there was excellent potential for a shallow-water project. A deep-water project was considered economically unfeasible at the scale required for this size community.

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Costs were estimated at 45 cents/kWh for a single unit (650kW) and down to 28 cents/kWh for 8 units (5.2 MW). For comparison the 2009 energy costs in Yakutat for diesel-generated electricity was around 27 cents/kWh. One of the issues identified in this study was the lack of storage and power distribution infrastructure. The total heating and electricity needs of the community are over 4 MW annually but to supply that amount of electricity from wave power would require numerous capital improvements to the grid itself. The cost of construction/ installation of a single unit was estimated at around $9 million and the operational and maintenance (O&M) costs would be in the neighborhood of $300,000.

2012 Project Application

In July 2012, Resolute Marine Energy Inc. (RME) (http://www.resolutemarine.com/) filed an application (http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20120725-5078) with the Federal Energy Regulatory Commission (FERC) to develop a wave power project outside of Yakutat. This would be a 500-750kW project consisting of several 50-100kW units to be located near shore. The permit, which was granted (http://www.adn.com/2013/02/07/2781147/resolute-marine-energy-receives.html) in February 2013, allows RME to conduct pilot studies and assess the technical and economic feasibility of the project. Project economics were not discussed in this initial FERC application.

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Current Status

A preliminary FERC license for the project was issued (http://www.adn.com/2013/02/07/2781147/resolute-marine-energy-receives.html) in February 2013 and additional collaborators were found (http://cleantechnica.com/2013/11/11/alaskan-wave-energy-project-receives-project-management-support/) in November 2013.

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