

Renewable Energy Alaska Project (REAP)

Established in 2004, REAP is a statewide, non-profit coalition of over 60 dues-paying member organizations.

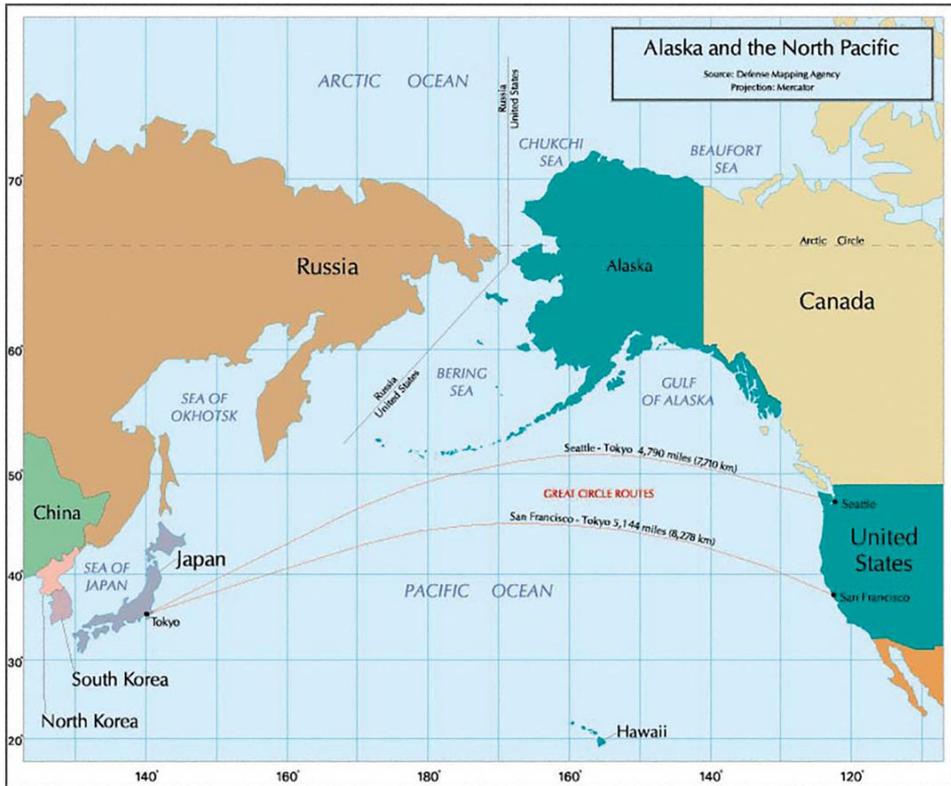
REAP's mission is to increase the development of renewable energy and energy efficiency in Alaska through

- Energy Education
- Training
- Strategic Collaboration
- Policy Advocacy

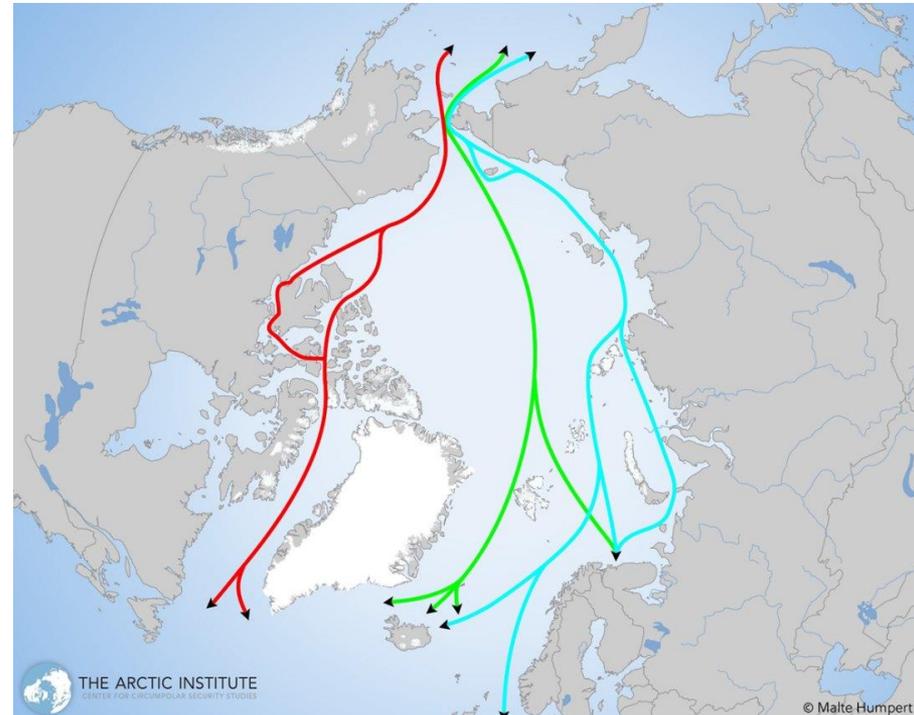
Our work empowers Alaskans to make more informed energy choices that help them live fuller, richer lives. We promote an array of clean energy opportunities that position our state to be a global clean energy leader that generates employment and pride.



Alaska: "The most strategic place on Earth"

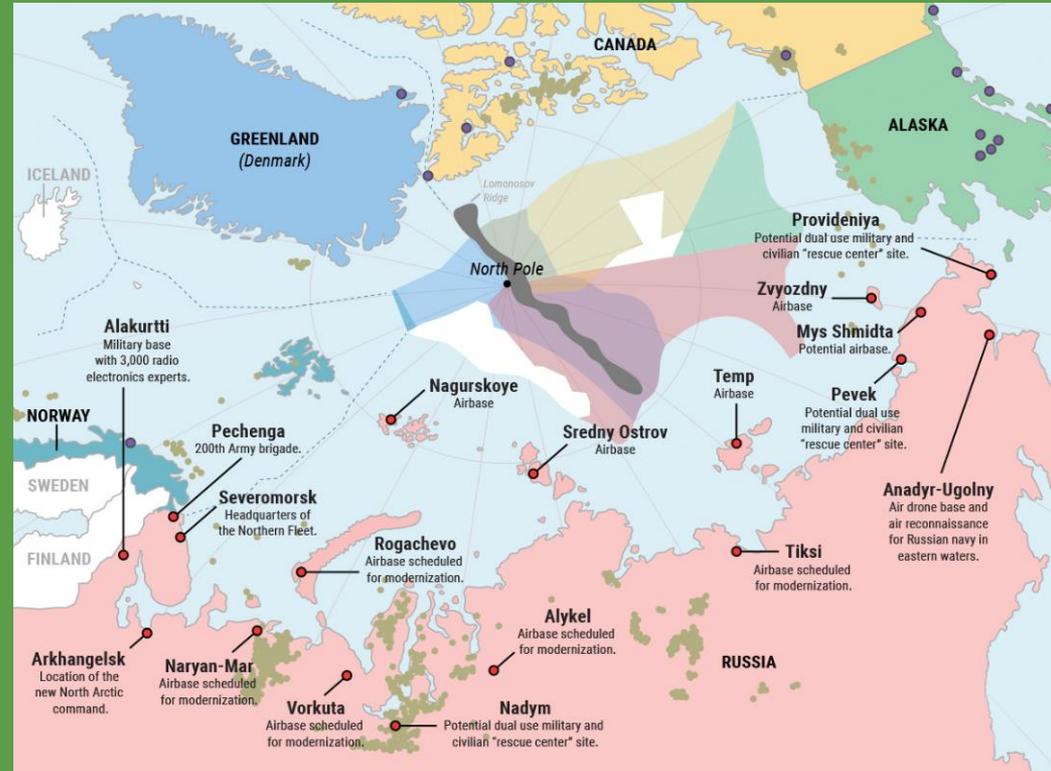
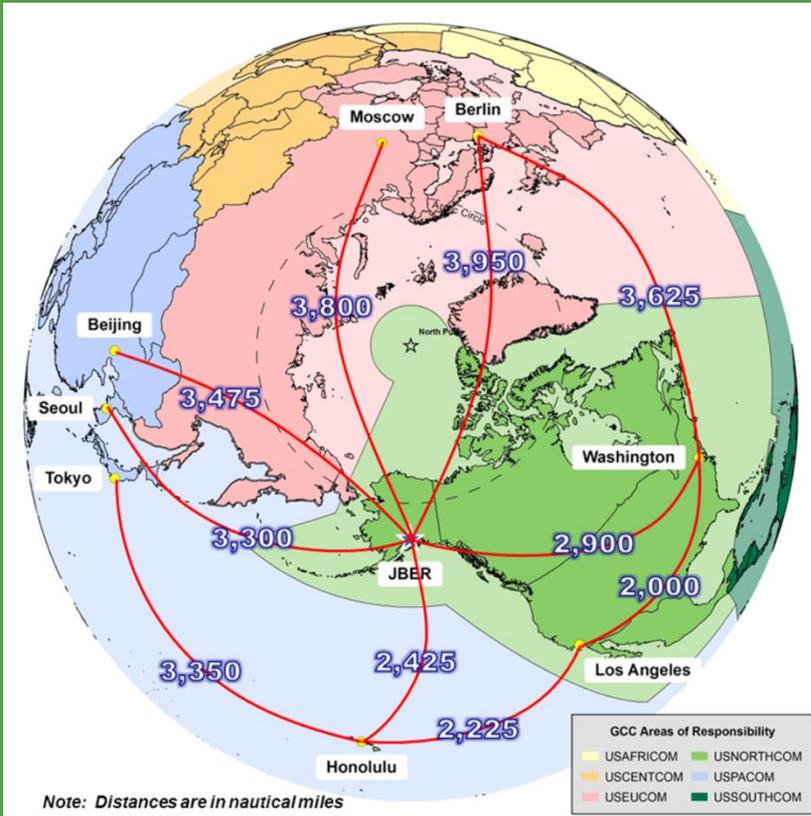


Graphic courtesy of Defense Mapping Agency



Graphic by Malte Humpert, The Arctic Institute

Alaska's National Security Significance



Graphic by Malte Humpert, The Arctic Institute

Graphic courtesy of North American Aerospace Defense Command [NORAD]

Alaska is the global leader in microgrid development



“Alaska has the world’s greatest concentration of experience and expertise for integrating renewable and conventional power in hybrid systems.”

—Peter Lilienthal, CEO HOMER Energy

HOMER Energy is the world’s leading microgrid modeling software company, with over 100,000 users in 193 countries.

Immense Renewable Energy Resources

- Solutions commercially available now
 - Wind
 - Solar
 - Hydro
 - Geothermal
- Longer Term Opportunities
 - Tidal
 - Geothermal 2.0

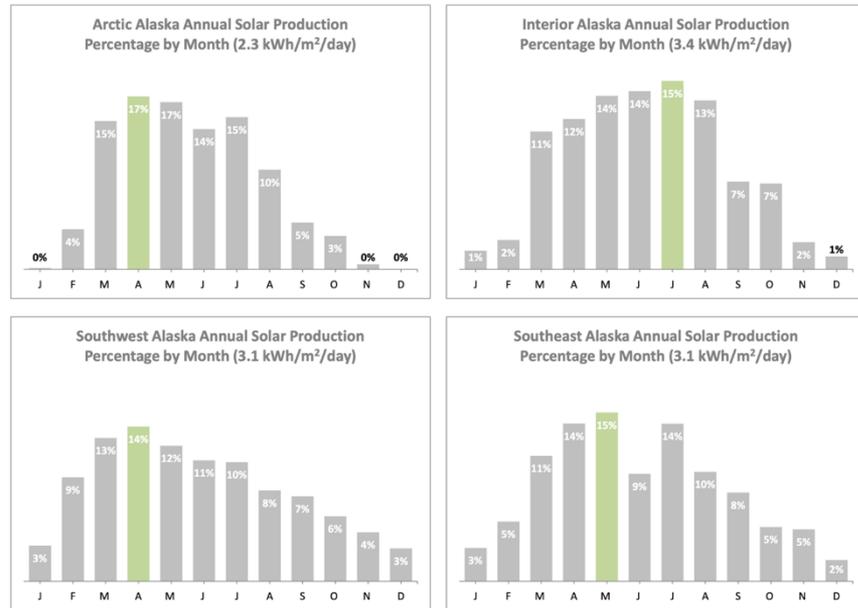


Pillar Mountain Wind Farm in Kodiak, Alaska (Photo by naql, CC BY 2.0)

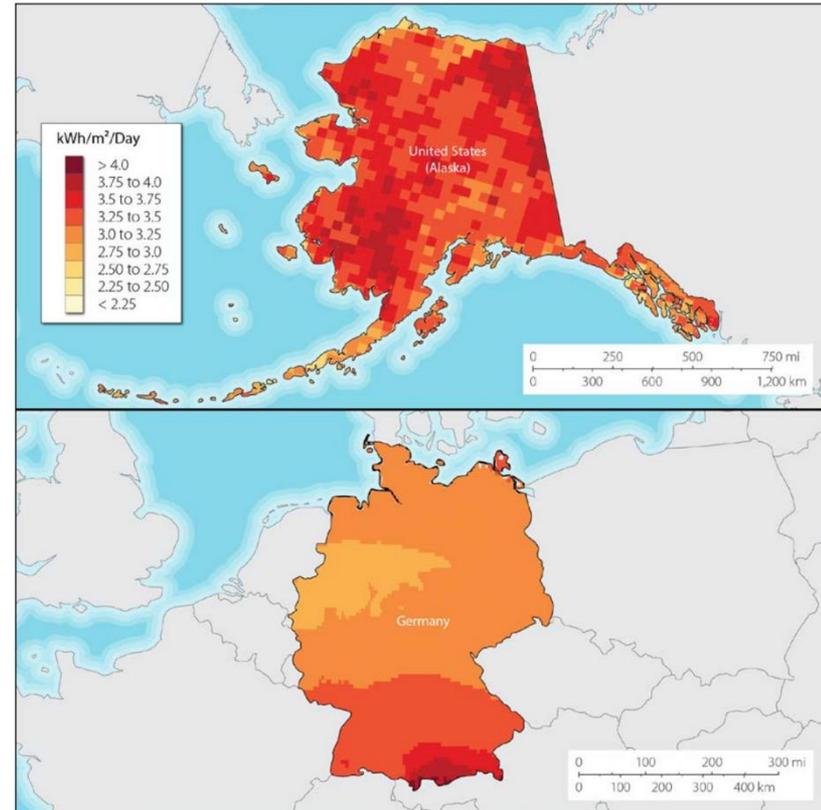
Alaska's Solar Resource

Alaska has similar solar irradiance to Germany, which is a global leader in solar energy development.¹

Alaska's statewide solar installed capacity in 2025 is 32.7 MW.²



Source: National Renewable Energy Laboratory (NREL) 2015



Source: Billy J. Roberts, NREL

(1) "Solar Energy Prospecting in Remote Alaska: An Economic Analysis of Solar Photovoltaics in the Last Frontier State," NREL.

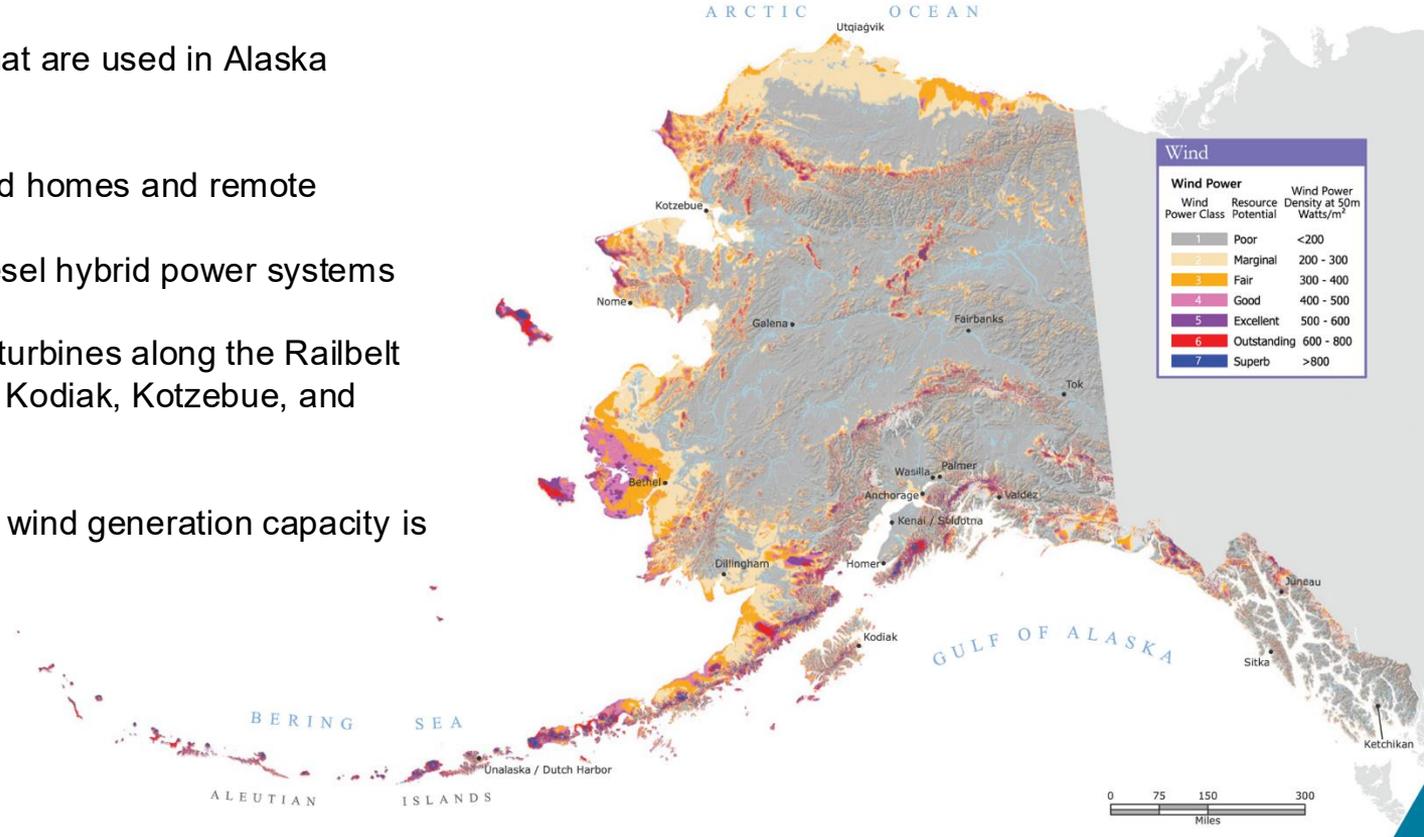
(2) Solar Energy Industries Association, September 2025.

Alaska's Onshore Wind Resource

Wind power technologies that are used in Alaska include:

- Small systems at off-grid homes and remote camps;
- Medium-sized, wind-diesel hybrid power systems in isolated villages; and
- Large, megawatt-scale turbines along the Railbelt and in communities like Kodiak, Kotzebue, and Nome.

Alaska's statewide installed wind generation capacity is approximately 68 MW.¹



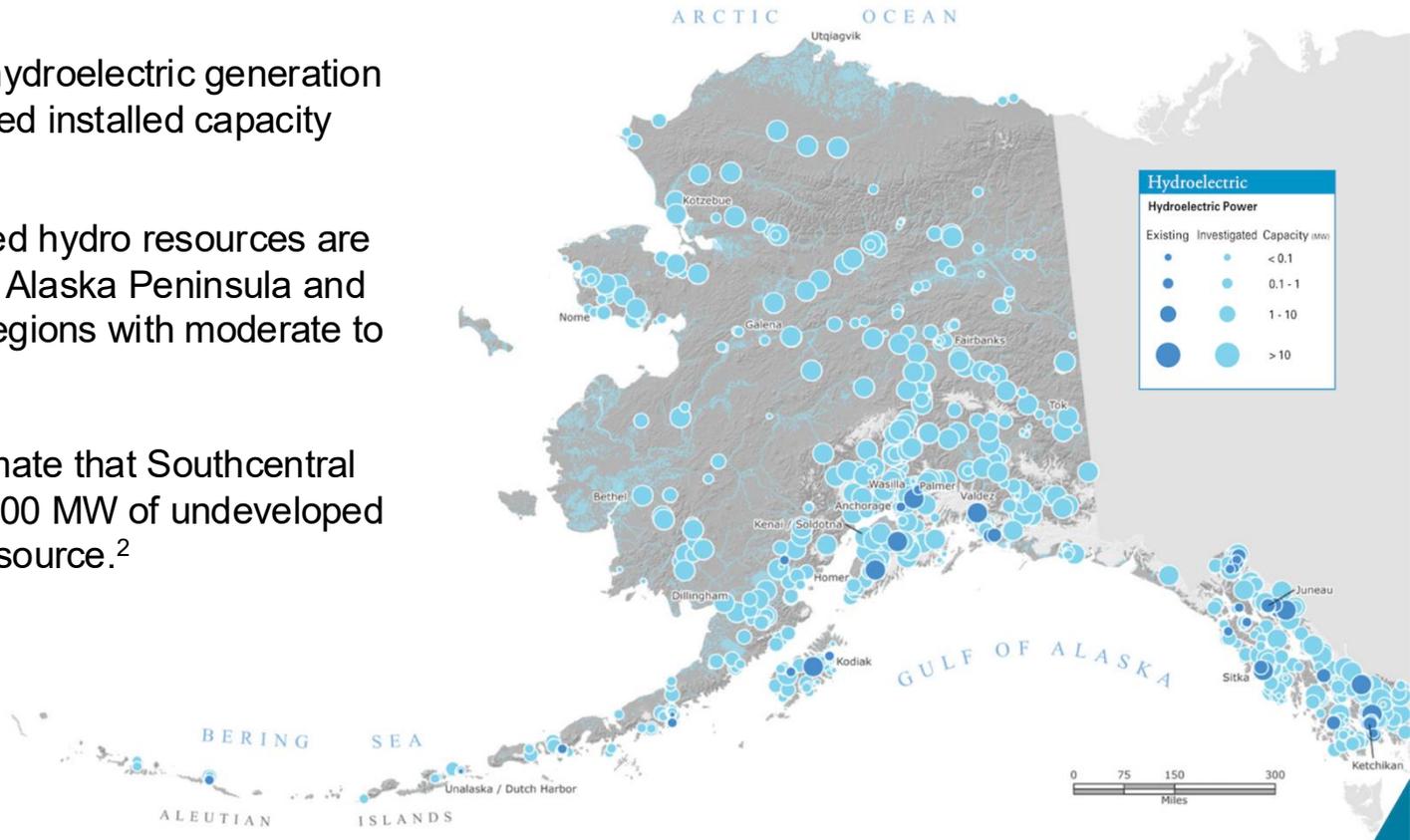
(1) The Alaska Center for Energy and Power's "2024 Alaska Electricity Trends Report."

Alaska's Hydroelectric Resource

Alaska is home to over 50 hydroelectric generation facilities with a total combined installed capacity exceeding 480 MW.¹

Most of the state's developed hydro resources are located in Southcentral, the Alaska Peninsula and Southeast – mountainous regions with moderate to high precipitation.

Alaska energy experts estimate that Southcentral Alaska has approximately 100 MW of undeveloped small-scale hydroelectric resource.²

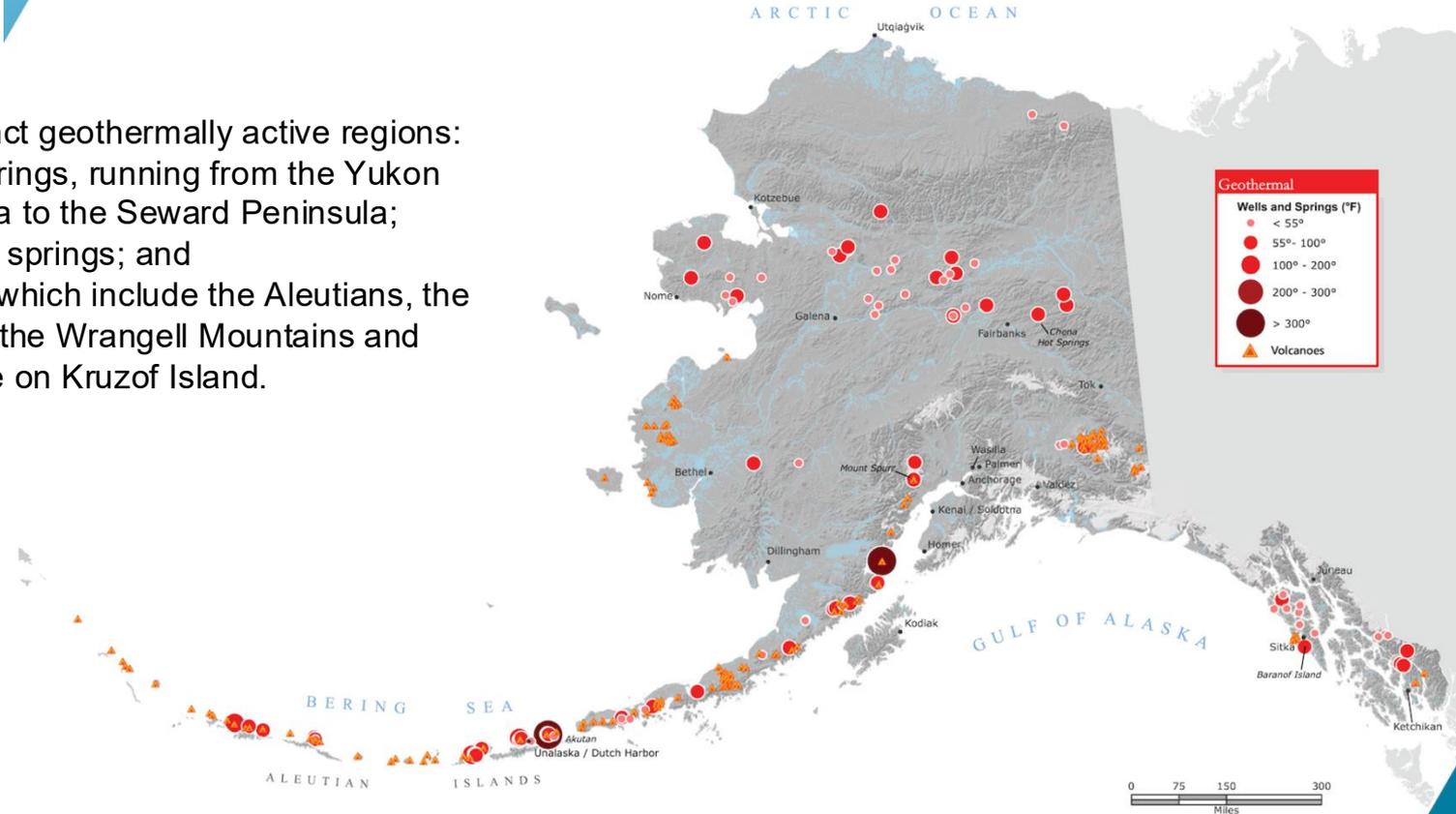


(1) The Alaska Center for Energy and Power's "2024 Alaska Electricity Trends Report."

(2) "Small Hydropower in Southcentral Alaska," Joel Groves, P.E., presented to the Governor's Energy Security Task Force Symposium August 2023.

Alaska's Geothermal Resource

- Alaska has three distinct geothermally active regions:
- The Interior hot springs, running from the Yukon Territory of Canada to the Seward Peninsula;
 - The Southeast hot springs; and
 - The “Ring of Fire” which include the Aleutians, the Alaska Peninsula, the Wrangell Mountains and Mount Edgecumbe on Kruzof Island.



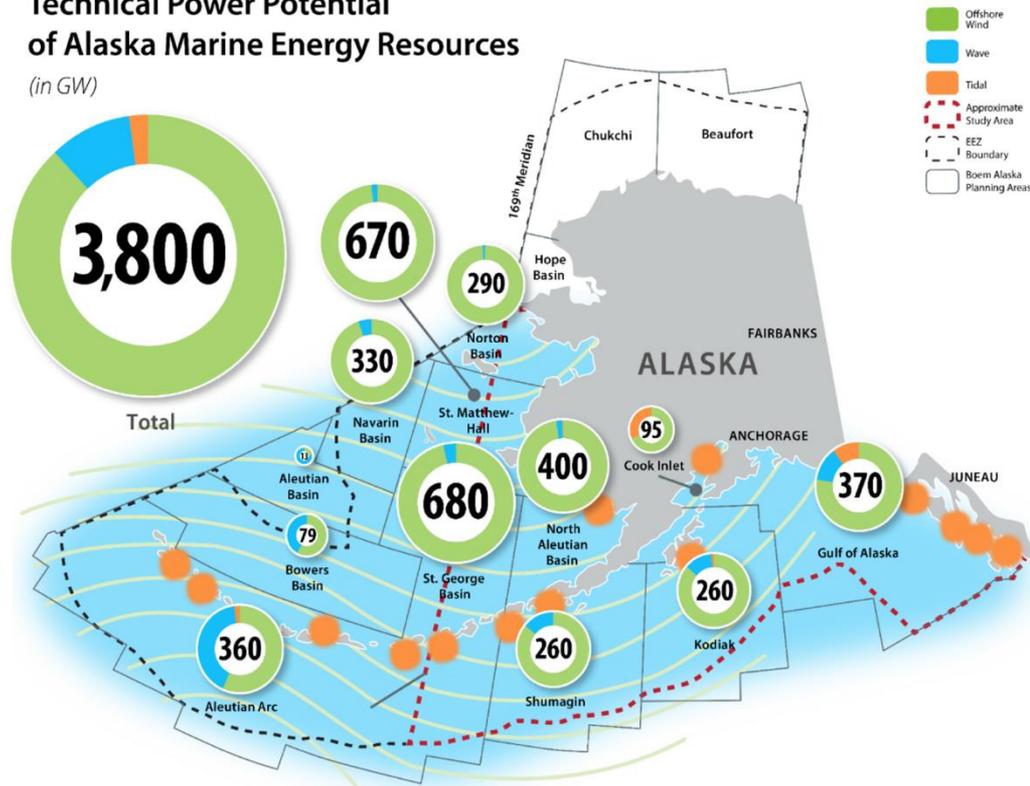
Alaska's Marine Energy Resources

The estimated 3,800 gigawatts (GW) of potential wind, wave, and tidal energy resource capacity in Alaska's coastal waters is more than three times the United States' total generation capacity in 2022.¹

The highest-quality resources are the offshore wind and tidal resources closest to the Alaska Railbelt grid with the highest energy density.¹

Technical Power Potential of Alaska Marine Energy Resources

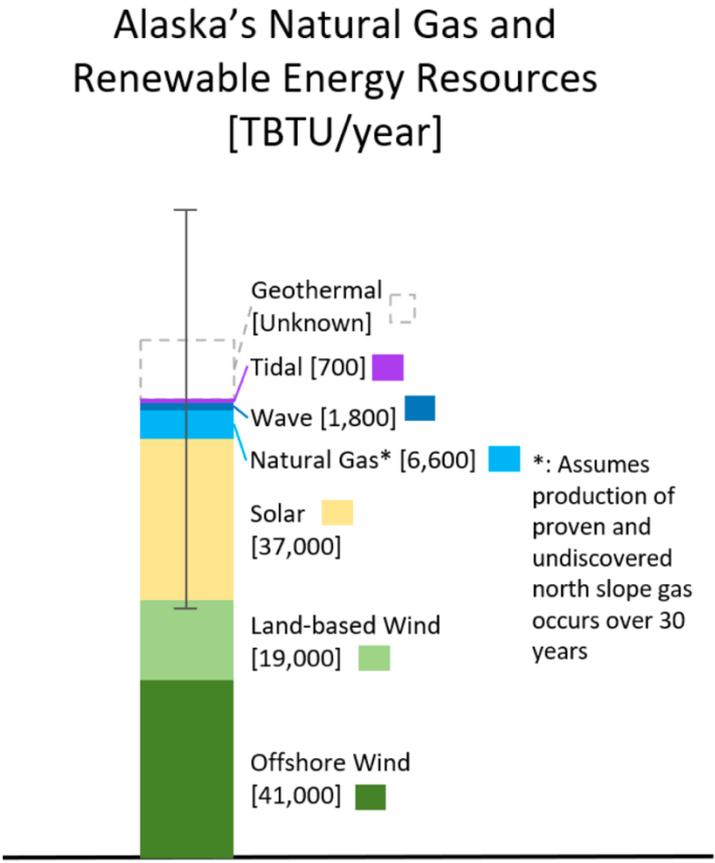
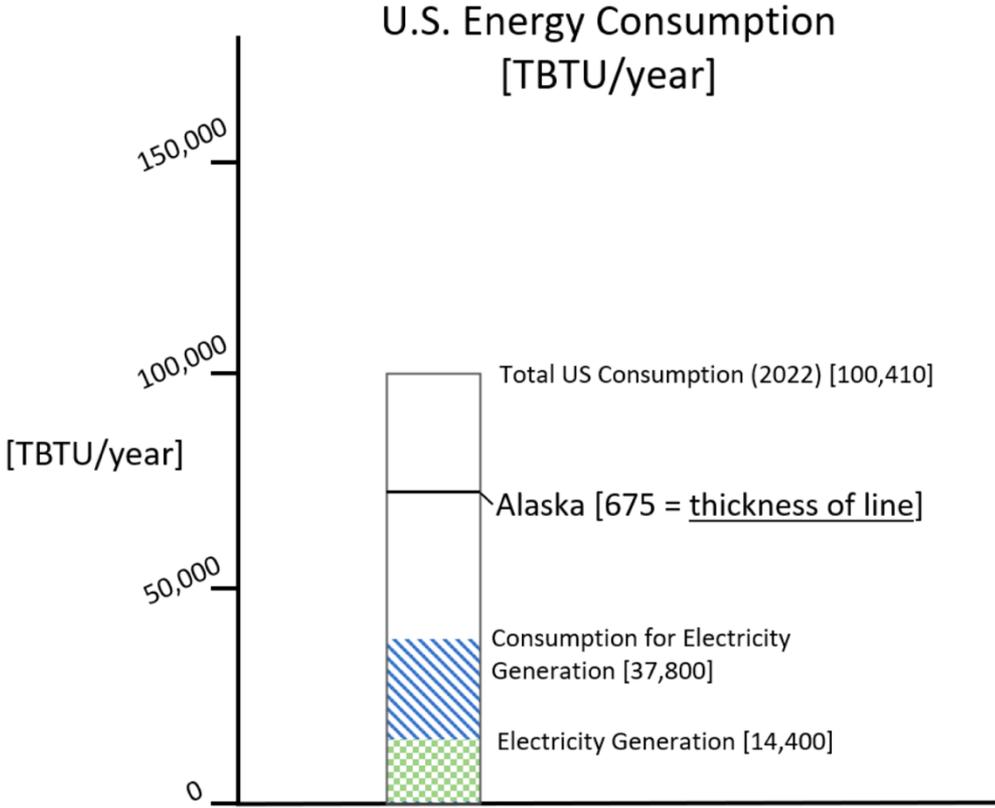
(in GW)



Data from Doubrava et al. (2017) and Kilcher et al. (2021). Illustration by NREL.

(1) "Feasibility Study for Renewable Energy Technologies in Alaska Offshore Waters," Bureau of Ocean Energy Management, published December 2023.

Alaska Has Vast Untapped Renewable Energy Potential

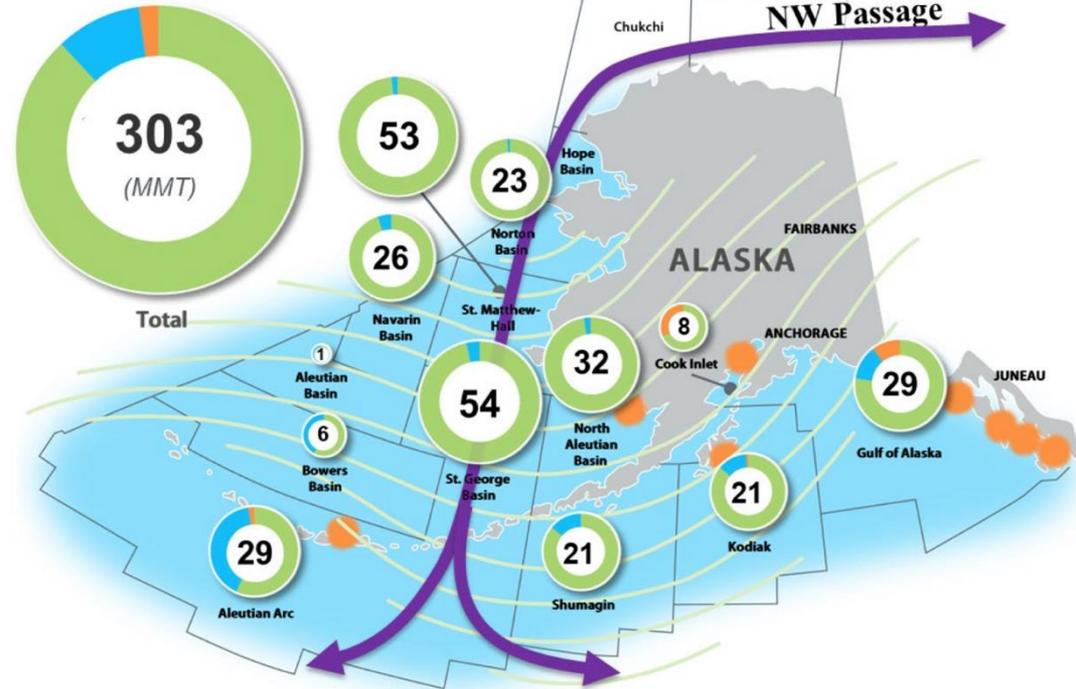


One Potential Market: Marine Energy Hydrogen Production

Hydrogen at an affordable cost could unlock the decarbonization potential to many economic sectors, including chemical, petrochemical, iron and steel, power storage, transportation, and others.¹

Alaska is uniquely positioned to produce clean hydrogen, with maximum total production potential from offshore wind, wave, and tidal energy of ~303 MMT per year.¹

Maximum Technical Hydrogen Production Potential from Alaska Marine Energy Resources (MMT/year)



Source: "Feasibility Study for Renewable Energy Technologies in Alaska Offshore Waters," Bureau of Ocean Energy Management. Illustration by NREL

(1) "Feasibility Study for Renewable Energy Technologies in Alaska Offshore Waters," Bureau of Ocean Energy Management, published December 2023.

Abundant Opportunities

Stabilize energy prices through vast renewable resources

Value-added processing

“Green” hydrogen

Export microgrid expertise

Become the most energy efficient economy anywhere



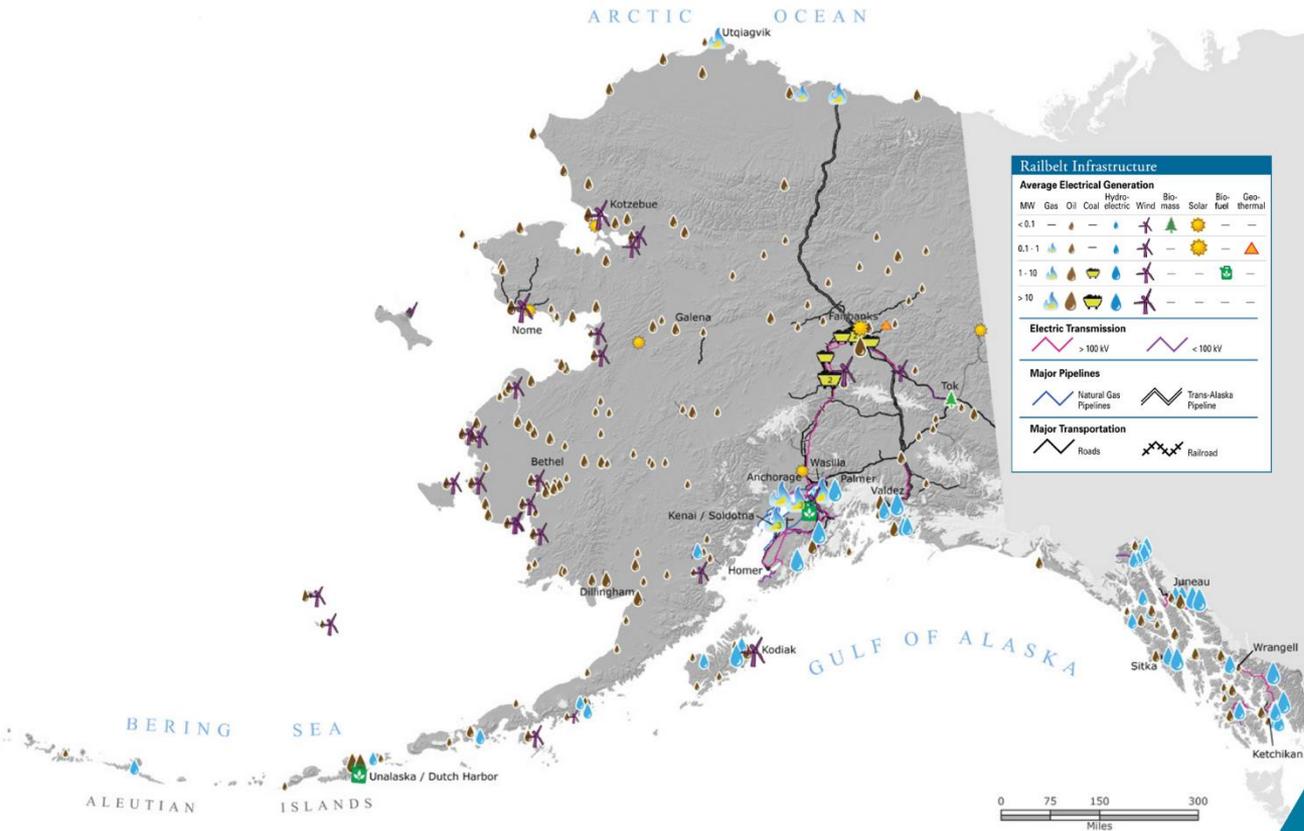
Photo By Science In Hd On Unsplash

Domestic Energy Policy is Required to Realize Alaska's Potential

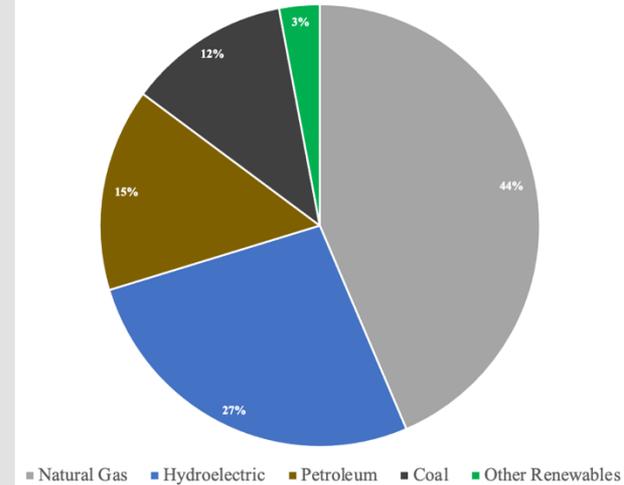


Photo Credit: Joe McCabe / JMM Photography

Alaska's Energy Overview



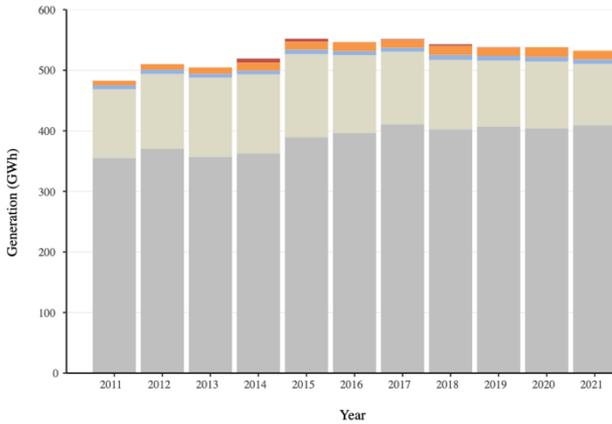
2024 Alaska Total Electricity Net Generation



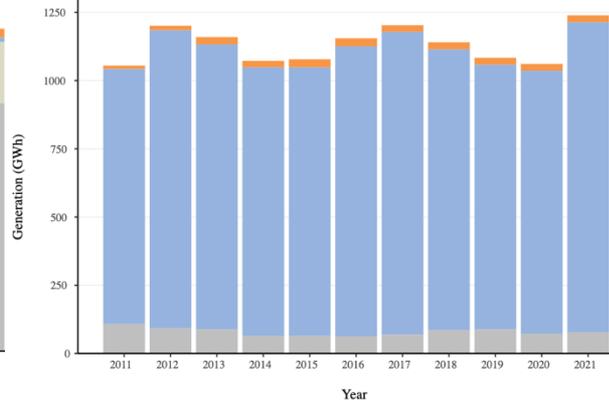
Source: U.S. Energy Information Administration

Trends in Generation by Fuel Type for each Region

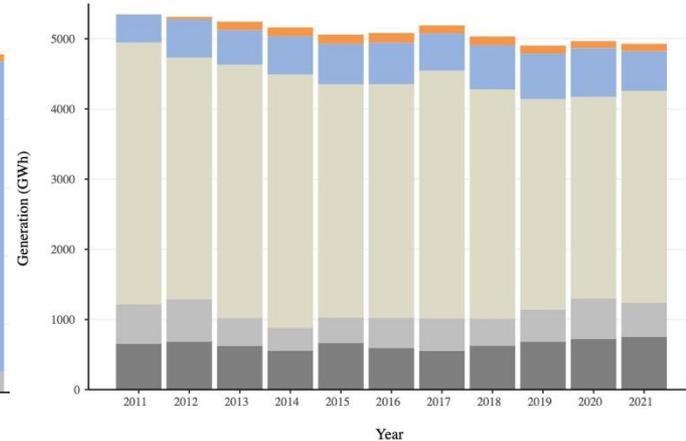
Rural Remote



Coastal Region



Railbelt



■ Coal ■ Oil ■ Gas ■ Hydro ■ Wind ■ Solar ■ Other

Source: The Alaska Center for Energy and Power's "2024 Alaska Electricity Trends Report"

Energy Costs, by the Numbers

Average Residential electricity rates range from ~\$0.17/kWh in coastal communities with hydro to close to \$1/kWh in some rural remote communities.

Rural: Nearly 80% diesel generation¹

- 200+ rural microgrids
- Without PCE, electricity prices would be double or triple Railbelt rates

Average monthly electric bill in Alaska is \$142.²

Average Rural regional heating oil costs ranged from \$4.80 to \$8.00 this summer.³



(1) The Alaska Center for Energy and Power's "2024 Alaska Electricity Trends Report."

(2) "Electricity Rates in Alaska," Find Energy, accessed September 2025 at <https://findenergy.com/ak/>.

(3) "Alaska Fuel Price Report: Summer 2025." The May 2025 national average price of heating fuel was \$3.44 per gallon.

Alaskans Face Significant Energy Challenges

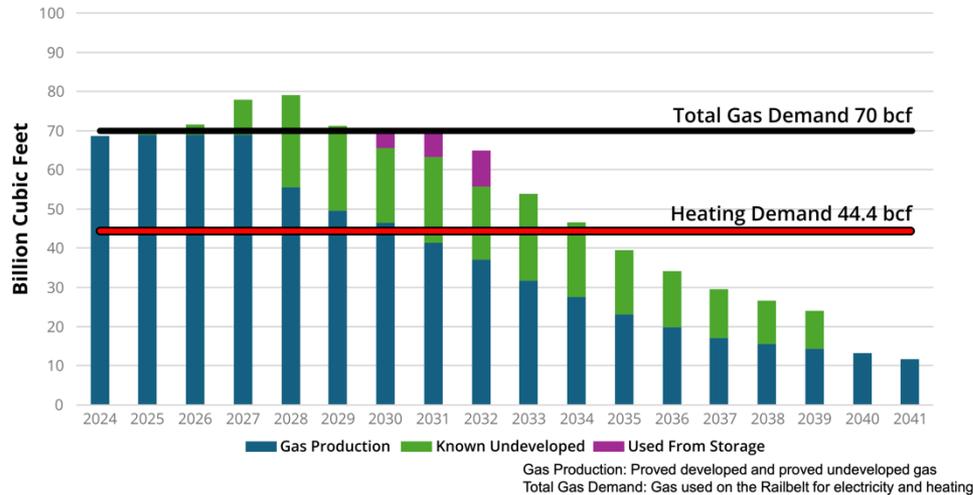


Pillar Mountain Wind Farm in Kodiak, Alaska (Photo by naql, CC BY 2.0)

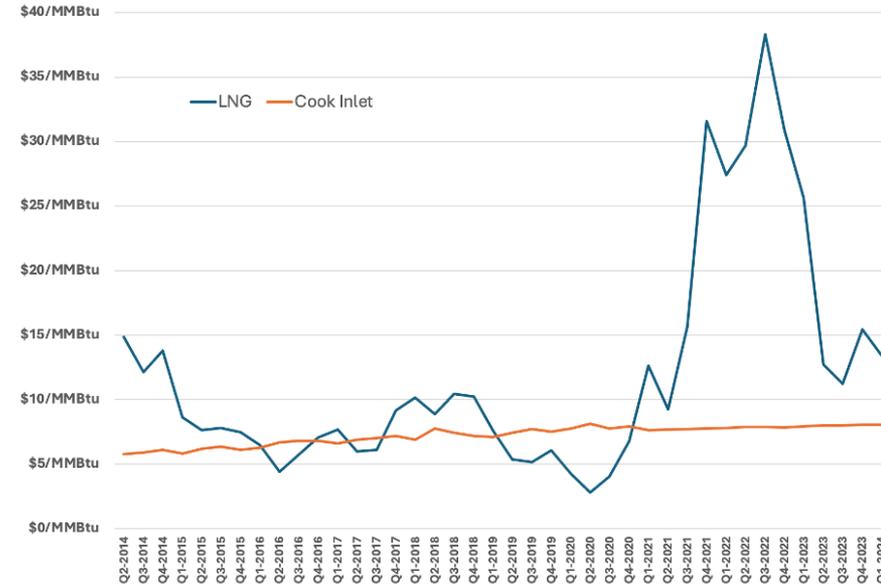
- Small markets
- Development timelines
- Workforce shortages
- Tariffs and other cost uncertainty
- Unpredictable investment environment
- Impending natural gas supply shortfall

Future Natural Gas Supplies are Uncertain and Likely Volatile

Cook Inlet Gas Production



Historic Quarterly Natural Gas Prices Cook Inlet vs Japan spot, 2014-2024



Japan Spot Prices Source: Japan Organization for Metals and Energy Security (JOGMEC)

Cook Inlet Gas Prices Source: Alaska Department of Revenue – Tax Division

Source: Alaska Department of Natural Resources, Division of Oil & Gas

Clean Energy is Risk Management

- Reduced Exposure to Fossil Fuel Price Volatility
- Energy Security
- Business Competitiveness
- Climate Change & Human Health



Meeting Whole Community Energy Need Presents Opportunity

Innovation in applying clean energy
technologies in the long run...

- Keeps local dollars in communities
- Stabilizes energy costs
- Reduces environmental risk



Energy Efficiency: The “First Fuel”



Alaskans will spend an estimated **\$6 BILLION** on diesel fuel, natural gas and gasoline for our electricity, heat and transportation in the next year – *and at least 20% will be wasted.*¹

Photo Credit: Vintage Everyday

(1) U.S. Energy Information Administration Alaska State Energy Profile.

Quinhagak, Alaska



COLD CLIMATE
HOUSING RESEARCH CENTER



Average house: 1,000 gallons heating oil/yr
CCHRC Prototype: 180 gallons/yr

Alaska's Energy Efficiency Opportunities

Green Bank and On-Bill Financing for Building Improvements

- Offer low interest rates and longer terms of repayment
- Allow consumers to use energy savings to repay loans
- Reduce the amount of fuel we import
- Keep precious energy dollars circulating in Alaska's economy



What Clean Energy Can do for Alaska

Reduce

- Reduce fossil fuel use and imports

Decrease

- Decrease GHG emissions

Stabilize

- Stabilize energy prices

Attract

- Attract investment

Diversify

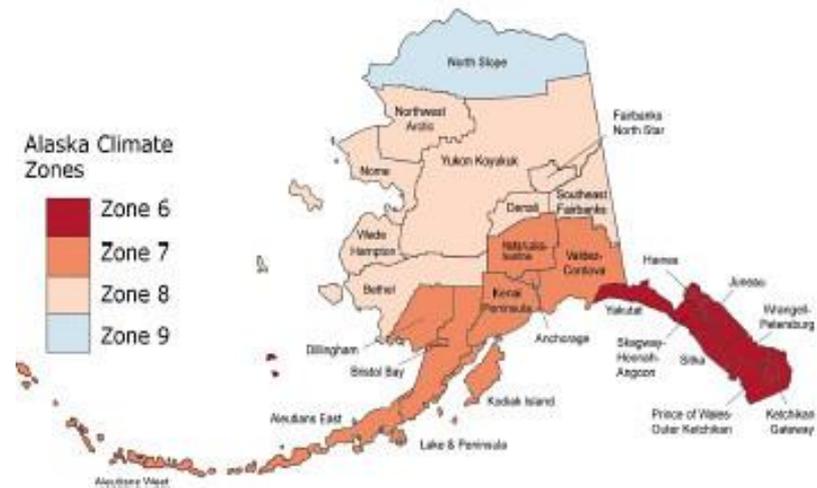
- Diversify our economy and create jobs



Photo Credit: Dreamstime/TNS



Renewable Energy
Alaska Project



Renewable Energy
Alaska Project

Thank You!

For more information or further questions:

Cady Lister, Executive Director

clister@realaska.org

AlaskaRenewableEnergy.org



REAP's Advocacy Track Record

- 2008:** Renewable Energy Fund (\$316 million total)
- 2008-15:** \$640 million to AHFC for home weatherization
- 2010:** Emerging Energy Technology Fund
House Bill 306 (State Energy “Policy”)
- 2016:** SB 196 (PCE Endowment)
- 2017:** Property Assessed Clean Energy (C-PACE)
- 2020:** Railbelt Grid Reform (SB 123 creates RRC)
- 2021-24:** Green Bank
- 2022-24:** Renewable Portfolio Standard (RPS)
- 2024:** Railbelt Transmission Reform
- 2025:** Annual Net Metering