Written Testimony of Philip A. Wight
Associate Professor of History and Arctic & Northern Studies
University of Alaska Fairbanks
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Hearing on "Unleashing Alaska's Extraordinary Resource Potential"

Thank you, Chairman Gosar and Ranking Member Dexter, for the opportunity to testify on this timely subject. I am an energy and environmental historian at the University of Alaska Fairbanks, with a focus on infrastructure, electrification, and mobility. The University of Alaska Fairbanks is America's Arctic University and a world-class research institution. My testimony today reflects the results of my professional research and my personal observations. I do not speak on behalf of the University of Alaska. I am speaking today in my personal capacity as an Alaskan.

Alaska's Conundrum

Alaska is often misunderstood. While Alaska makes the United States an Arctic nation, the nation does not understand Alaska's significant Arctic energy and environmental challenges.

We are an energy state, but Alaskans pay some of the highest energy prices in the U.S. Many Alaskans pay more than 10 percent of their annual incomes on energy—more than triple the average American. While we have been a top U.S. oil producer and have built world-famous energy infrastructures like the Trans-Alaska Pipeline System, we do not receive a hometown discount when purchasing gasoline or heating oil. We are an oil state, but we have a strong social consensus on reducing the use of expensive oil for heat and power.

Alaska has extraordinary resource potential, and we have extraordinary energy needs. We have the highest per-capita energy consumption in the nation due to our Arctic environment and transportation needs.[1] Fortunately we also have world-class resources. Beyond well-known fossil fuel reserves of the North Slope, Alaska has more hydropower potential than any other state. We have more offshore wind power potential than the rest of the U.S. combined.[2] We have the second highest tidal power resource in the world, with Cook Inlet alone constituting one-third of the US tidal potential.[3] Geothermal power could meet the state's energy needs many times over. While we have cold, dark winters, Fairbanks receives the same amount of solar radiation over the course of the year as New York City or Cleveland.

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[1] "Alaska: State Profile and Energy Estimates", U.S. Energy Information Agency, May 15th, 2025.
[2] Paula Doubrawa, et al. "Offshore Wind Energy Resource Assessment for Alaska", National Renewable Energy Laboratory, 2017.
[3] Marty Schwartz, et al. "Evaluating the Impact of Tidal Energy in the Cook Inlet on Alaska's Railbelt Electrical Grid", National Renewable Energy Laboratory, April 2024.

Alaska's resources are typically found in locations hundreds or thousands of miles from our population centers, power grids, and ports. Transportation has long been the key to Alaskan resource development, but this infrastructure can also brings hunting pressures into rural villages, industrial pollution, and unwanted development by local populations. Access, and lack of access, define Alaska.

What works in some communities does not work in others. We have communities in southeast Alaska that get more than 12 feet of rain per year and rely on 100 percent hydropower, and other communities in the Arctic are technically polar deserts and rely on subterranean methane gas fields.[4] Our communities need the freedom to choose from a wide variety of energy sources to best meet their local challenges.

This administration's approach to developing Alaska's vast resources risks hurting the state and its residents. The push for unrestricted development on federal lands undercuts a public process that Alaskans want, even taking away subsistence protections for Indigenous communities, and undermining trust that Alaska can develop in a way that actually benefits the state.

Alaskans are pro-development and we are pro-environment. We do not accept any development at any cost. The question is what kind of development and how will this development enhance the wellbeing of Alaskans. We support sustainable development that delivers long-term value to Alaskans. Alaskans oppose "uneconomic development." This is development that causes more harm and brings more costs to Alaskans than we receive in benefits. Alaska Republican Governor Jay Hammond offered a three-part test for development projects: Do Alaskans want it? Does it pay its own way? Is it environmentally sound?[5]

Development of Alaska's oil resources have contributed hundreds of billions of dollars in wealth to the State, but also caused the *Exxon Valdez* oil spill—the worst environmental disaster in Alaska's history. We have learned the hard way that we must be vigilant in protecting precious natural resources and not allow poorly regulated development.

Alaskans are pragmatic, independent-minded, free people. We deploy technologies that work in our challenging environments, regardless of politics. For decades, Alaskans have demonstrated that it is cheaper and easier to have a battery and solar panel powering off-grid cabins than endlessly hauling in diesel fuel for a generator. We are an "all of the above" energy state due to necessity and frontier pragmatism.

Our energy systems are not made up of just one resource. Hybridity defines Alaska. We have long relied on a diversity of resources to meet local needs. Hydropower, wind, solar and battery energy storage systems have strengthened power grids that have historically utilized biomass,

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[4] Ketchikan receives more than 12 feet of rain each year. Utqgiagvik resides on the North Slope of Alaska, which receives less than 10 inches per year, and has access to local methane gas reserves.

[5] Jay Hammond, "Diapering the Devil: How Alaska Helped Staunch Befouling by Mismanaged Oil Wealth: A Lesson for Other Rich Nations," in Todd Moss, ed. *The Governors Solution: How Alaska's Oil Dividend Could work for Iraq and Other Rich Countries* (Washington D.C.: Center for Global Development, 2012), 20.

diesel, methane gas, or coal-fired generation. The integration of non-fuel sources has lowered costs, improved reliability, and accelerated deployment. Alaska's power grids are a team sport.[6]

While we are a famously large state (larger than California, Texas and Montana combined), we have always had a small population and small market. Many Alaskans have a megaproject mentality, but the Trans-Alaska Pipeline System notwithstanding, historically the most effective projects for meeting our energy needs have been small and medium projects which have been appropriately sized for our population and economy.

While we have been a resource territory for centuries (fur, fish, gold, timber oil), this resource wealth has too often benefited outside corporations and has not contributed to the long-term health and welfare of the people of Alaska.[7]

Alaska's History

Alaska's history has been defined by two key challenges: keeping our fair share of the wealth produced in the state and adapting to a dynamic Arctic environment.

Alaska's landscape is dotted with ghost towns from past resource rushes— fur, gold, salmon, copper, and oil. This dynamic became known as the "Kennecott syndrome," after the copper development which extracted $2 billion of high-grade ore — but paid zero taxes and left behind little more than an abandoned railroad and toxic tailings. Stopping the "Kennecott syndrome" became the rallying cry for Alaska's statehood movement.[8]

Looking back at the state's history shows the importance of getting these questions right. This year marks the 70th Anniversary of the Alaska constitutional convention. In the winter of 1955-1956, fifty-five Alaskans "with a sense of both history and destiny" came together at the University of Alaska to craft a charter for the new state. Perhaps the most respected speaker was Alaska's sole territorial delegate to the U.S. Congress, Bob Bartlett. A fierce proponent of Alaskan statehood, Bartlett focused on what he viewed as the most important question before the Convention—how the new state would manage its resources.

"The story of Alaska natural resources," Bartlett told the convention, "has too often been one of exploitation, with very little of the great wealth extracted going to pay for necessary governmental services and for the permanent development of a sound economy for the people."

Bartlett offered a clear solution for the constitutional framers: "The taking of Alaska's mineral resources without leaving some reasonable return for the support of Alaska governmental

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[6] Gwen Holdmann, "At the Crossroads of Technology, Policy, and Society: Energy Transitions in Rural Alaska", Ph.D. Dissertation, University of Alaska Fairbanks, 2025.
[7] Steve Haycox, *Alaska: An American Colony* (Seattle WA: University of Washington Press, 2020).
[8] Terrence Cole, "Blinded by Riches: The Permanent Funding Problem and the Prudhoe Bay Effect", Institute for Social and Economic Research, University of Alaska Anchorage, January 2004, 41.

services and the use of all the people of Alaska will mean a betrayal in the administration of the people's wealth."

Alaskans, Bartlett told the convention, "want and demand effective safeguards against "persons and corporations whose only aim is to skim the gravy and get out, leaving nothing that is permanent to the new state except, perhaps, a few scars in the earth which can never be healed."[9]

Alaska's constitutional framers sought to ensure Alaska's constitution and the new political project of the state protected the state against this exploitation. Minerals like oil and gas could be leased, but not sold outright, to private entities. This provided the state and its residents with a permanent equity interest in the development of all minerals.

The Constitution clarified that the policy of the State was to "encourage the settlement of its land and the development of its resources by making them available for maximum use consistent with the public interest."[10] This natural resources article, unique among state constitutions, mandated that resources be developed on the basis of sustained yield and multiple use for the public's maximum benefit.[11]

The political project of the state of Alaska focused squarely on ensuring that outside actors could not extract wealth without supporting the governmental services required for healthy permanent communities. This is a challenge that Alaska continues to face today, as developments like Willow provide precious little long-term value to the state treasury.[12]

The second key resource challenge Alaska faced was how to design for the dynamic Arctic environment. Ignorance of permafrost cost the U.S. military of millions of dollars during World War II.[13] The threat the Soviet Union during the Cold War encouraged the largest investment in the physical sciences and provided the military and civilian agencies with the knowledge and tools to adapt to an Arctic environment.[14] Alaska's environmental challenges helped the United States pioneer the use of environmental impact assessments to avoid unnecessary harm.[15]

For example, the proposed Trans-Alaska Pipeline System (TAPS) underscored the dangers of engineering that is ignorant of Arctic geophysical conditions and the indispensability of well-supervised permitting. Incredibly, TAPS owners proposed to *bury* nearly the entire 800-mile pipeline. That is, bury in permafrost a pipeline carrying hot oil. The U.S. Geological Survey

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[9] Bob Barlett, "Meeting the Challenge", Speech Delivered to Delegates of the Alaska Constitutional Convention, November 8th, 1955, University of Alaska.
[10] State of Alaska Constitution, Article 8.
[11] Gordon S. Harrison, *A Citizen's Guide to The Constitution of the State of Alaska* (Anchorage: ISER, 1982), 67. Robert Weeden, "Environmental Issues", in Thomas Morehouse, *Alaska Resources Development*, 140.
[12] James Brooks, "New Estime Projects 50% less Alaska State Revenue from Proposed Willow Oil Project", *Alaska Beacon*, September 11th, 2025.
[13] "US conducts Wide Uranium Hunt in Alaska", *Chicago Daily Tribune*, December 19th, 1946.
[14] Naomi Oreskes and John Krige, eds. *Science and Technology in the Global Cold War* (Cambridge MA: MIT Press, 2014), 19, 145.
[15] Dan O'Neill, *The Firecracker Boys: H-Bombs, Inupiat Eskimos, and the Roots of the Environmental Movement* (Boston MA: Basic Books, 2007).

warned such an approach would be disastrous, as it would thaw the permafrost and lead to catastrophic oil spills.[16] The U.S. Department of the Interior, headed by former Alaska Republican Governor Wally Hickel, refused to issue a permit because the oil consortium had consistently failed to demonstrate adequate knowledge of Arctic engineering. Ultimately, Native land claims and environmental lawsuits stalled the project and forced TAPS owner companies to reengineer the pipeline to lessen the disturbance of the permafrost.

Oil company executives admitted that the delay of the pipeline construction by lawsuits proved an enormous benefit for the project. "We at Exxon recognize that the Trans-Alaska Pipeline that went into operation in 1977 is a stronger, safer pipeline than that originally proposed in 1969," Exxon CEO Cliff Garvin reflected. "And we have learned a great deal about environmental safeguards in that time."[17] The eventual well-planned engineering of the terrestrial Trans-Alaska Pipeline demonstrated that, with proper process and environmental knowledge, Alaska's resources could be developed profitably while minimizing local environmental disturbance.

Alaska's Challenge

Alaskans have the second highest energy costs in the nation, with individual communities having some of the most extreme energy burdens in the entire country. Energy burden is defined as the percent of annual income spent on energy costs. Alaska leads the nation in the number of census tracts with high (6-10 percent of income spent on energy bills) or severe (>10 percent) energy burdens.[18] Residents of Fairbanks and the surrounding area spent 300 percent or more of their incomes on energy than the national average. Alaska's energy burden has been rising over time, with energy prices nearly doubling.[19]

Alaska does not have a centralized power grid or gas transmission system which interconnects Alaska's urban and hub communities. While the Railbelt connects the majority of the state's residents in Anchorage, the Matanuska-Susitna Valley and Fairbanks and is the single largest energy system in Alaska, it is a relatively weak grid that has few redundant transmission lines. The Railbelt Grid cannot move more than 75 megawatts between regions.

The Railbelt has historically relied on gas-fired power and heating (except for Fairbanks). However, Cook Inlet gas resources are dwindling and Hilcorp told utilities in 2022 it might not be able to renew existing contracts by 2027.[20]

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[16] Arthur H . Lachenbruch, "Some Estimates of the Thermal Effects of a Heated Pipeline in Permafrost", U.S. Geological Survey Circular 632, U.S. Department of the Interior, 1970.
[17] Joseph Pratt, Exxon: *Transforming Energy*, 1973-2005 (Austin TX: Briscoe Center for American History), 95.
[18] Ben Boettger, et al. "Energy Burden in Alaska: Understanding energy burden for communities and charting a path forward", University of Washington Center for Environmental Health Equity, May, 2025.
[19] Jesse Kaczmarski, et al. "Spatial Energy Burden Analysis of the Fairbanks North Star Borough", Alaska Center for Energy and Power, University of Alaska Fairbanks, June 28th, 2024.
[20] Alex DeMarban, "Hilcorp Warns Alaska Utilities About Uncertain Cook Inlet Natural Gas Supplies", *Anchorage Daily News*, May 17th, 2022.

Alaska has over 200 remote communities, most with their own disconnected microgrids. These communities must have diesel fuel brought in at tremendous expense—often at a cost of more than $10 per gallon for consumers. Many of these communities require diesel to be flown in on 1950s-era aircraft to keep the lights and heat on. The average cost of electricity across rural Alaska villages is 47 cents per kilowatt hour (kwh) and ranges from 37 cents to $1.50 per kwh.[21]

Alaska has aging and expensive coal power plants. The thermal plants in downtown Fairbanks, Fort Wainwright, and Eielson are all 70-75 years old and at the end of their economic lives. The Fort Wainwright and Eielson coal plants are some of the oldest and most expensive coal plants in the United States. The cost of power at Eielson Air Force Base outside of Fairbanks is .50 per kilowatt hour—three times the national average.[22]

Federal spending has long been essential for Alaska's power development, but such crucial programs are now in limbo. The federal government has recently committed to historic investments for Alaska's energy development. However, much of this progress is in jeopardy. Recent legislation and executive actions threaten to deprive Alaskans of much-needed energy infrastructure and resources. Projects are being delayed and cancelled; companies are going out of business; Alaskans are being denied their energy freedom.[23]

The Solar for All program specifically aimed to help roadless and energy-burdened communities build the infrastructure needed to reduce diesel consumption and foster greater energy independence. Data shows that terminating the Solar for All program would reverse historic progress in energy independence, drive up utility bills, and strip essential savings from communities already burdened by some of the highest energy costs in the country.[24]

Many of Alaska's biggest industrial users, namely our mines, are hungry for cleaner and less expensive electricity.[25] Terminating these programs undermines industrial development.

Alaska's history demonstrates the indispensability of Arctic science and research, but we are witnessing the systemic dismantling of our scientific infrastructure. The Arctic Research Consortium of the United States will close its doors at the end of September.[26] National Science Foundation funding is being withdrawn from crucial Arctic science projects. Alaska's experience

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[21] "Power Cost Equalization Program: FY 2022 Statistical Report", *Alaska Energy Authority*, March 1st, 2023.
[22] Jack Barnwell, "Closed Schools' Utility Costs Come with Sticker Shock", Fairbanks Daily News Miner, February 13th, 2025.
[23] Alex DeMarban, "Developers Put Brakes on Multiple Solar Energy Projects in Southcentral Alaska, Citing Costs and Federal Politics", *Anchorage Daily News*, February 18th, 2025. Alex DeMarban, "EPA Axes Program That Would Have Injected $125 million in Alaska for Small-Scale Solar Projects," *Anchorage Daily News*, August 24th, 2025.
[24] Greg Herrigel, "Alaskan Households to Benefit from 'Solar for All", *The Business Download*, March 14th 2025.
[25] Max Graham, "Juneau's Push to Expand renewable Power Could Boost the Region's Mines—Or Cost Them", *Northern Journal*, February 19th, 2025. Max Graham, "A Key Player in Moving Interior Alaska Off Fossil Fuels? Multibillion-Dollar Mining Corporations", April 29th, 2025.
[26] Jack Barnwell, "Major Arctic Research Nonprofit To Shut Down After Funding Loss," *Fairbanks Daily News-Miner*, September 8th, 2025.

testifies to the fact that prudent resource development requires sound scientific data, professional staff, clear legal and regulatory process and stakeholder input.

We are facing a rapidly changing natural environment. Alaska's Arctic is warming four times faster than the rest of the planet and Alaska as a whole is warming twice as fast as the lower 48 states.[27] Our utilities and their ratepayers are facing rising costs from winter rain events (even in Arctic environments like Fairbanks), thawing permafrost, and intensifying wildfires. These challenging environmental dynamics directly threaten some of the state's most important energy infrastructure. An independent study published in the Proceedings of the National Academy of Sciences estimated that, as a result of climate change, the state will have to spend billions more on maintaining and repairing public infrastructure by the end of the century.[28] The Dalton Highway, Alaska's 415-mile Arctic highway, has frequently been closed due to flooding events.[29] Thawing permafrost in Alaska's Brooks Range is causing the side of a mountain to slump towards the Dalton Highway and Trans-Alaska Pipeline System. The highway has already been rerouted once. It is unclear how to stop the mountain's inexorable slide.[30]

Evidence demonstrates that Alaska is not getting a fair share of our resource wealth.[31] Our schools are closing, our public workers are underpaid, and our families are leaving the state.[32] The state is not retaining the resources to support the growing number of climate migrants and communities facing environmental hazards.[33] We have policies which favor the quick accumulation of wealth by outsiders but do not leave enough for Alaskan communities. We are struggling to sustain public services and a vibrant permanent population.

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[27] John Holdren, "The Science of Rapid Climate Change in Alaska and the Arctic: Sea Ice, Land Ice, and Sea Level," Belfer Center for Science and International Affairs, Harvard University, August 16th, 2023.
[28] Lois Parshley, "Don't Look Down: As Permafrost Thaws, the Ground Beneath the Arctic is Collapsing," *Grist*, April 20th, 2022.
[29] James Brooks, "Flooding Washes Out Dalton Highway, Main Overland Link with Prudhoe Bay Oil Fields," *Alaska Beacon*, June 16th, 2025.
[30] "Frozen Debris Lobes: Looming Over Alaska's Most Environmentally Important Highway," University of Alaska Fairbanks Institute for Northern Engineering. Accessed September 14th, 2025.
[31] Joe Paskvan, "Yes, Alaska Gets $0 But It's Worth Than That." *Fairbanks Daily News-Miner*, Jan. 13th, 2023.
[32] For outmigration, see Yereth Rosen, "With Alaska Outmigration Continuing, Community Members Contemplate Responses," *Alaska Beacon*, September 9th, 2024. For underpayment, see Eric Stone, "Salary Study Shows Large Segment of Alaska State Workforce Is Underpaid," *Alaska Public Media,* April 14th, 2025.
[33] Emily Schwing and Ash Adams, "Forced to Relocate By Climate Change, Alaskan Villagers Found a New Crisis", *The Washington Post*, May 29th, 2025. Jess Zhang and Meghan Gannon, "How Climate Change Is Escalating a Housing Crisis in Alaska's Native Villages", KYUK, May 7th, 2025.

Alaska's Opportunity

Advocates of Alaska's sustainable development have said that Alaska was "the last chance to do it right the first time."[34] Thanks to the wise decisions of our forefathers, we have vibrant renewable resources and the opportunity to prudently extract mineral resources.

Alaska invested in and revived our salmon fisheries in the 1970s. We invested in agricultural programs in the 1980s and are doing so again today.[35] We invested our oil wealth in low-cost hydropower and transmission lines in the 1980s and 1990s. Alaska's investment in hydro and transmission between 1980-1991 has saved the equivalent of 2 billion gallons of diesel since 1991 and saves an additional 65 million gallons *every single year*.[36]

Alaska has the opportunity to develop our resources in an environmentally-sound manner that can adapt to the changing natural world. We have more wind power potential than the rest of the United States. We have more tidal power opportunities. Fairbanks receives the same amount of solar radiation over the course of the year as New York City.

The federal government is a key partner in these efforts. Over the past five years, the federal government has awarded over a billion dollars for energy investments throughout Alaska. This is the single largest federal investment in Alaska's electricity system. To put $1.1 billion into perspective, it's equivalent to what the federal government spent to build the Alaska Railroad between 1914 and 1923 — the very infrastructure that created the Railbelt.[37]

We have an Alaska Railroad-sized opportunity before us if Alaskans are allowed to freely develop our resources.

Congress must ensure that appropriated or obligated federal programs—from tribal energy programs, to Solar for All, to the New ERA Program, to the Low Income Housing Assistance Program—are unencumbered and accessible. Most Alaskans support energy tax credits, rebates, and other incentives that promote clean energy investment and manufacturing.[38] Alaskans need the freedom to invest in the energy resources that work for the unique needs of our diverse and remote communities.

We have the opportunity to invest in rural innovation that can liberate our rural communities from the crushing weight of diesel dependence. While rural Alaska often suffers from underinvestment and logistical challenges, these remote communities became statewide leaders in innovation and hybridity. Alaska is a world leader in integrating non-fuel resources into

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[34] Jay Turner, *The Promise of Wilderness: American Environmental Politics Since 1964* (Seattle: University of Washington Press, 2012), 141-182.
[35] Jack Barnwell, "Next Phase of Nenana Ag Project Moves Forward with 2026 Land Sale", *Fairbanks Daily News-Miner*, July 31st, 2025.
[36] Philip Wight, "Electrifying Alaska's Railbelt: A Generation and Transmission History, 1904-2024", Alaska Center for Energy and Power, February 2025.
[37] Philip Wight, "Alaska Could be Entering a Golden Age of Electricity Generation. But we Need Clear Direction from Elected Officials." *Anchorage Daily News*, February 27th, 2025.
[38] Peak Insights, "Alaskan Voters and Clean Energy", February 2025.

remote microgrids. For perhaps the first time in Alaska's history, we now have technologies which are economic and scalable to displace high-cost diesel. Our rural utilities can now achieve "diesels off" for their grids, realizing considerable fiscal savings.[39]

There is nothing "alternative" about the non-fuel technologies which study after study demonstrate are most economical to power Alaska's energy prosperity. Wind, solar, and battery storage comprised 90-95 percent of all new power generation added to the United States in 2024 and 2025.[40] Paired with existing diesel and gas generation, non-fuel sources can improve reliability, save ratepayers money, reduce air pollution and protect Alaska's world-class environment. For Alaska, wind and solar help lower energy bills and keep the lights on. Alaska needs an all-of-the-above energy policy to underwrite economic growth. Without affordable energy, we will be arbitrarily stunting our growth.

Diversified and distributed energy infrastructure is essential to Alaska's security. Russia's invasion of Ukraine demonstrates the vulnerabilities and dynamics of energy warfare in the 21st Century. Ukraine's 55 gigawatt power-grid has been reduced to less than 20 gigawatts of capacity. While large thermal and hydropower plants have been easy targets, distributed gas and wind turbines have proven far more resilient. While a single well-placed missile can cripple a centralized power plant, knocking out distributed generators would require dozens of expensive missiles. Out of 700 Ukrainian wind turbines, only 11 have been destroyed—or less than 2%. Distributed generation has proven easier to repair and more resilient.[41] Alaska can embrace the lessons of 21st Century energy warfare and upgrade our existing grid with mission-critical distributed generation.

Alaska has tackled major energy challenges, building large-scale infrastructure when it was needed to power national defense and economic growth. Those efforts succeeded when new technologies offered cheaper energy and our political leaders worked cooperatively to make it happen. Alaskan utilities and the federal government built impressive energy infrastructures for national defense and economic growth. We have learned invaluable lessons about building in an Arctic environment. Provided sufficient funding, scientific research and support, we can build appropriate infrastructures today that are a model of sustainable development and deliver long-term value to generations of Alaskans.

"Alaska is truly a gift outright," Governor Jay Hammond would often say. With prudent and sustainable development, "it is a gift that keeps giving to the generations of Alaskans who follow."

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[39] Alex DeMarban, "Large Solar Array Means 2 Northwest Alaska Villages Can Turn Off Diesel Power for Hours a Day", *Anchorage Daily News*, May 22nd, 2022.
[40] "Solar, battery storage to lead new U.S. generating capacity additions in 2025," U.S. Energy Information Agency, February 24th, 2025.
[41] Maria Varenikova, "Ukraine Sees New Virtue in Wind Power: It's Harder to Destroy", *The New York Times,* May 29th, 2023. Cosmo Sanderson, "'Standing Tall': Ukraine's Wind Turbines are Proving a Key Tactical Advantage, says Industry Chief", *Recharge*, March 11th, 2025.