ALASKA'S CHANGING ARCTIC

ENERGY ISSUES & TRENDS

Photo by Jeffrey Fisher, Alaska Center for Energy and Power

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2023

Photo by Mike DeLue, International Arctic Research Center

ALASKA IN THE ARCTIC

Issues and trends for the Alaska State Legislature and its citizens

At the national level, Alaska has three members of Congress acting on the state's behalf. They receive information and support from the Congressional Research Service. In March 2022, the Service released an updated report, Changes in the Arctic: Background and Issues for Congress. This nationally focused document outlined the biggest aspects of Arctic change likely to require federal government attention. However, the service is general and cannot provide detailed, real-time information with a sensitivity to the needs of Alaska's diverse population and suited to use by the Alaska Legislature.

Alaska, the state that makes the United States an Arctic nation and enables U.S. membership in the Arctic Council, has the ability to create and maintain policies that are state and regionally specific. Doing so can expand Alaska's Arctic role as well as address effects of environmental and developmental changes. Though there is not a routine suite of information for the Legislature in relation to Arctic issues, the Arctic Policy Act of 2015 directs the state to attend to its Arctic nature. This declaration of state Arctic policy was the result of several years of bipartisan efforts and community engagement of the Alaska Arctic Policy Commission. The AAPC was created by the Alaska Legislature in 2012, at the recommendation of the Alaska Northern Waters Task Force. Twenty six Commissioners, including 10 legislators and 16 experts from around Alaska, formed the effort.

The AAPC aimed to continue the work of the task force, creating actionable Arctic policy for Alaska and positively influencing federal Arctic policy. The AAPC completed its work in 2015 and published a final report and implementation plan for Alaska's Arctic policy, framing its recommendations into four lines of strategic effort. Later that year the Alaska Legislature passed the Arctic Policy Act (44.99.105. Declaration of State Arctic Policy).

Use the yellow circles # throughout this report to find the source for graphics and information. Associated data sources are listed on page 31.

Read the report online https://uaf-iarc.org/alaska-arctic-policy-trends

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Contents


UAF photo

Why create this report and why the University of Alaska?

This "Alaska's Changing Arctic: Energy Issues and Trends" inaugural report is designed specifically for state government and Alaska citizens. This report addresses the first of four priority lines of effort identified in Alaska's Arctic Policy, "promoting economic and resource development," through the topic of energy. While the report recognizes the policy-making power of local and tribal governments, it highlights key interactive trends in Alaska and the Arctic that are most likely to require legislative decision-making in the near future.

The authors are University of Alaska experts with local, national and international partnerships in both public and private sectors. They used scientific studies, historical and current policy analysis in combination with a close understanding of state, regional, federal and international governance to work collaboratively across the university. The shared result is a synthesis of the key trends that Alaska government needs to pay attention to as they seek success in the globalizing Arctic.

The University of Alaska is able to serve as an information resource to the state government. This report is one way to do that. It aims to:

1. efficiently contextualize for the Alaska audience state concerns in relation to Arctic economic, social and environmental trends in terms decision-makers and their staffs are able to grasp quickly and evaluate in relation to their own political choices,
2. serve as a timely resource for questions legislators, executive agencies or other government officials may have, and
3. highlight the unique opportunities of the state of Alaska to serve as a model for energy policies and practices serving cold climate and rural areas in the United States and internationally.

These goals rest on the well-understood relationship between the university and state: the report seeks to inform, not advocate for any particular outcome or for the university itself. The report design facilitates state capacity to address the Arctic Policy Act, including concerns related to climate change and geopolitics without the pressure of advocacy or recommendations.

Alaska's Arctic oil economy

A history of Alaska's reliance on oil and its boom bust impact on the state's economy. Outlooks for future oil investment.

Policy implications p. 16

Alaska's Arctic energy system

How Alaska currently produces and consumes energy. Our expertise in cold climate renewables and microgrids.

Policy implications p. 21

Climate smart infrastructure

High impact climate changes in Alaska. Planning for future energy infrastructure must consider these changes.

Policy implications p. 27

Alaska in international relations

How the U.S.'s collaborative and competitive global relationships impact Alaska's position in the Arctic energy regime.

Policy implications p. 30

Mertarvik, Alaska in fall 2022. Photo by Mike DeLue, International Arctic Research Center

SEC. 44.99.105. DECLARATION OF STATE ARCTIC POLICY

a. It is the policy of the state, as it relates to the Arctic, to

1. uphold the state's commitment to economically vibrant communities sustained by development activities consistent with the state's responsibility for a healthy environment, including efforts to
   - A) ensure that Arctic residents and communities benefit from economic and resource development activities in the region;
   - B) improve the efficiency, predictability, and stability of permitting and regulatory processes;
   - C) attract investment through the establishment of a positive investment climate and the development of strategic infrastructure;
   - D) sustain current, and develop new, approaches for responding to a changing climate, and adapt to the challenges of coastal erosion, permafrost melt, and ocean acidification;
   - E) encourage industrial and technological innovation in the private and academic sectors that focuses on emerging opportunities and challenges;
   - F) maintain a strong, sustainable fisheries industry and increase fisheries research and monitoring;
   - G) continue to prepare the residents of the state for emerging economic activities by using multiple education and training opportunities and implementing state workforce plans;

2. collaborate with all levels of government, tribes, industry, and nongovernmental organizations to achieve transparent and inclusive Arctic decision-making, including efforts to
   - A) strengthen and expand cross-border relationships and international cooperation, especially bilateral engagements with Canada and Russia;
   - B) sustain and enhance state participation in the Arctic Council;
   - C) pursue opportunities to participate meaningfully as a partner in the development of federal and international Arctic policies, thereby incorporating state and local knowledge and expertise;
   - D) strengthen support for and collaboration with Arctic Council Permanent Participant organizations that include Indigenous peoples of the state;

3. enhance the security of the Arctic region of the state and, thereby, the security of the entire state, including efforts to
   - A) enhance disaster and emergency prevention and response, oil spill prevention and response, and search and rescue capabilities in the region;
   - B) provide safe, secure, and reliable maritime transportation in the areas of the state adjacent to the Arctic;
   - C) sustain current, and develop new, community, response, and resource-related infrastructure;
   - D) coordinate with the federal government for an increase in United States Coast Guard presence, national defense obligations, and levels of public and private sector support; and

4. value and strengthen the resilience of communities and respect and integrate the culture, language, and knowledge of Arctic peoples, including efforts to
   - A) recognize Arctic Indigenous peoples' cultures and unique relationship to the environment, including traditional reliance on a subsistence way of life for food security, which provides a spiritual connection to the land and the sea;
   - B) build capacity to conduct science and research and advance innovation and technology in part by providing support to the University of Alaska for Arctic research consistent with state priorities;
   - C) employ integrated, strategic planning that considers scientific, local, and traditional knowledge;
   - D) safeguard the fish, wildlife, and environment of the Arctic for the benefit of residents of the state;
   - E) encourage more effective integration of local and traditional knowledge into conventional science and research.

b. It is important to the state, as it relates to the Arctic, to support the strategic recommendations of the implementation plan developed by the Alaska Arctic Policy Commission and to encourage consideration of recommendations developed by the Alaska Arctic Policy Commission. Priority lines of effort for the Arctic policy of the state include

1. promoting economic and resource development;
2. addressing the infrastructure and response capacity gap in order to support the Arctic region;
3. supporting healthy communities; and
4. supporting existing and fostering new science and research that aligns with state priorities for the Arctic.

c. In this section, "Arctic" means the area of the state north of the Arctic Circle, north and west of the boundary formed by the Porcupine, Yukon, and Kuskokwim Rivers, all contiguous seas, including the Arctic Ocean, and the Beaufort, Bering, and Chukchi Seas, and the Aleutian Chain, except that, for the purpose of international Arctic policy, "Arctic" means the entirety of the state.

Sea ice meets open water in Norton Sound. UAF photo

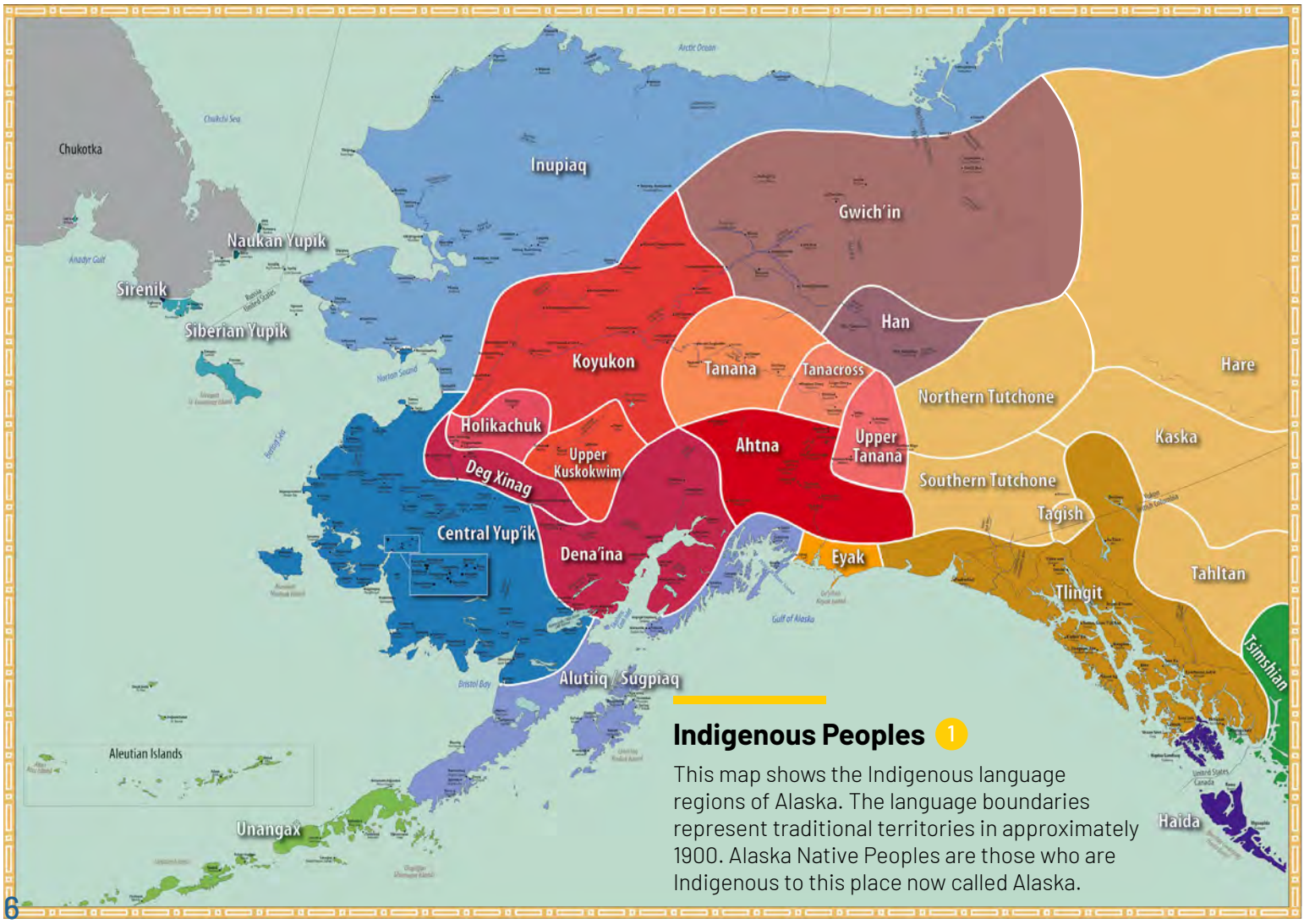
INDIGENOUS PEOPLES IN ALASKA

Alaska Native Peoples have thrived on the lands and waters of what is now the state of Alaska for 10,000 years or more, since before Russian and American exploitation and colonization. The map on this page shows the language groups by region of the Indigenous population. In 1942, when construction on the Alaska Highway began, there were 73,000 people in Alaska, about half of them Alaska Native. This percentage fell to 26% in 1950, and to 19% by the time of statehood in 1959. Today the population is approximately 20% of roughly 730,000 Alaska citizens. Looking to the future, the Alaska Department of Labor projects the Alaska Native population to increase by about 30,000 people by 2050. This would increase their proportion of Alaska's total projected population to 23%.

Alaska Native Claims Settlement Act

The Alaska Statehood Act of 1959 did not comprehensively address Indigenous land claims, noting only that the "State must disclaim all right and title to lands and other property not granted or confirmed to the State including right or title which may be held by any Indians, Eskimos or Aleuts (natives) or is held by the United States in trust for said natives."

In the 1960s the Alaska Federation of Natives was established to advocate for a land claims settlement. The Alaska Native Claims Settlement Act of 1971, known as ANCSA, extinguished aboriginal land title in Alaska. Its foundation was in Alaska Native corporate ownership. The state was divided into 12 regions creating private, for-profit Alaska Native regional corporations and over 200 private, for-profit Alaska Native village corporations. ANCSA also mandated that both regional and village corporations be owned by enrolled Alaska Native shareholders. Through ANCSA, the federal government transferred 44 million acres — land to be held in corporate ownership by Alaska Native shareholders — to Alaska Native regional and village corporations. The federal government also compensated the newly formed Alaska Native corporations a total of $962.5 million for land lost in the settlement agreement.



Indigenous Peoples 1

This map shows the Indigenous language regions of Alaska. The language boundaries represent traditional territories in approximately 1900. Alaska Native Peoples are those who are Indigenous to this place now called Alaska.

Children playing on a boardwalk in Kongiganak. Photo by Amanda Byrd, Alaska Center for Energy and Power

LAND ACKNOWLEDGMENT

As a we build a more diverse, equitable and inclusive future, we acknowledge and honor the Alaska Native Peoples of the land on which we work and live.

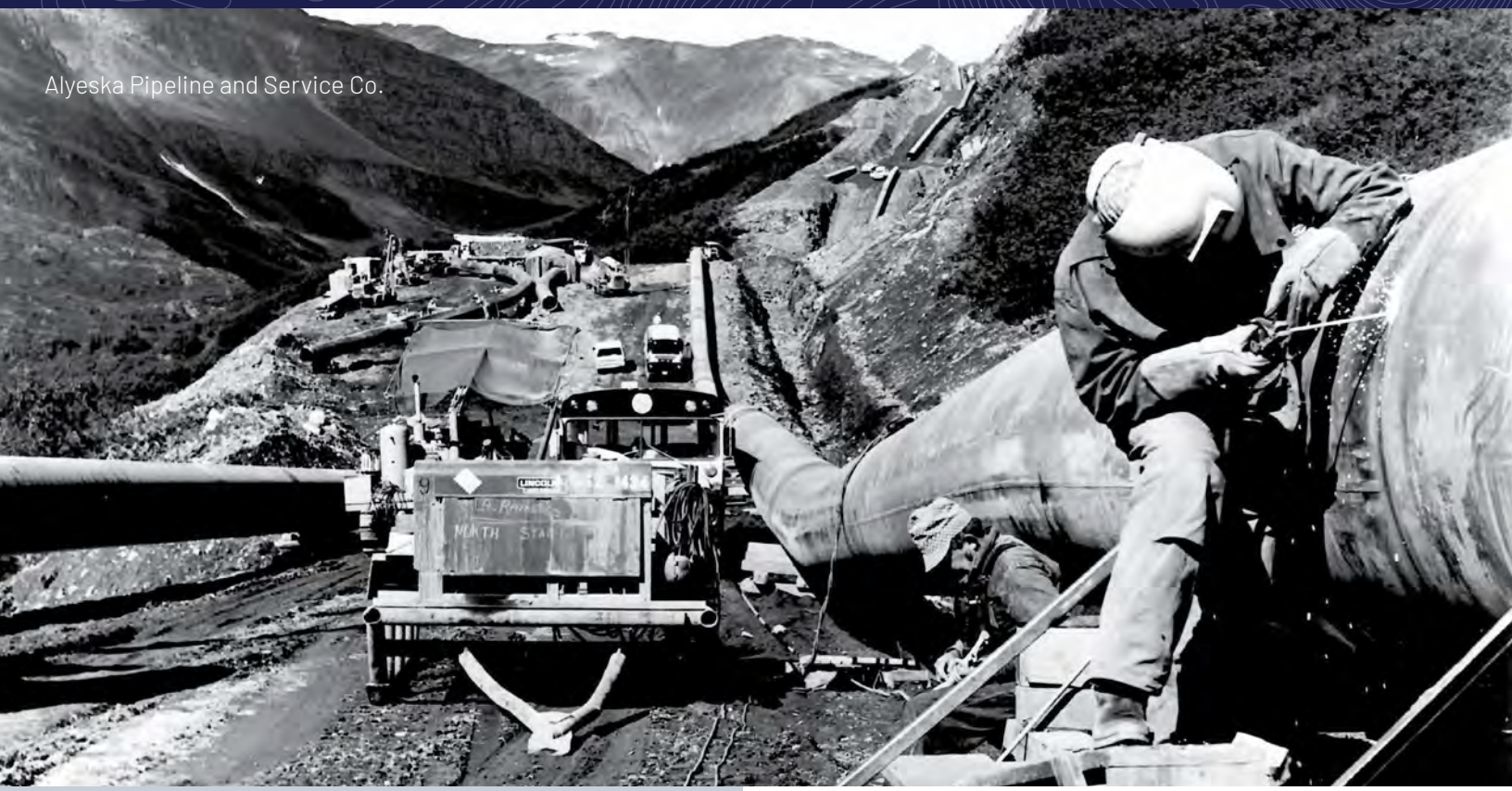
University of Alaska Anchorage UAA recognizes and values the diversity of our unique location in Southcentral Alaska, the ancestral lands of the Dena'ina, Ahtna, Alutiiq/Sugpiaq, Chugachmiut and Eyak peoples.

Dena'ina land acknowledgment: Dena'inaq ełnenaq' gheshtnu ch'q'u yeshdu. "I live and work on the land of the Dena'ina." Translation: Helen Dick, Sondra Shaginoff-Stuart, Joel Isaak.

University of Alaska Fairbanks We acknowledge the Alaska Native nations upon whose ancestral lands our campuses reside. In Fairbanks, our Troth Yeddha' Campus is located on the ancestral lands of the Dena people of the lower Tanana River.

University of Alaska Southeast Our campuses reside on the unceded territories of the Áak'w Kwáan, Taant'á Kwáan and Sheetk'á Kwáan on Lingít Aaní, also known as Juneau, Ketchikan and Sitka, Alaska, adjacent to the ancestral home of the Xaadas and Ts'msyen peoples.

ALASKA'S ARCTIC **OIL ECONOMY**



Alyeska Pipeline and Service Co.

As an Arctic location, Alaska — including both its state and federal waters — must balance several significant energy issues. The first priority line in the Alaska Arctic Policy statute is "promoting economic and resource development." In this report, that theme is narrowed to focus on the nature of energy in Alaska, which directly relates to both economics and resource development. This is a critical topic due to the magnitude of economic activity in Alaska's energy sector and its tie to domestic and foreign governments. In addition, planning for the state's future economy must address both energy and environmental change. For example, the Alaska Arctic Policy Commission Implementation Plan prioritizes a port in the Bering Strait. Such infrastructure has significant energy needs as well as a structural design that takes coastal environmental change and local needs into account.

HOW DID ALASKA GET HERE?

The reasons for oil production in Alaska can be traced to the 20th century needs of territorial residents and subsequently state residents for petroleum and fuel products to power snowmachines, outboard motors and other engines, as well as a demand for electricity. In the 1960s, with shrinking domestic oil supply, increased consumption and an impending election, President Richard Nixon lifted a ban on oil imports. In 1973, oil imports more than doubled, accounting for one-third of the U.S. demand. That same year, the Organization of the Petroleum Exporting Countries cartel unleashed an oil embargo in response to U.S. support for Israel during the Yom Kippur War. This resulted in the 1970s nationwide energy crisis. Costs of gasoline and other petroleum products jumped by 350% with a ripple effect through other industries, creating rising consumer prices. Along with some federal investments, it was the high price on the barrel that made the extensive testing, drilling and transportation infrastructure in Alaska affordable for industry. During the decades following the Prudhoe Bay oil discovery, Alaska's institutions adapted to the oil resource. In 1976, Alaska responded to the need for self-sufficiency by creating the Alaska Energy Authority. Today the AEA is the lead agency for state energy policy and programs, and its mission is to reduce energy costs statewide.

ANCSA AND THE NORTH SLOPE

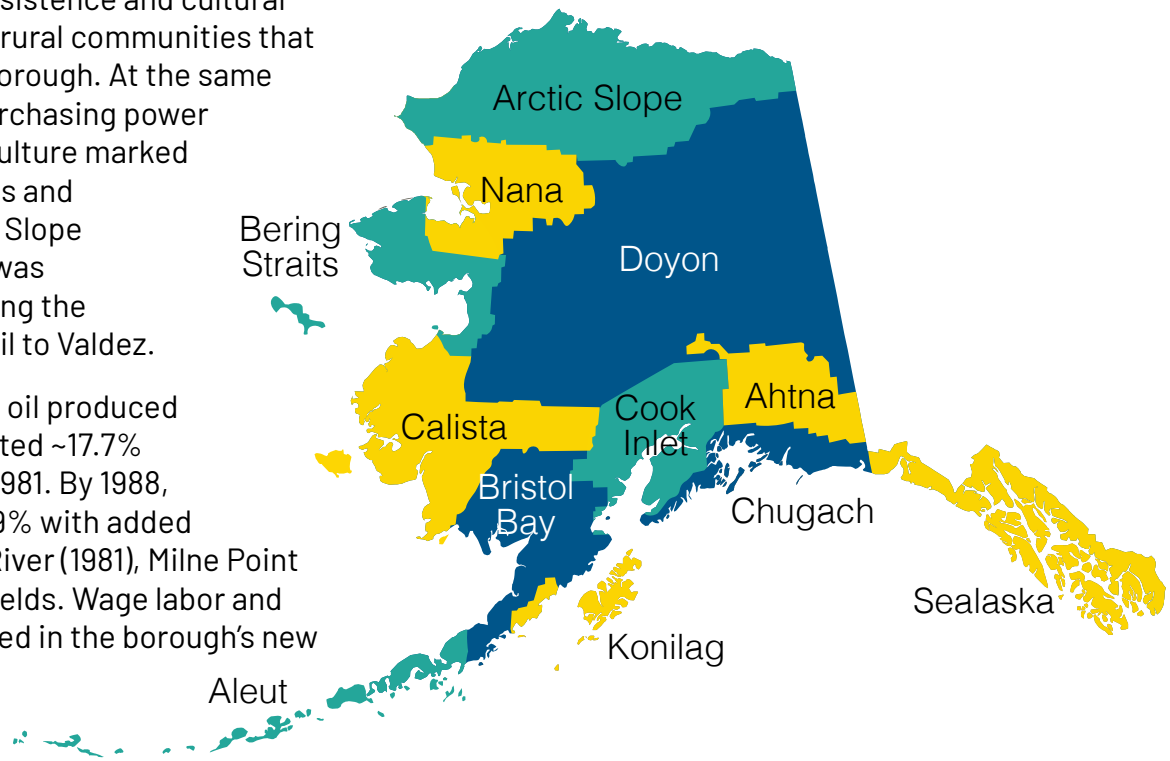
The 1968 discovery of the Prudhoe Bay oil field and subsequent development of the trans-Alaska Pipeline fundamentally changed the northern coastal region. Taking advantage of provisions in Alaska's Borough Act, North Slope leaders proposed a home rule borough with expansive taxation rights. Despite years of legal opposition from both oil companies and the state, the North Slope Borough incorporated and began to collect on oil property revenues in 1972.

Borough revenues grew at an annual average rate of 50% between 1974 and 1978, allowing leadership to undertake ambitious infrastructure improvement programs. Vital Iñupiat traditions like whaling persisted. New access to funding meant greater opportunity to support subsistence and cultural traditions across the eight rural communities that make up the North Slope Borough. At the same time, stable wage labor, purchasing power and the influx of Western culture marked a threshold of new demands and expectations among North Slope residents. The oil pipeline was completed in 1977, permitting the transport of Prudhoe Bay oil to Valdez.

The phenomenal volume of oil produced from Prudhoe Bay constituted ~17.7% of total U.S. production in 1981. By 1988, production peaked at ~24.9% with added volume from the Kuparuk River (1981), Milne Point (1985) and Endicott (1987) fields. Wage labor and subsistence became coupled in the borough's new economy. Despite ongoing subsistence practices, the increase in wealth and education resulted in greater out-migration for both work and school. North Slope residents have always seen advantages and disadvantages to oil development, and are often split over continued development both onshore and offshore.

Twelve regions 2

The state is divided into 12 regions defined by the common heritage and shared interests of the Indigenous peoples within. The regional boundaries do not represent land owned by the Alaska Native regional corporations; instead, they established which corporations would serve the people, villages and communities within that area.



Homes in Nuiqsut . Photo from Alaska Department of Commerce

STATE ENERGY PLANS

In 1979, the state's first energy policy was put in place under Gov. Jay Hammond. Hammond also served in 1980 when the State Legislature voted to remove personal income taxes by a veto-proof majority in favor of the state's income relying on oil taxation. This decision left the state without an annual, relatively stable revenue stream and severed citizens' personal relationship with the cost of government. Over the years, the boom-bust cycle of global oil production drove various state energy policies.

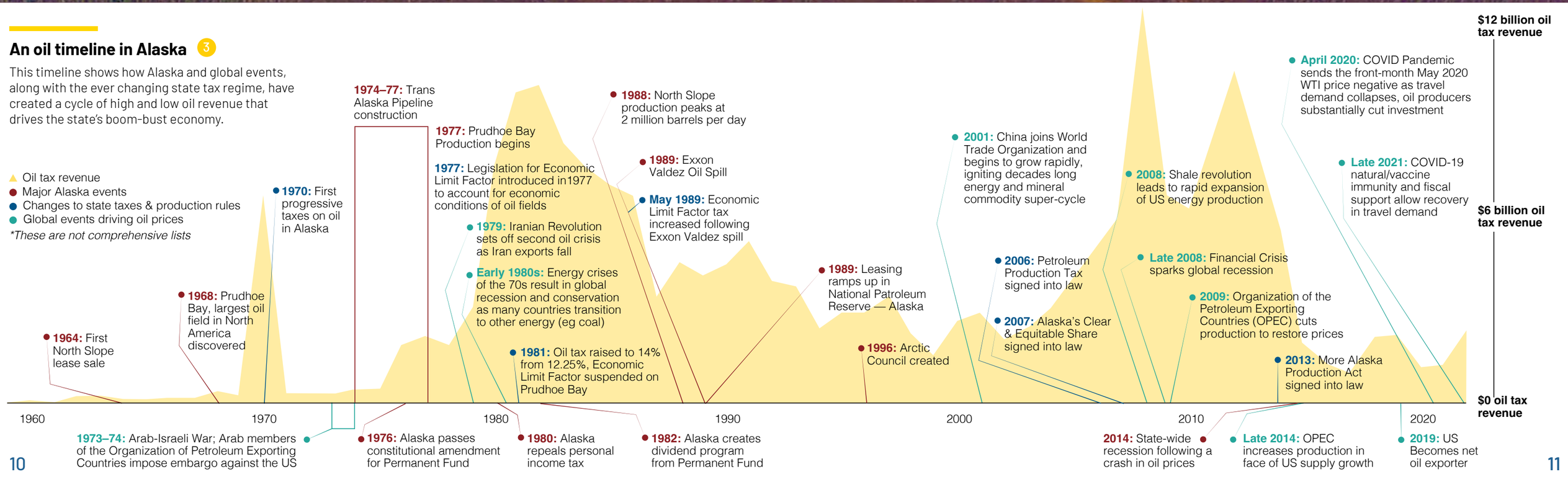
In 1981, the state released its first long-term energy plan. This was the first of six plans to set energy policy and outline goals and objectives for the state. With a nod to sustainability, it stated that the plan would provide "a logical approach to meeting Alaska's present and future energy needs." However, the global nature of the oil economy changed the direction of state energy policy as oil prices dropped and the national energy crisis dissolved. From 1984–1986 federal funding for alternative energy and energy conservation disappeared, causing energy cost reductions and alternative energy projects to dissipate in Alaska's long-term energy plans as low oil prices and budget deficits forced the state to further cut funding. After North Slope oilfields hit peak production in 1988, the continued decline in oil production exacerbated budget concerns and reduced available funding for energy projects.

In 2003, the Alaska Legislature attempted another energy policy by creating the Alaska Energy Policy Task Force. Its mission was to develop a long-term energy plan to efficiently enhance Alaska's economic future. Two reports released in 2003 and 2004 provided current and long-term energy needs for Railbelt and non-Railbelt energy users. To push immediate action, Gov. Frank Murkowski created the position of Alaska energy policy adviser in the Department of Commerce, Community and Economic Development and named Nels Anderson to the post. Under Administrative Order #230, Anderson's role was to "facilitate coordination of an energy policy for the state." Anderson's energy policy recommendations shaped legislation for the next few years, until national economic crises intervened.

On Feb. 17, 2009, the American Recovery and Reinvestment Act was signed by President Barack Obama. According to the White House, the Recovery Act made the "largest single investment in clean energy in history, providing more than $90 billion in investments and tax incentives." With renewed federal support to invest in clean energy, Alaska received funding to support Anderson's recommendations for a state energy policy. Between 2008 and 2010, the Alaska Legislature passed three energy bills. The first, HB 152, created the Renewable Energy Fund and Renewable Energy Task Force. The fund aims to reduce and stabilize energy costs through renewable energy projects. The bill was initially intended to annually fund $50 million for five years; however, in 2012, it was extended through 2023. As of February 2021, the Renewable Energy Task Force had funded $282 million in renewable energy projects, including $248 million in Railbelt and $34 million in non-Railbelt. An additional $138 million in matching funds was provided by applicants. The second bill, HB 306, provided a roadmap for policymakers, utilities and conservation groups, with a goal of obtaining 50% of the state's energy from renewable energy by 2025. Signed into law by Gov. Sean Parnell in 2010, it became today's energy policy for the state, known as AS 44.99.115, Declaration of State Energy. The third bill, SB 220, outlined an action plan to achieve the goals of HB 306. The bill provides funding mechanisms, tax exemptions and transportation initiatives within the state for renewable energy projects. HB 306 set ambitious goals on a path toward energy security, but the legislation is non-binding with no requirement for future governors to follow through.

An oil timeline in Alaska 3

This timeline shows how Alaska and global events, along with the ever changing state tax regime, have created a cycle of high and low oil revenue that drives the state's boom-bust economy.



SLOW MOVE TO RENEWABLE

Almost a half-century has passed since creation of the Alaska Energy Authority. Various reports and recommendations have been presented to different administrations. Despite goals and objectives on paper, the state has made little progress reducing high energy costs or mitigating the boom-bust effects of an economy that relies heavily on oil. The disjointed nature and non-binding approach in state energy policy is problematic for the future. Stopgap measures and programs initially intended as temporary, such as the Power Cost Equalization program, are still in effect over 40 years later.

ARCTIC ECONOMICS

Like many Arctic economies, energy production is Alaska's largest basic private-sector industry. Local energy consumed in Alaska is a non-basic industry. Urban Alaska energy consumption relies heavily on natural gas and some renewables, like hydropower, to generate electricity for residential, commercial and industrial uses. In rural Alaska, diesel energy is the primary source of power, though some renewables, such as hydroelectric and wind, are used.

DEFINITION

Non-basic industries meet local needs through goods and services.

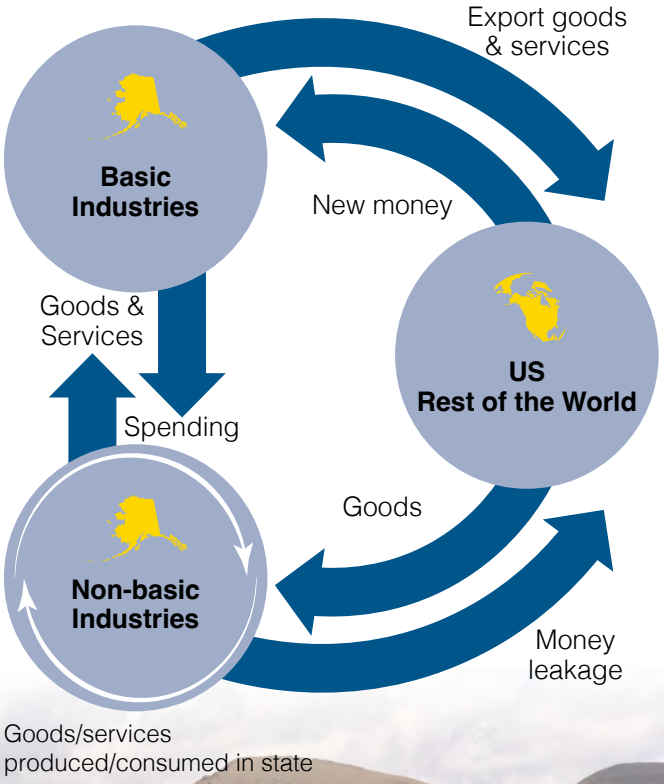
Basic industries, in the field of economics, refer to goods and services that export to outside markets and bring outside money into Alaska.

Alaska needs both sectors

For basic industry to benefit the state, there must be non-basic industries to purchase goods and services from. Non-basic industries provide local businesses for workers to spend earnings. A missing non-basic sector means earnings in Alaska "leak" out of the state as workers purchase non-local goods and services. The more money Alaskans spend on imported fuel to generate electricity and heat homes and businesses, the more money that is "leaked" out of state.

How the sectors interact

This diagram shows how basic and non-basic industries work together toward a healthy Alaska economy.



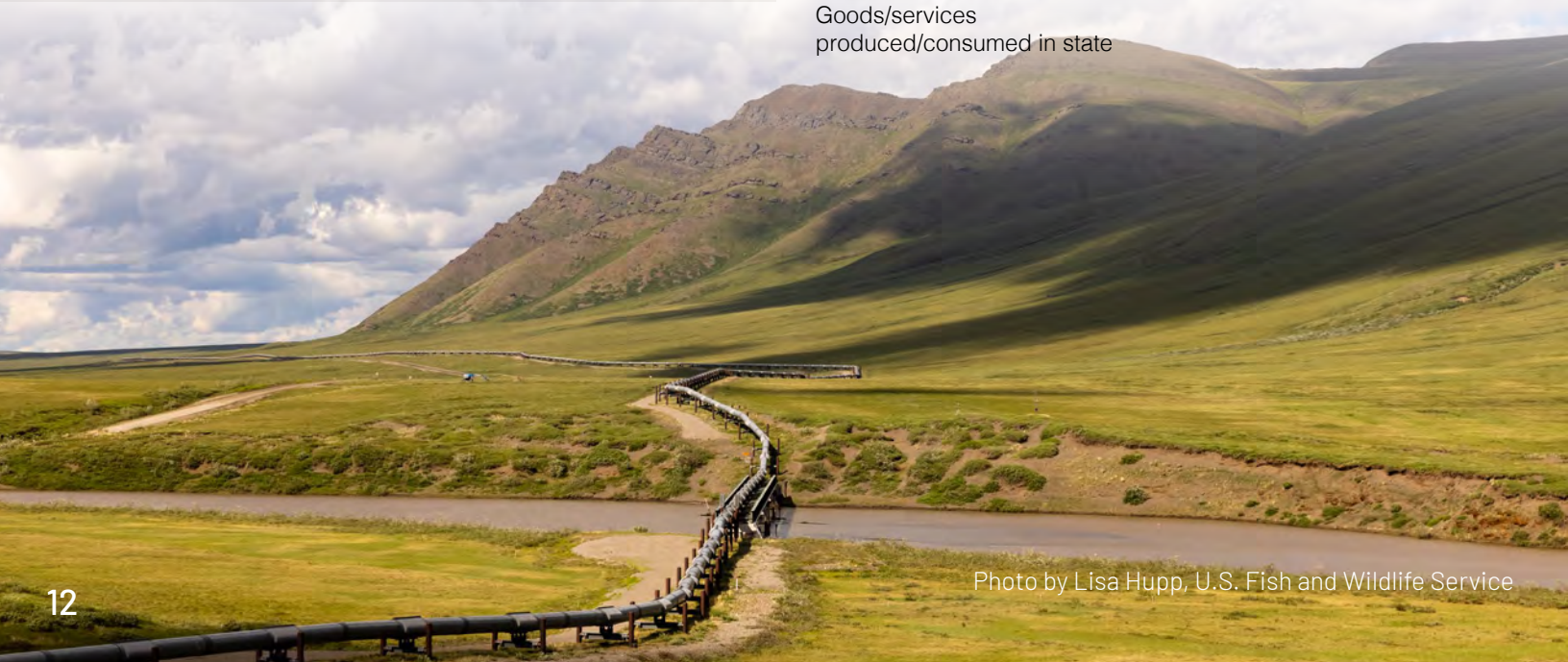


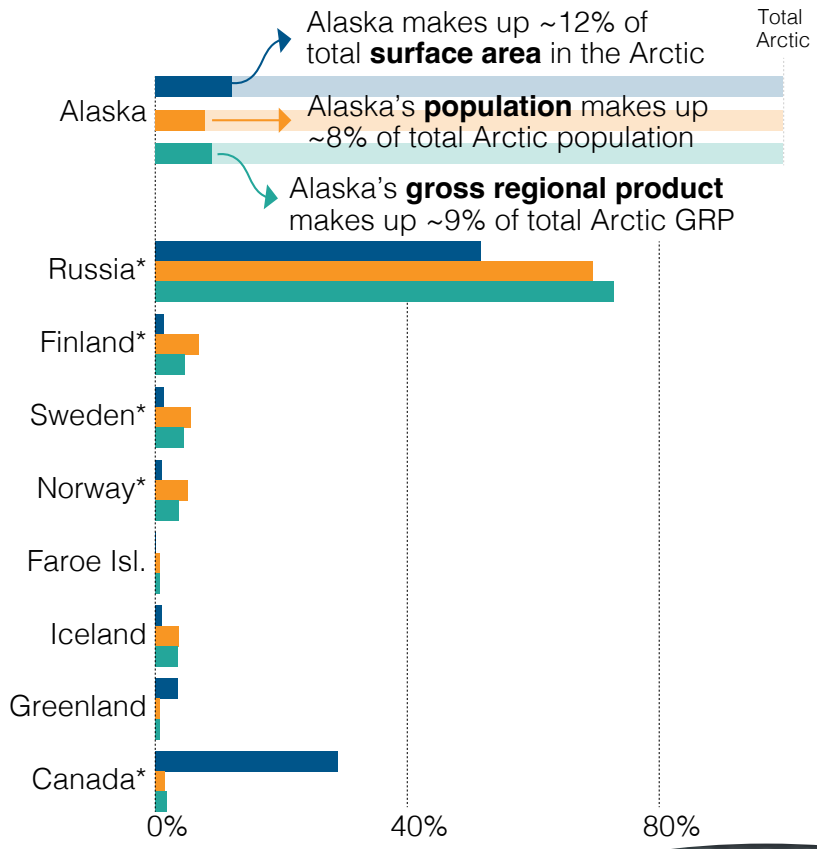
Photo by Lisa Hupp, U.S. Fish and Wildlife Service

COMPARING ARCTIC ECONOMIES

Alaska's annual domestic production compared to other Arctic countries is quite healthy for its size. U.S. Arctic (Alaska) has a larger gross regional product (GRP) than Canada's Arctic despite less surface area. Alaska also exceeds the rest of the United States and non-Arctic Canada in per capita GRP (income). This demonstrates a successful management of basic and non-basic industries in the state. For example, Alaska produces oil to send to the Lower 48 states as a basic economic function, but the state also has its own internal businesses producing food and technical products to meet the needs of people and companies in Alaska including those working in oil and gas.

Comparing Arctic regions 4

This chart illustrates the role of the Arctic states within the entire Arctic region. It indicates each country's percentage of the Arctic regional total gross production in 2018. Russia's Arctic covers more area, their income (GRP) and population are similarly high compared to other Arctic states. The second largest economy is Alaska with slightly less than 10% of the Arctic GRP.

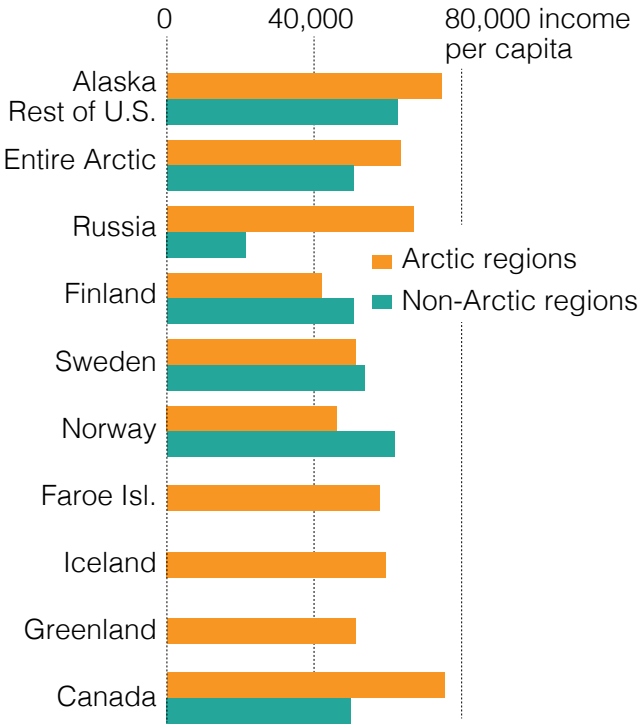


*Data for the Arctic states within each country

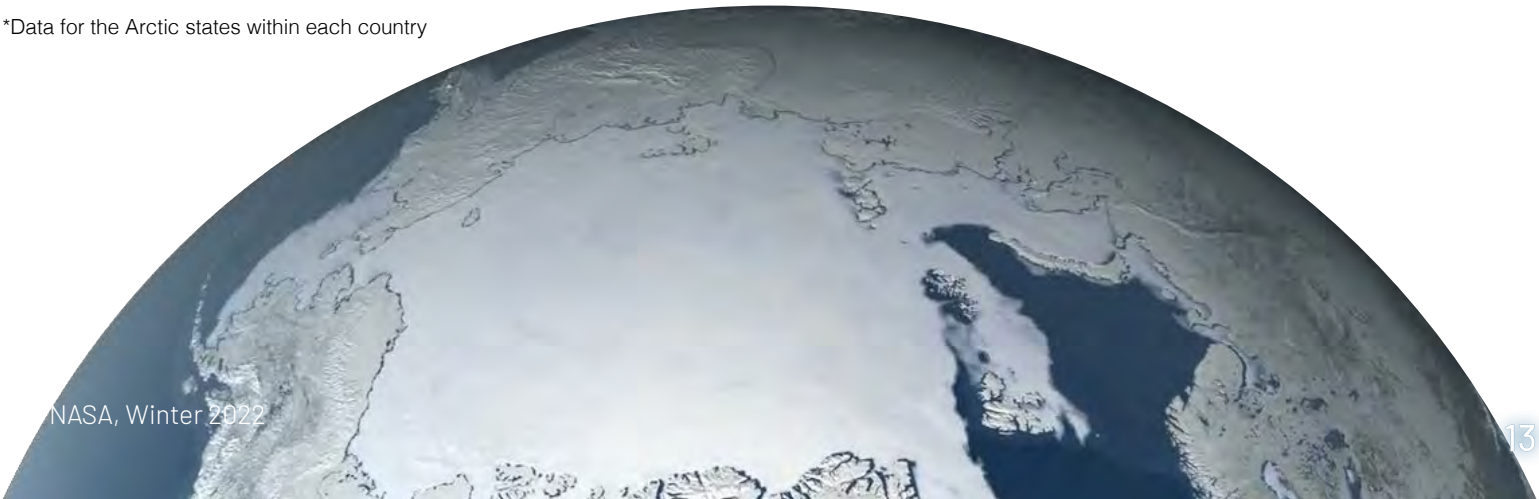
Gross regional product in the Arctic 4

This chart shows gross regional product (income) per capita in 2018 of Arctic regions and non-Arctic locations in the eight member states of the Arctic Council. In Alaska, and the Arctic as a whole, the income per capita is larger than non-Arctic regions. This is largely due to mineral and petroleum production.

*Greenland and the Faroe Islands listed as distinct entities in place of Denmark



*Income displayed in US Dollars adjusted for purchasing power disparity.



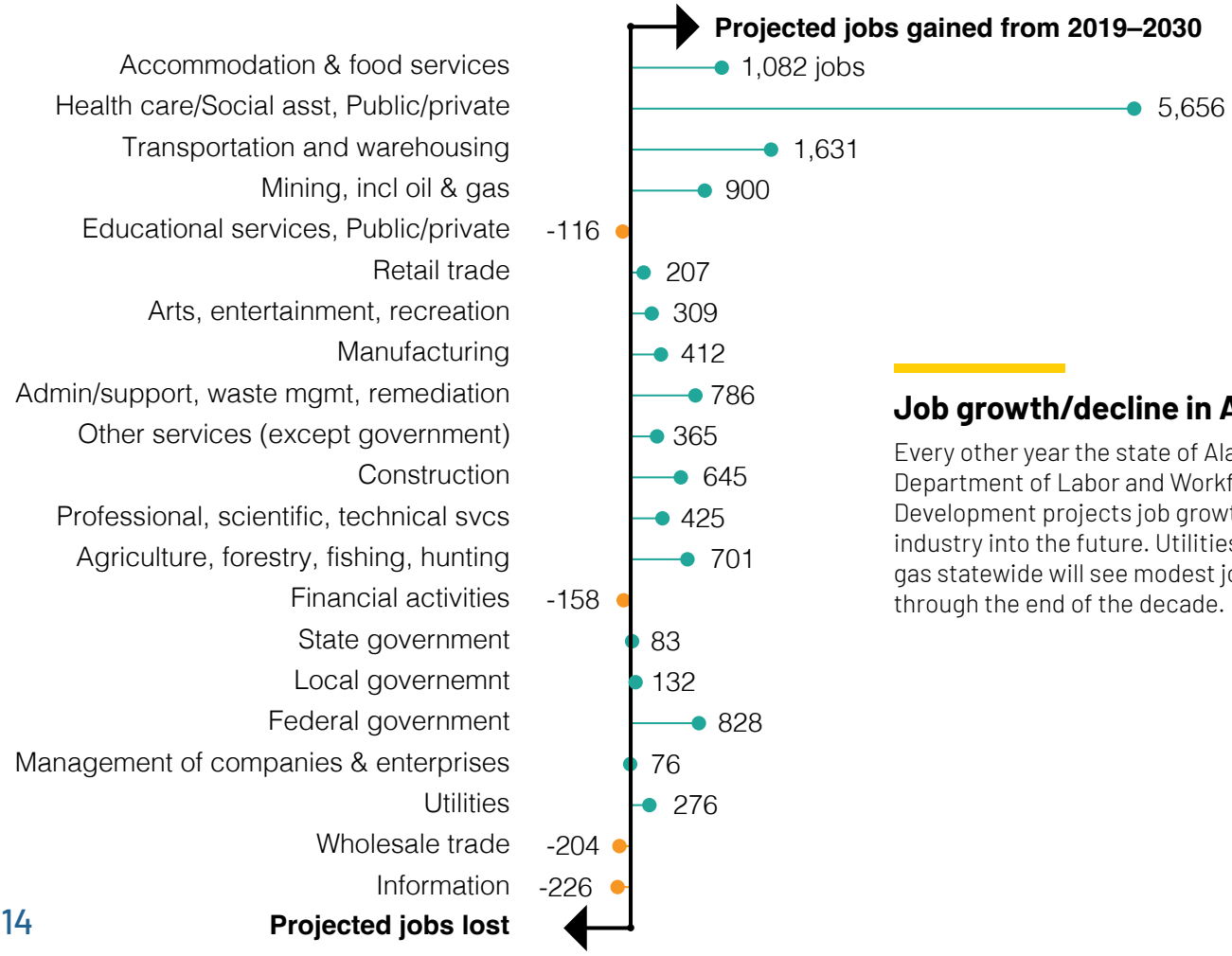
NASA, Winter 2022

EMPLOYMENT IN ALASKA

As of September 2022 Alaska's seasonally adjusted unemployment rate was 4.4%. The number has been steadily falling since 2012, except for the spike beginning in spring 2019 that accompanied the Covid-19 virus pandemic and its effects. Nonetheless, the likely sectors of future job growth in the next decade remain stable.

Alaska's total workforce in the first half of 2022 was approximately 311,000. Nearly 22,000 jobs are in a broadly defined energy sector. In 2020, oil and gas industry spending in Alaska employed 3,208 residents by the primary companies, and 5,178 Alaska residents in oil and gas support services. State and local government spending using royalties and taxes paid by the oil and gas industry also contributes to job creation and local economic development in private and public sectors. The estimates of indirect job creation from the oil and gas industry vary, but are certainly in the tens of thousands. Annually, Alaska Native corporations are among the top five highest revenue earners in the state and employ over 15,000 Alaskans. Employment that is outside of extractive industries, often called the "clean energy sector," includes 5,000 workers and is less than 2% of the state's total workforce. About 700 people work directly in renewables. The rest are in energy efficiency employment, working, for example, to reduce the amount of energy required to heat a home.

Photo by Alaska Center for Energy and Power



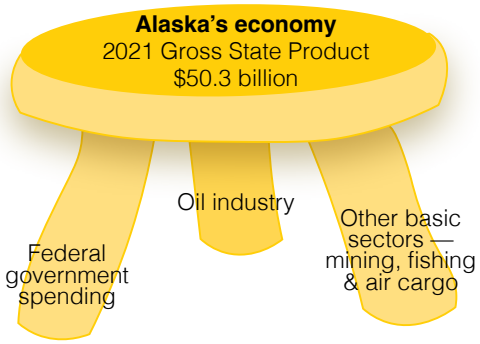
Job growth/decline in Alaska 5

Every other year the state of Alaska Department of Labor and Workforce Development projects job growth by industry into the future. Utilities, oil and gas statewide will see modest job growth through the end of the decade.

THE OIL ECONOMY

Alaska's economy is often described as a three-legged stool. One leg is spending from the federal government, another is the oil industry and the third represents all other basic sectors including mining, fishing and air cargo.

More than any other private sector industry, oil supplies more direct (jobs from producers), indirect (jobs that support direct jobs) and induced (which come from the multiplier effect and spending in the economy) jobs. For example, as the cost of oil rises on the global market the oil sector grows and attracts other businesses such as technology for energy production, logistics, catering and housing. This growth means employees spend more in the economy, triggering development in other economic sectors. Similarly, these sectors and their jobs shrink following a drop in the price of oil.



While oil dwarfs other industries in economic impact, employment levels are also more volatile because oil exploration and production respond sensitively to oil market prices. Oil prices are set on the global market and drive levels of production more than other factors, including taxes.

Downturns in oil prices generally align with periods of job loss and weaker economy. Developments in efficiency, like automation, have also led to fewer jobs returning after slumps in oil prices.

"POLAR PARADOX"

Though rising oil prices increase revenue and investment in Alaska's oil industry, they also lead to higher heating cost for homes and businesses. Transportation is more expensive whether by snowmachine for subsistence or flying people, goods and services to rural areas.

This is called a "polar paradox" — rising oil prices bring more money into the state, but also increase the cost of living, maintaining local industries and developing new business. For example, public school budgets may increase with larger state revenue, but as energy costs rise, families have less disposable income.

In Alaska and other Arctic locations, this tension is amplified by people's heavy reliance on energy for heating and transportation. Alaska electricity prices are the second highest in the U.S., topped by Hawaii, and prices have grown the second fastest over the past two decades.

Petroleum and natural gas make up most of Alaska's energy consumption. In Alaska, jet fuel accounts for 64% of the petroleum consumed. The national average is 10%. Flying provides essential access to rural communities and powers Alaska's burgeoning air-cargo industry. Petroleum production, such as enhanced oil recovery, uses 70% of the natural gas consumed. Residential uses of energy and electricity production are relatively small compared to industrial and transportation uses.

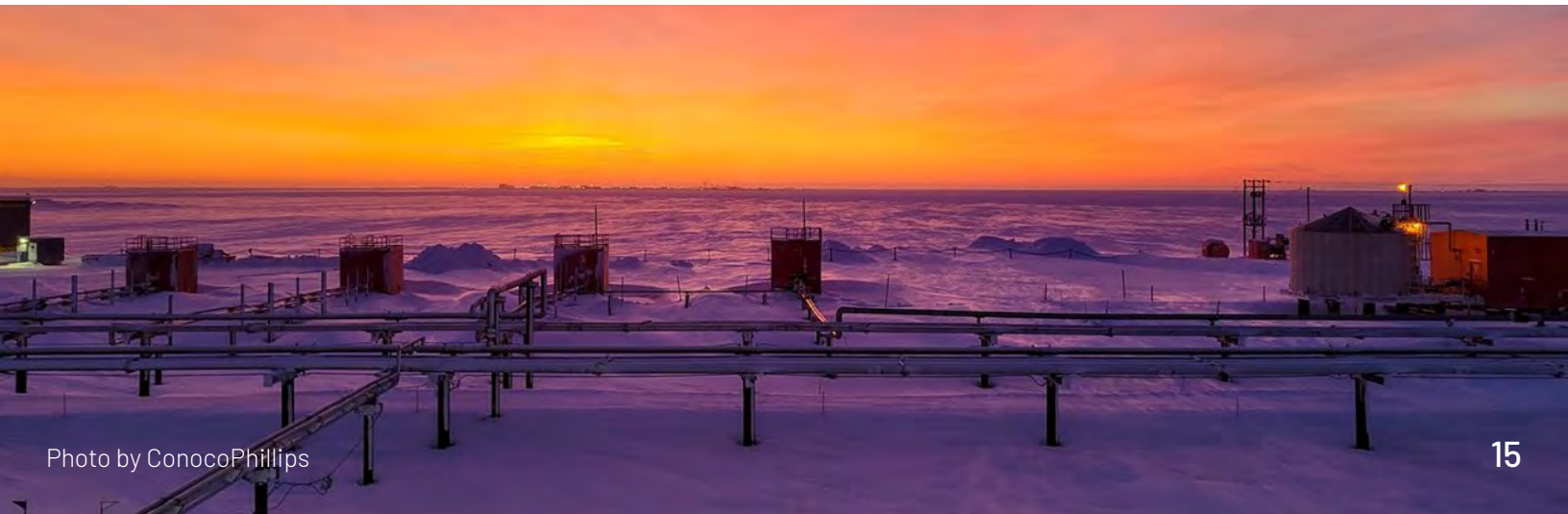


Photo by ConocoPhillips

OIL INVESTMENT BARRIERS

The complex and changing fiscal environment in Alaska can translate to uncertainty for oil producers and disincentivize investment. Alaska's uncertainty is due to declining oil fields, major environmental changes, shocks to international financial systems and rapid policy changes.

Since 1977, Alaska's oil production tax has changed several times. Nationally, as the partisan compositions of the U.S. Congress and executive branch changed over time, Alaska has had to adapt its own energy regime. Internationally, tensions between the U.S. and China in relation to Taiwan affect the state's liquefied natural gas project plans, and Russia's invasion of Ukraine is reshaping global energy markets.

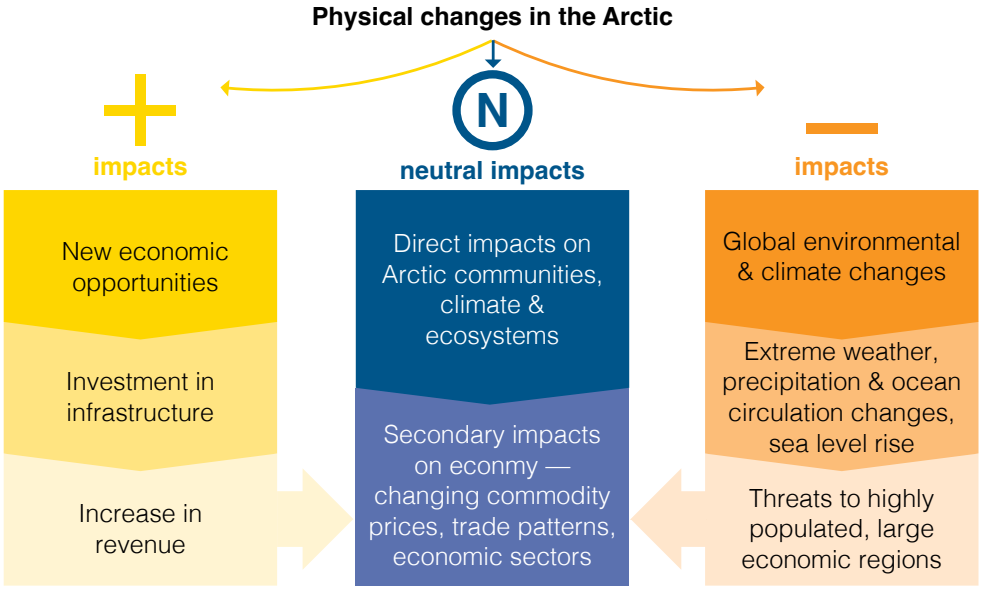
Infrastructure also remains a significant limitation for development in Alaska. Climate change threatens ice roads, increases cost of operations and puts existing infrastructure at risk. This may discourage producers from exploring new projects.

The effect of innovations in horizontal drilling and hydraulic fracturing have been transformative outside of Alaska, allowing other states like Texas and North Dakota to be more favorable for future development. North Dakota went from producing no significant oil in the early 2000s to producing 2.5 times the amount produced by Alaska in 2021.

Capital discipline — a shift in focus away from riskier exploration and toward guaranteed returns for shareholders — has altered the way the oil industry approaches production in Arctic Alaska.

Economic impacts of climate change 6

This diagram shows the benefits and costs of Arctic change. While climate change may bring new economic opportunities that boost the economy, threats from extreme weather and other changes may hurt the economy. Neutral impacts are those that could have either positive or negative impacts.



POLICY IMPLICATIONS of ALASKA'S OIL ECONOMY

The lack of revenue diversity in the state ties its citizens and businesses to the boom and bust cycle of the global hydrocarbon economy, which Alaska cannot control or direct. This creates uncertainty in the state's economy that can disincentivize business investment and cause instability for individual households, particularly outside of the Railbelt. Diversification of the state's economy can buffer private and public sector jobs, investment and government budgets and can provide opportunities for innovative economic and technological advances to foster job growth for residents. Alaska does not have to choose between renewables or oil, and in fact the state's recently diversifying energy portfolio shows that Alaska can be a leader in deliberate energy transition.

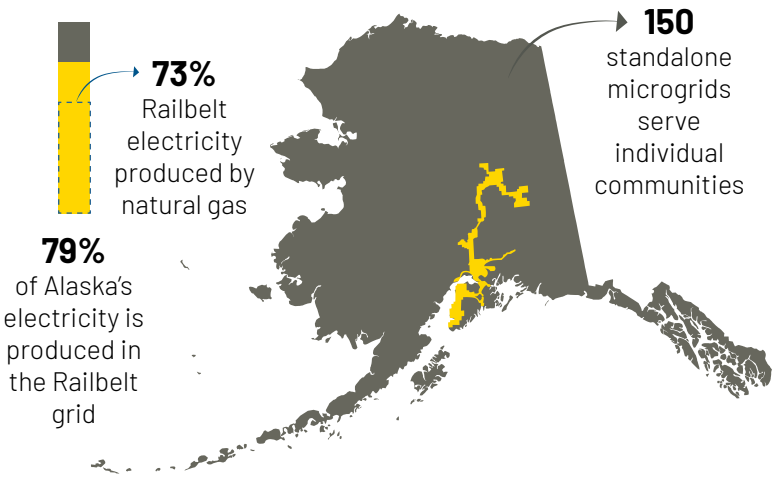
ALASKA'S ARCTIC **ENERGY SYSTEM**

Electric vehicle charging stations in Fairbanks. Photo by Alaska Center for Energy and Power

How we produce and consume energy affects our environment. Likewise, Arctic climate change affects the social and environmental systems that produce energy people depend on.

THE RAILBELT ELECTRICAL GRID

The Railbelt electrical grid serves the populated region spanning from Fairbanks through Anchorage to the Kenai Peninsula. It provides 79% of the state's electricity. Approximately 73% of electricity on the Railbelt grid comes from natural gas. The rest comes from renewables such as wind and hydroelectric and other fossil fuels such as coal and oil.



NEW MICROGRID TECHNOLOGY

Alaska's small population dispersed over a large area requires an energy system different from the rest of the U.S. More than 150 standalone electrical grids make up the state's energy system. These "microgrids" serve individual communities, allowing rural Alaska to maintain independent and robust energy systems.

Between 2009 and 2015, the State of Alaska invested more than $250 million to develop and integrate renewable energy projects to power microgrid systems. Microgrid developments are helping smaller communities move from diesel to renewable energy.

Microgrids also serve universities and military installations in Alaska due to district heating needs. Because the Fairbanks area remains without a reliable natural gas supply, the University of Alaska Fairbanks opened the only new coal-fired heat and power plant in the U.S. in 2018, replacing its more than 60-year-old coal plant. Eielson Air Force Base is supported by its own coal-fired power plant for the same reasons.

As Alaska evolves as a leader in implementing renewables and other microgrid technologies, local knowledge and expertise may become a key export for the state. Other cold regions may look to Alaska's systems as a model. Places with insecure access to energy or that seek energy independence may also learn from Alaska's technology.

MOVING FROM DIESEL TO DISTRIBUTED ENERGY RESOURCES

Alaska's rural communities that are disconnected from the regional grids commonly run diesel generators for electricity and heating homes.

Diesel is barged in during the ice free season or flown in if no water route is available. Since transporting fuel is costly and there is potential for fuel spills, many communities are implementing renewable distributed energy resources.

Distributed energy resources are small-scale electricity generation and storage devices connected to regional grids or islanded microgrids. Distributed energy resources vary widely in Alaska and may include biomass, geothermal, hydroelectric, hydrokinetic, solar and wind energy. Because of the remote nature of rural Alaska communities, there can be additional costs and time needed to develop and complete renewable projects in places where air transportation is limited and barging is often only available during the summer.

Kotzebue is making great strides transitioning to renewable energy. The community's cooperative utility, Kotzebue Electric Association, installed its first wind turbines in 1997. Since then, it has continued to expand its renewable energy system to include solar and battery storage.

MANY ENERGY UTILITIES

Over 100 utilities deliver energy to Alaska consumers. Most electric utilities are small, often serving just one community, with electric loads varying from tens of kilowatts for the smallest communities to several megawatts for larger "hubs." Five utilities operate along the Railbelt grid. Utilities in Alaska are owned by cooperatives, municipalities and tribal governments.

The grassroots nature of Alaska's utilities creates both challenges and opportunities. While the small size of locally owned utilities may create capacity challenges such as implementing large capital projects, it may also enable communities to be more directly involved in decision-making as compared to regions with larger utilities.

The cost of fossil fuels directly affects rural communities in Alaska where households face electricity costs three to five times higher than households in urban areas of the state like Anchorage, Fairbanks and Juneau.

The Power Cost Equalization program provides economic assistance to communities outside the Railbelt that largely rely on diesel fuel for power generation. PCE serves more than 80,000 Alaskans in 193 communities. Utilities in rural Alaska provide credits to their customers based on a usage formula. The state reimburses these credits to the utility. Funding for the PCE program comes from a specialized endowment.

Solar and wind energy in Kotzebue. Photo by Amanda Byrd, Alaska Center for Energy and Power

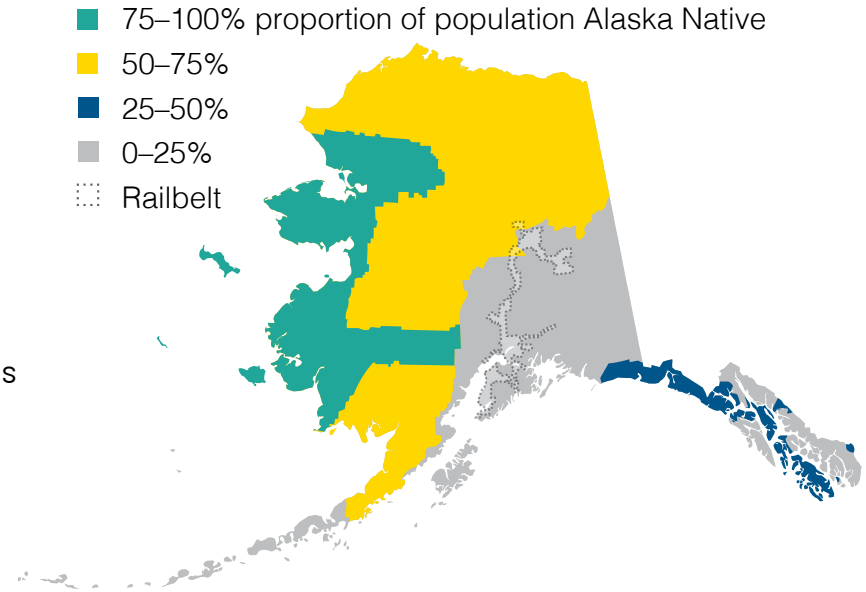
RURAL ENERGY

Though Alaska ranked sixth among top oil-producing states in the U.S. in 2020, the state still imports petroleum due to limited refining capacity and high per-capita petroleum consumption. Outside of the Railbelt, communities pay high energy costs for diesel to produce electricity, even with the Power Cost Equalization offsets. The Railbelt produces 79% of the state's electrical load from four electrical cooperatives and a municipal non-profit utility. As of 2020, this served 293,000 customers. While nearly two-thirds of Alaskans live in communities found along the 484 miles of highway and railway of the Railbelt, 82% of Alaska communities depend on aviation for year-round access. The majority of these communities are primarily Alaska Native, and many are seeking to diversify their energy sources not only to cut costs but also for concerns related to health and environmental safety.

Many Alaska Native Peoples still practice subsistence. As of 2017, about 17% of the Alaska population, approximately 123,122 people in 264 communities, lived in rural areas. As energy costs rise, in particular fuel for snowmachines, boats and ATVs, rural residents face difficult choices about where to spend their money — home heating is often the trade-off for gasoline for hunting or fishing. Bringing down energy costs in rural areas also reduces the need for families to migrate to urban centers of the state where practicing traditional livelihood and cultural pathways can be difficult.

Alaska Native population 7

A significant proportion of the Alaska Native population in the state is not connected to the Railbelt. As a result Alaska Native Peoples are disproportionately impacted by the high energy costs in rural areas.



Kaktovik. Photo by Heather McFarland

PROGRAMS & POLICY THAT SUPPORT ENERGY & JUST TRANSITION

Alaska communities and industry need a way to address the negative effects of climate change while minimizing the inequalities of economic change and diversification. Energy decarbonization and just transition are processes that pursue net-zero emissions while reducing costs and improving lives.

DEFINITION

Carbon capture and storage programs remove and sequester carbon. These can help locations reduce carbon emissions along with energy decarbonization, where power grids and supply chains work to limit initial emissions.

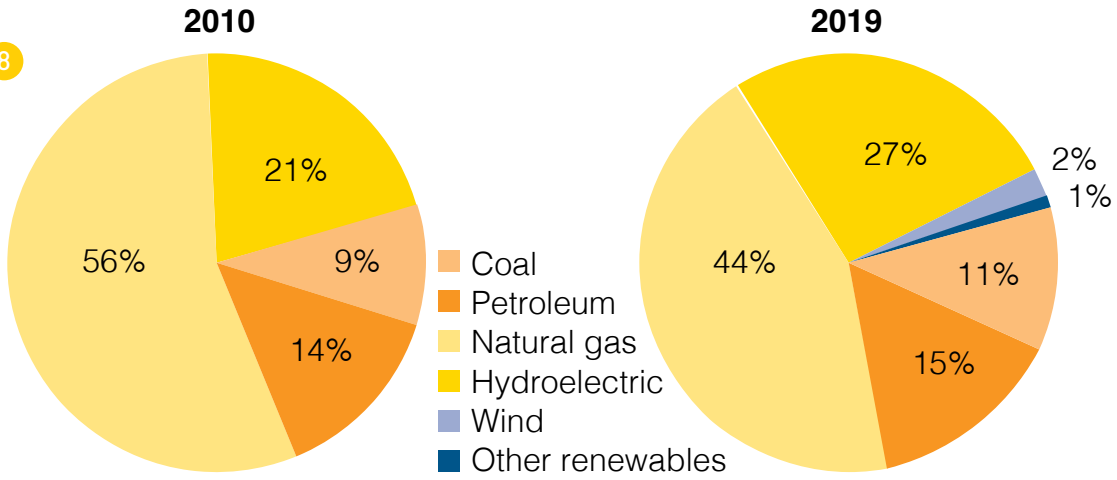
Energy diversification is a principle for reducing energy costs and stabilizing energy portfolios over time by adding different types of distributed energy resources. Diversity in electricity generation can help minimize the effects of boom and bust cycles by reducing uncertainty in supply and distribution. Looking into the future, energy transitions in Alaska that address concerns of equity can avoid disproportionately disadvantaging any citizens.

Several programs and policies support energy decarbonization and just transition in rural Alaska:

- Both the Renewable Energy Fund and Emerging Energy Technology Fund build capacity in rural Alaska. They help communities maintain and expand existing renewable energy systems. They can also ensure that communities are able to share their knowledge and experience with others in Alaska and across the Arctic.
- The Regional Clean Hydrogen Hubs program is one opportunity to ensure the benefits of energy investments are felt locally. Funded through the Bipartisan Infrastructure Law, the program establishes six to 10 regional hubs across the country focused on accelerating the production and use of hydrogen. Due to its natural gas resources and proximity to the West Coast and Asian markets, Alaska is a strong contender to be selected for one of the hubs. This would create further opportunities for communities in the state, such as through workforce development.
- Alaska Regional Collaboration for Innovation and Commercialization Program's Energy Innovation Network supports community engagement and just transition. The network helps Alaska communities reach self-determined energy and economic goals. With a local to global focus, it builds capacity for new homegrown energy industries designed and deployed in the state.
- Until 1972, a nuclear reactor operated for about a decade on Fort Greely. In February 2022, Gov. Mike Dunleavy signed into law SB177: an Act relating to Microreactors. The law allows communities to explore the option of nuclear power for electricity and to reduce greenhouse gas emissions. Two test projects for nuclear microreactors are planned in Alaska, at Eielson Air Force Base and through the Copper Valley Electric Association.

Alaska energy generation 8

These charts show how Alaska generated electricity in 2010 compared to 2019.



ALASKA LEADERSHIP IN ARCTIC ENERGY

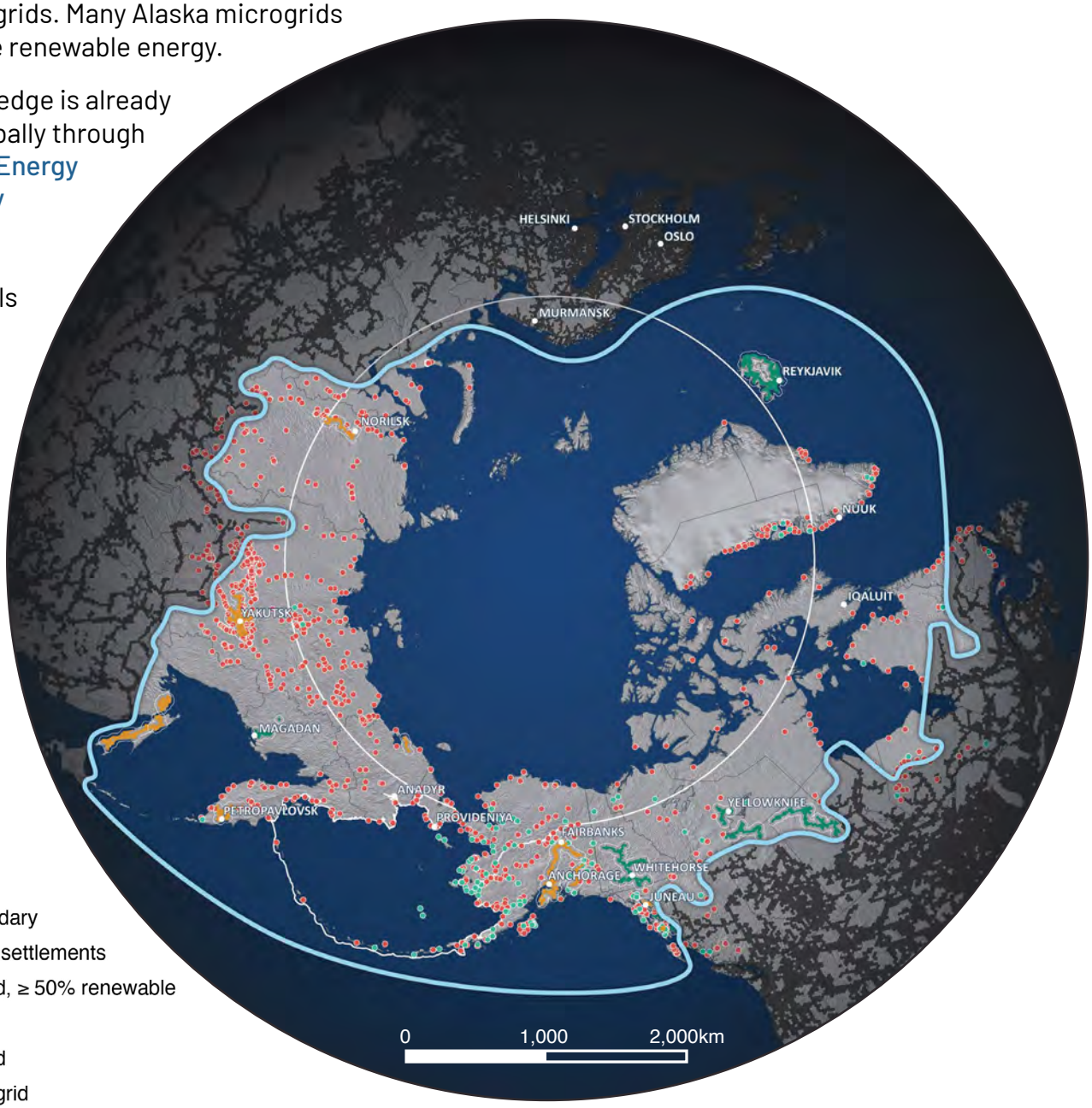
Alaska is well positioned for an energy transition locally, while also leading the way nationally and internationally. The state has a wealth of resources available, knowledge and expertise in cold climate renewables and remote microgrids.

Alaska has 50% of the installed microgrids in the U.S. and 10% of the global microgrids. Many Alaska microgrids already incorporate renewable energy.

Local Alaska knowledge is already being exported globally through the Arctic Remote Energy Networks Academy program. ARENA connects emerging energy professionals from around the circumpolar north with hands-on learning experiences and mentorship they can take back home to support their own communities in the energy transition.

Renewable energy in the Arctic 9

This map shows where there is current electric grid infrastructure and where there has been renewable energy development in the Arctic. Map data from 2021.



- Electric North boundary
- Renewable off-grid settlements
- Regional power grid, ≥ 50% renewable
- Off-grid settlments
- Regional power grid
- Continental power grid

POLICY IMPLICATIONS *of* ALASKA'S ARCTIC ENERGY SYSTEM

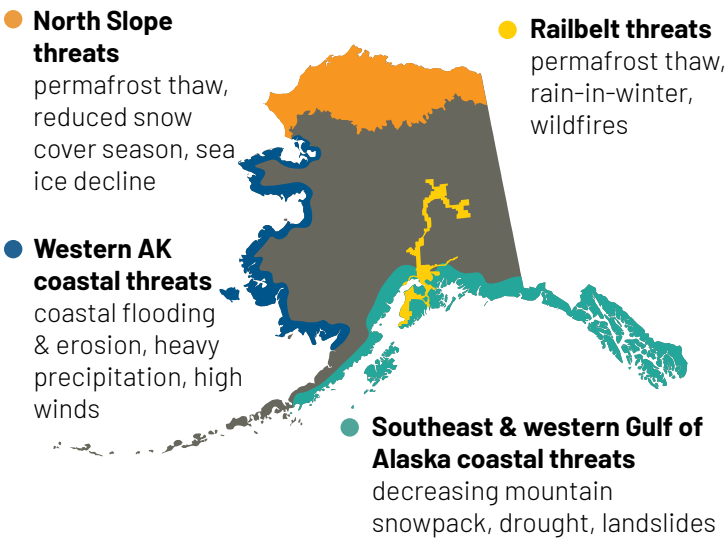
Creating energy from multiple geographically appropriate sources can foster business growth alongside locally driven priorities such as less-expensive electricity. Development of wind, solar, hydropower, biomass, geothermal and nuclear possibilities are receiving a significant influx of federal funding and have received attention within the state. These opportunities will need regulatory and logistical support to reach economies of scale, especially in rural locations where grid networks can be more cost effective than individual communities working alone.

CLIMATE SMART **INFRASTRUCTURE**

New, expensive and/or critical infrastructure must be placed in "climate safe" spots — future energy development must take Arctic environmental change into account in all decision making. Adaptation tactics will have to be specialized for changing Arctic environments.

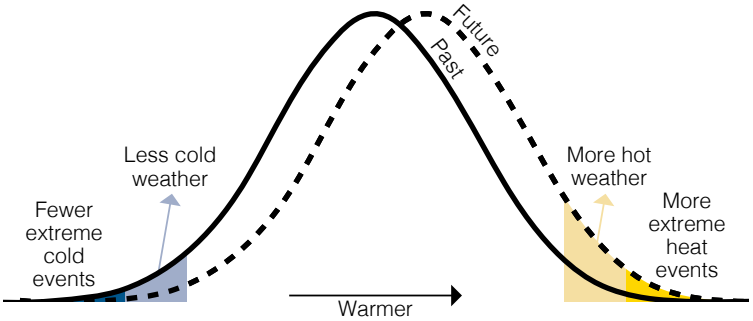
Energy threats by region

This map shows what climate related changes are expected to threaten the energy sectors in regions of the state with the greatest energy needs.



EXTREME EVENTS

The greatest short term climate change impact for humans, infrastructure and Alaska's energy supply is not slightly warmer average temperatures. Rather, the most damage will be caused by extreme events, which will become much more common.



More extreme events 10

This graphic shows how climate change shifts the type of extremes and disproportionately increases the frequency of certain events. For example, extreme cold events may become less likely, while extreme warm events may be much more likely. Similar shifts are occurring in precipitation, wind and other high impact variables.

The Alaska National Guard clears storm debris in Newtok following Typhoon Merbok in September 2022. Photo by 1st Lt. Balinda O'Neal, Alaska National Guard

One of several landslides near Haines in December 2020. Photo by Chief Warrant Officer Jeshua McMaster, Alaska Army National Guard

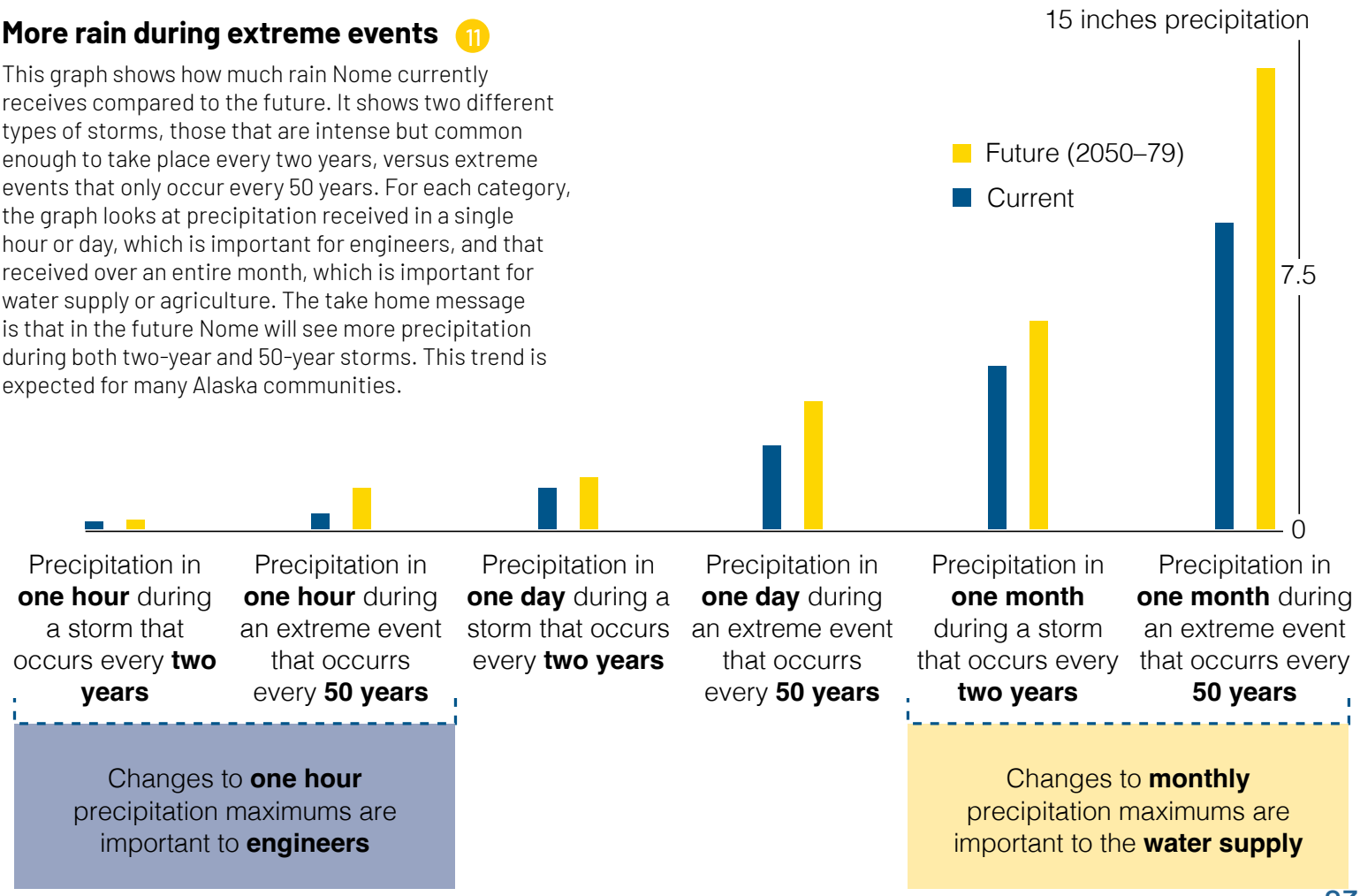
HEAVY PRECIPITATION & DROUGHT

Extreme precipitation is amplified by climate change. This can mean unusually high precipitation in a short period of time, such as the record rainfall that caused the fatal Haines landslide in December 2020. A heavy rain event on the North Slope, compounded by rapid spring thaw, led to the 2015 flooding of the Sagavanirktok (Sag) River. The event significantly damaged the Dalton Highway and interrupted supply hauls to the North Slope. Heavy rain in 2019 again flooded the Sag and threatened the Trans-Alaska Pipeline System. This prompted costly mitigation to prevent future infrastructure damage.

Climate change also manifests in the frequency and intensity of drought. Small hydropower projects, relied on by many Alaska communities, are especially vulnerable to drought because they have very little water storage. For example, Ketchikan received more than 100 inches of rain in 2018, yet was in a drought. Due to low water supply, they were forced to use diesel for electricity rather than hydropower.

More rain during extreme events 11

This graph shows how much rain Nome currently receives compared to the future. It shows two different types of storms, those that are intense but common enough to take place every two years, versus extreme events that only occur every 50 years. For each category, the graph looks at precipitation received in a single hour or day, which is important for engineers, and that received over an entire month, which is important for water supply or agriculture. The take home message is that in the future Nome will see more precipitation during both two-year and 50-year storms. This trend is expected for many Alaska communities.

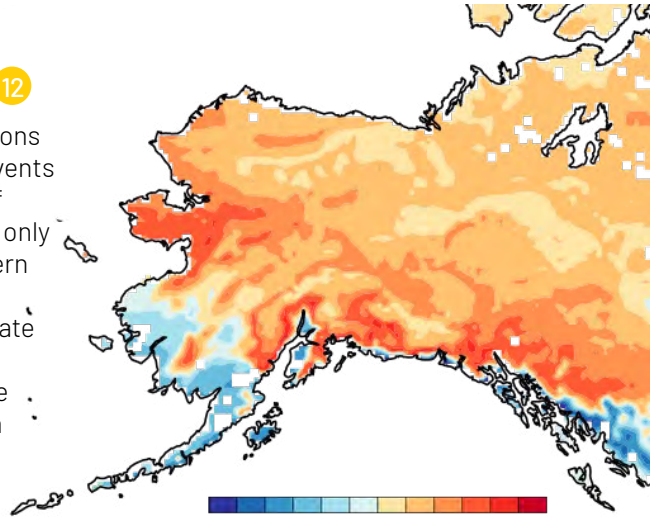


FREEZING RAIN

Freezing rain has a major impact on energy infrastructure. For example, heavy snow mixed with freezing rain caused thousands of Interior Alaska residents to lose power over the 2021–22 winter holiday season. Power outages caused by icing events impact commerce and industry, as well as the general public. Rural Alaska communities can see essential travel and supply chain disruptions. Winter icing events can coat vegetation and block access to food by wildlife such as sheep. This secondarily impacts subsistence activities.

More rain on snow 12

As climate change transitions snow to rain, more icing events are projected over most of Alaska for 2006–2100. The only exceptions are southeastern and southwestern Alaska, where a warmer base climate means that air and ground temperatures will be above freezing during winter rain events.



Apoon Pass tundra fire near St. Mary's in June, 2022. That season saw unprecedented wildfire in southwest Alaska. Photo by Ryan McPherson, BLM

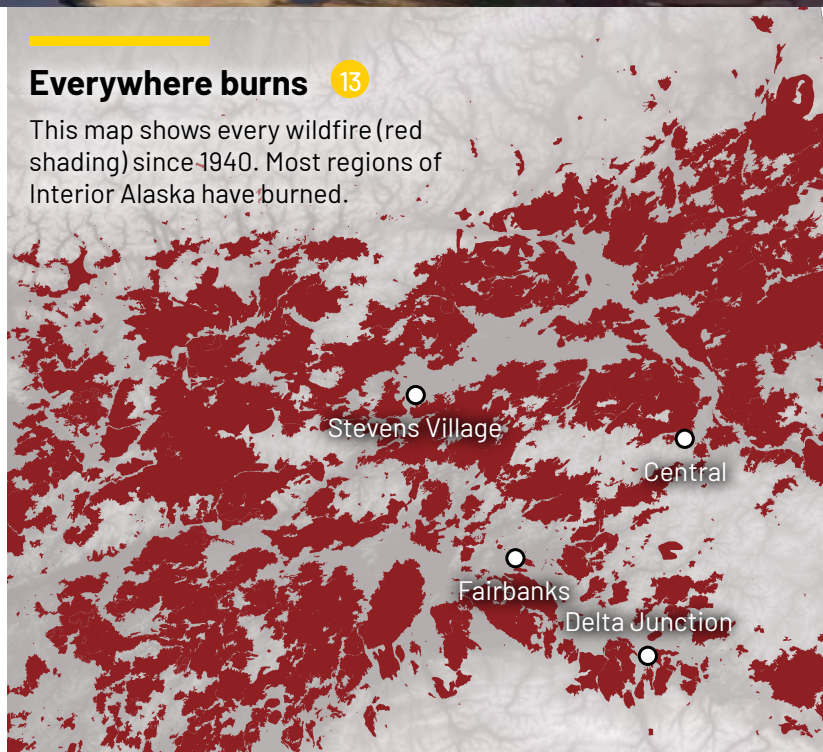
WILDFIRE IS A GROWING RISK

Though wildfire is natural in Alaska, the frequency of severe burns has dramatically increased over the past 30 years. During the 50 years prior to 2000, only three years burned more than three million acres. Four of the 22 years since 2000 have seen that acreage burned. More wildfire is related to warmer springs, longer summers and more lightning. Denser vegetation and summer drying have increased the fuels available. Wildfires are now burning more intensely and deeper into the ground.

Wildfire is already a major threat to the Railbelt electrical systems in Interior Alaska. This threat will continue.

Everywhere burns 13

This map shows every wildfire (red shading) since 1940. Most regions of Interior Alaska have burned.



Workers gather around a thermokarst — a hole that opened up due to thawing permafrost — on the University of Alaska Fairbanks campus. Photo by Vladimir Romanovsky, Geophysical Institute

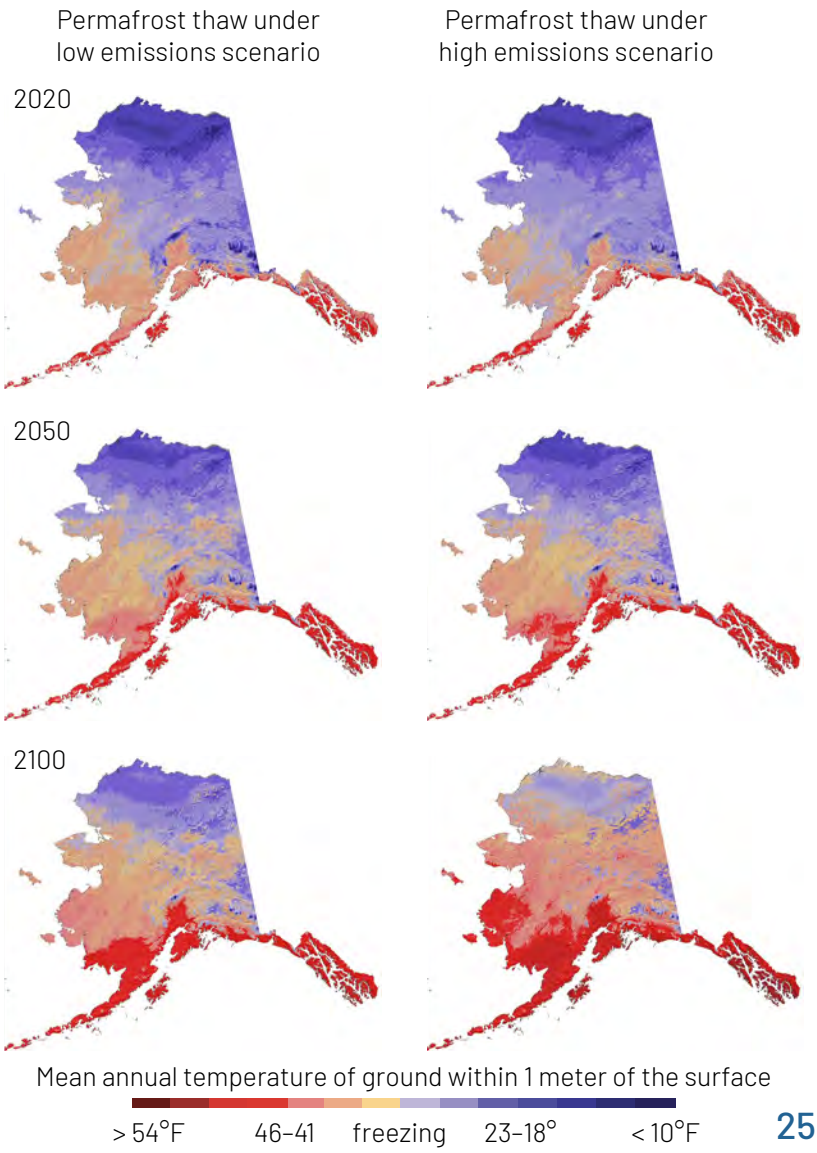
COSTLY PERMAFROST THAW

Changes in permafrost threaten infrastructure, especially in the energy sector. Places like the Yukon-Kuskokwim Delta are already seeing severe permafrost degradation.

The costs of thawing permafrost in Alaska are high because it directly impacts roads, buildings, pipelines and other costly infrastructure. Near-surface permafrost thaw is one of the largest sources of climate-induced damage to existing public infrastructure in Alaska. The necessity of mitigating permafrost thaw in Arctic Alaska is an added cost to oil and other industry development, which may disincentivize investment.

Permafrost is thawing 14

As these maps of near-surface permafrost show, even in a low emission scenario, large areas in western Alaska are at risk for thaw. In the high emission scenarios, a huge area of permafrost will thaw by the end of the century, including places in northwest Alaska that have been frozen for more than 40,000 years.



MILITARY, CLIMATE AND ENERGY

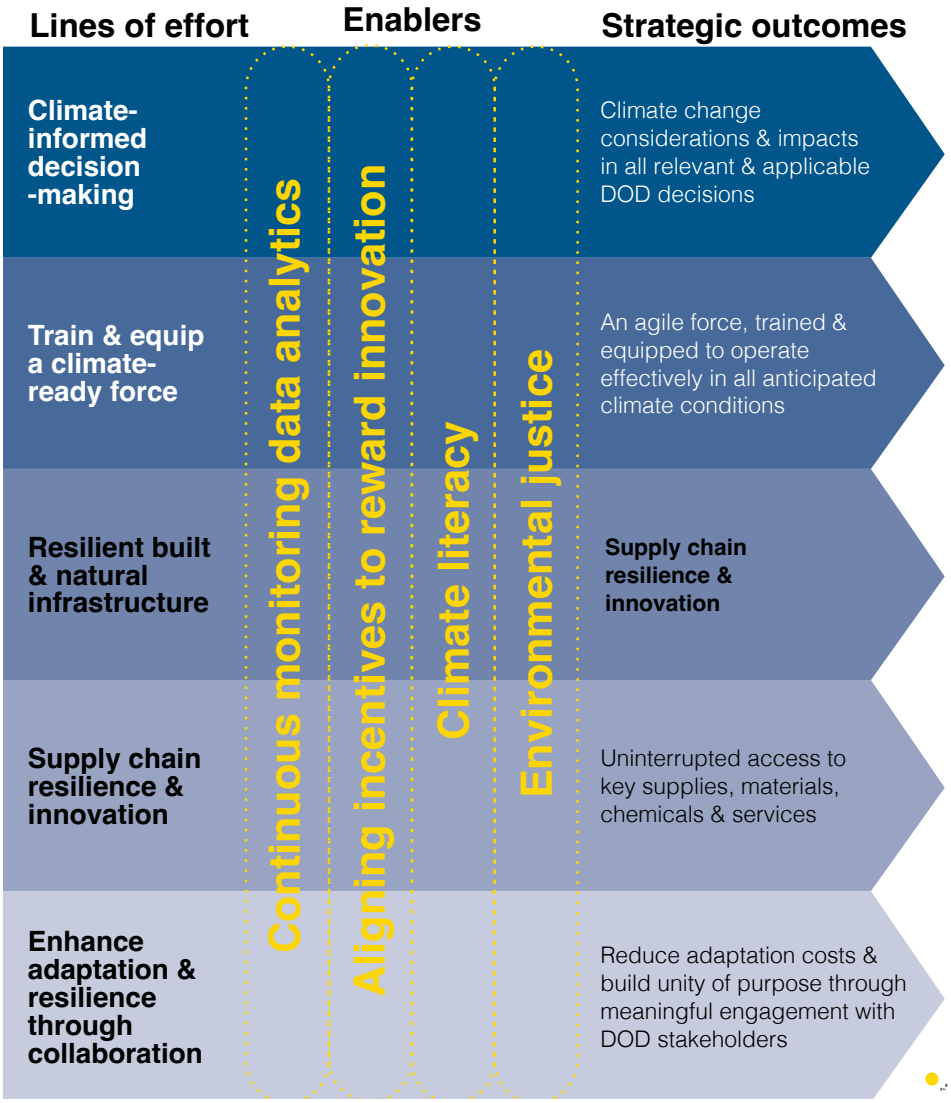
The U.S. military accounts for about 80% of the total U.S. federal government fuel consumption. This means the Department of Defense will play a large role in meeting national and global climate goals. In the current administration, Executive Order 14008 Tackling the Climate Crisis at Home and Abroad requires climate adaptation plans from each national agency. The DOD released its own plan based on five lines of effort in 2021.

Currently, there is one uniformed member of the military for every 34 Alaskans. In addition, the state has the highest number of military veterans in the U.S. — 8,775 veterans for every 100,000 people. As of 2019, Alaska had 21,407 active duty military personnel with 29,406 dependents.

Military installations in Alaska must be prepared for extreme weather events and ongoing environmental change. For example, thawing permafrost, coastal erosion and changes to river flows can threaten military infrastructure.

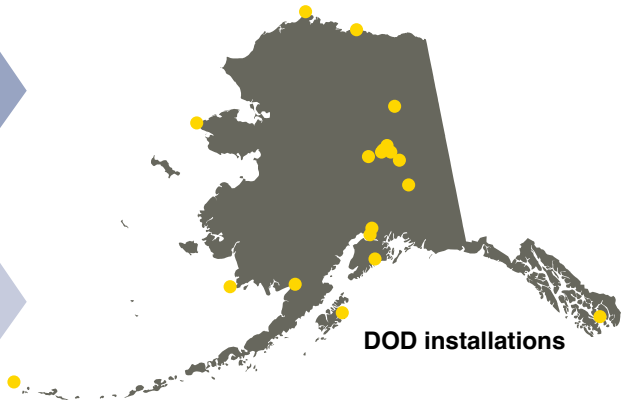
Billion-dollar infrastructure is at risk, as well as impacts to mission readiness, including training and deployment from Alaska as a strategic Arctic location. Both energy self-reliance and climate resilience are essential to protect national security and critical assets, including natural resources and energy infrastructure.

When Adak's naval air station closed in 1997, the Navy no longer maintained a significant presence in the state. The Army represents most of the military population at 51%, Air Force next at 38% and the Coast Guard at 10%. Outside of the U.S. Coast Guard 17th Command, the seven Army and Air Force bases in the state rely on either natural gas distribution systems, in the Anchorage area, or coal-fired power plants. A notable partnership between Joint Base Elmendorf-Richardson, Doyon and the Municipality of Anchorage created the JBER Methane Plant. The plant produces 50% of the electrical power of the Fort Richardson side of JBER, and 26% of the electrical power of JBER as a whole, from the methane released by the adjacent municipal landfill.



DOD climate end state 15

This graphic shows the DOD's five lines of effort for tackling the climate crisis at home and abroad. Their end state goal is to "ensure the DOD can operate under changing conditions, preserving operational capability and enhancing the natural and man-made systems essential to the Department's success."



Foreign ships spotted in the U.S. exclusive economic zone during a routine patrol in the Bering Sea and Arctic region in 2021. Photo by U.S. Coast Guard District 17

INCREASED VESSEL TRAFFIC

Changes in sea ice are already impacting shipping and increasing marine traffic around Alaska.

The Northern Sea Route connects the Pacific to Europe by passing through the Bering Strait and running along the Russian Arctic coast. The route was open rarely in the past. Now it is clear for a portion of most years, even outside the summer season. Because of thinner sea ice, ice-hardened vessels are now able to make the Northern Sea Route round trip early in the winter by going through ice that, decades ago, would have been too thick for all but the biggest icebreakers. In some years, ice-hardened vessels are now able to get through the Northern Sea Route past the first of the year.

Summer sea ice extent has already declined by about 40% since 1980. Even in the best case scenarios, summer ice coverage will continue to significantly decrease. In all but the most aggressive mitigation scenario, the Arctic will be ice free during the summer, possibly as early as 2035.

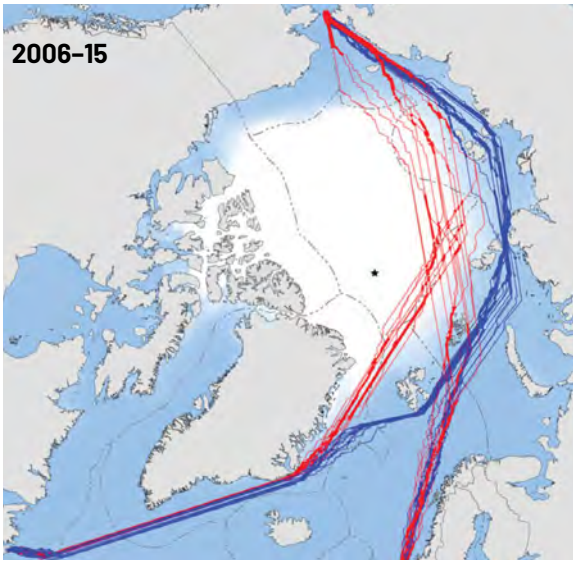
With the Bering Strait as a pinch point, increased maritime traffic is a big concern for Alaska. With this in mind, the Alaska Arctic Policy Commission set a port in the Bering Strait as a priority. Such infrastructure has significant energy needs and should have a structural design that takes coastal environmental change and local needs into account.

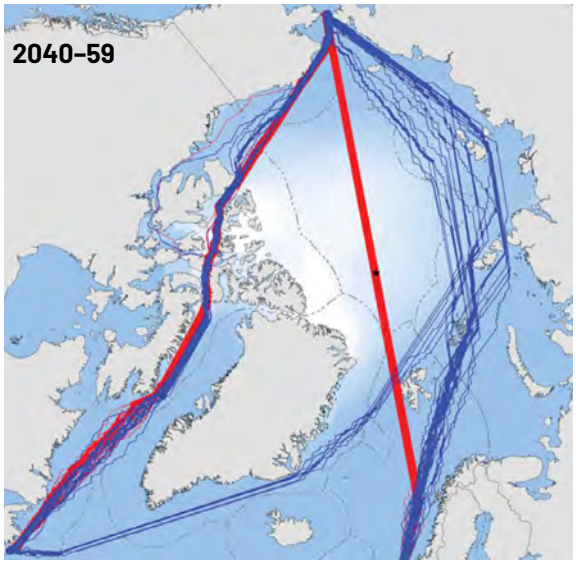
Increased ship traffic and associated infrastructure will also have major impacts on national security, tourism and subsistence activities.

Ice-free shipping 16

These maps compare current summer shipping routes in the Arctic to hypothetical routes in the future, assuming a low emissions scenario. Summer sea ice conditions from 2006-15 are representative of conditions today.

- Ships with medium hull ice strengthening
- Open water ships, no hull ice strengthening





POLICY IMPLICATIONS *of* CLIMATE SMART INFRASTRUCTURE

New infrastructure is required to diversify Alaska's energy portfolio and generate economic gains in construction and other sectors related to transitions in the state's energy development and production. Given the rapid changes to Alaska's coastal and terrestrial environments, infrastructure for oil and gas, as well as any renewables, will have to account for instability in permafrost, unpredictable rains or flooding, drought and storms. Alaska can be an Arctic leader in developing climate safe infrastructure techniques and materials.

ALASKA IN **INTERNATIONAL AFFAIRS**

In 1935, Gen. Billy Mitchell said to Congress, "I believe that in the future, whoever holds Alaska will hold the world. I think it is the most important strategic place in the world."

Alaska's geographic location and Arctic presence are deeply intertwined with the state's energy opportunities and challenges. When the U.S. assumed chairmanship of the Arctic Council in 2015, the country was presented with the opportunity to move Alaska from the periphery to the core of national energy and climate policy. President Obama became the first U.S. president to travel north of the Arctic Circle and see the energy needs of rural Arctic communities firsthand. Throughout the chairmanship, the national and state administrations prioritized energy security and smart, renewable microgrid technology to help rural communities mitigate the high costs of energy and transition away from dependency on fossil fuels. Projects such as Clean Energy Solutions for Remote Communities and the Arctic Remote Energy Network Academy are just two of the initiatives developed during the U.S. chairmanship that are still supporting state energy needs today. In less than a decade, the U.S. will again chair the Arctic Council during 2031-2033.

International relations and global trends impact Alaska. As the Bering Strait region develops, energy resources and transportation interests in the Pacific Arctic place the state at an important crossroads with strong potential collaboration and competition opportunities. Discussion of shipping must be realistic. Currently, Alaska does not have a population with enough demand to draw big container ships to a new port, nor does the state produce enough retail goods to fill such ships. However, we do have energy resources that are in demand around the world.

Territorial claims in the Arctic 17

This map shows ongoing territorial claims in the Arctic. The Arctic Ocean and surrounding seas are areas of competition by Arctic nations and those seeking to access marine resources.

INUIT PARTICIPATION IN THE INTERNATIONAL MARITIME ORGANIZATION

The International Maritime Organization is the United Nations specialized agency responsible for the safety and security of shipping and the prevention of associated marine and atmospheric pollution. Recently, the Inuit Circumpolar Council, an international non-governmental organization representing approximately 180,000 Inuit of Alaska, Canada, Greenland and Chukotka (Russia), was granted provisional consultative status to the International Maritime Organization. The council can now participate in deliberations over regulation of Arctic shipping issues like fuel-oil use, pollution, ship noise and marine traffic awareness. The Inuit Circumpolar Council is the first Indigenous organization to get this status, demonstrating the power of ongoing pan-Arctic efforts by the Inuit for recognition as integral decision makers related to the Arctic Ocean and its surrounding waters.

ALASKA IS A MAJOR FORCE IN THE GLOBAL ENERGY REGIME

Shifting global energy demands and supplies, international trade and investment, and geopolitics are shaping Alaska's economy, including its energy sector.

Alaska produces energy for the nation and many Asian countries. Supply and demand is, in part, a function of international relations, trade policies and conflict. U.S. foreign and energy policy has significant implications for Alaska. The state's position in national and international energy markets remains dynamic and increasingly important.

An oil tanker loading crude oil in the Port of Valdez. Photo by Polar Tanker, ConocoPhillips

Federal government decisions on oil export levels and destinations, energy bans, Chinese investment and the shipping of goods impact Alaska. As Alaska makes policy in relation to energy it must consider U.S. foreign policy. For decades the Arctic Council was held up as a special institution where "back channel" conversations with Russia and other northern countries would help to stabilize international relationships. This has not proven true for the recent conflict.

RUSSIA'S INVASION OF UKRAINE

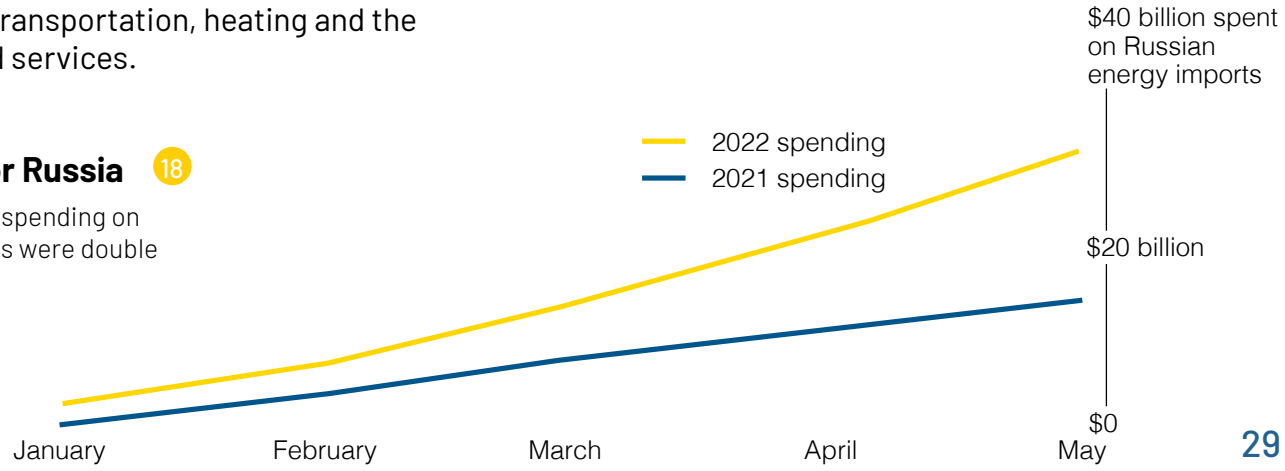
Russia's 2022 invasion of Ukraine contributed significantly to rising oil prices. As countries boycotted Russian oil and Russia shut off supplies, crude oil prices leapt from about $90 per barrel in late February to $120 in early March. The U.S. boycott of Russian oil, liquefied natural gas and coal shifts our reliance to other energy suppliers. The rising prices illustrate the Polar Paradox. Energy price increases benefit corporations and the state budget but come at a cost to communities, businesses and households, who pay more for transportation, heating and the costs of goods and services.

To satisfy national and international demands, Alaska Sens. Lisa Murkowski and Dan Sullivan and Gov. Mike Dunleavy called for increased exploration and development of Alaska oil. As of April 2021, the state's oil production made up approximately only 4% of all U.S. oil production.

As Western sanctions continue, Russia is reorienting its energy exports towards Asia, especially India and China.

Funding boost for Russia 18

China and India's 2022 spending on Russian energy imports were double that of 2021.



CHINA-U.S. RELATIONS, ALASKA IMPACTS

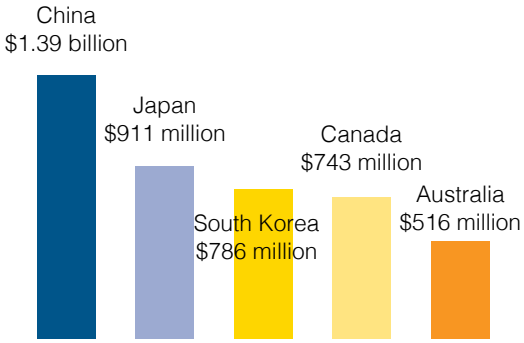
China has played an important role in Alaska in recent years, as part of its global, Arctic and U.S. strategies. However, the dynamic U.S.-China relationship poses economic risks for Alaska.

China is the state's largest trade partner and receives much of Alaska's oil exports. In 2020, Alaska exported more than 15 million barrels of crude oil, with 80% going to China and the remainder to South Korea.

To diversify the government's revenue, Alaska Legislature approved a plan to consider a large liquefied natural gas project in 2014. The project halted when oil prices fell and then partially rebounded. China has at times been considered a key investment partner in the LNG pipeline, since much of the gas would end up in Asian markets.

Alaska's exports 19

This graph shows Alaska's biggest exports in 2021. China was the state's top customer.

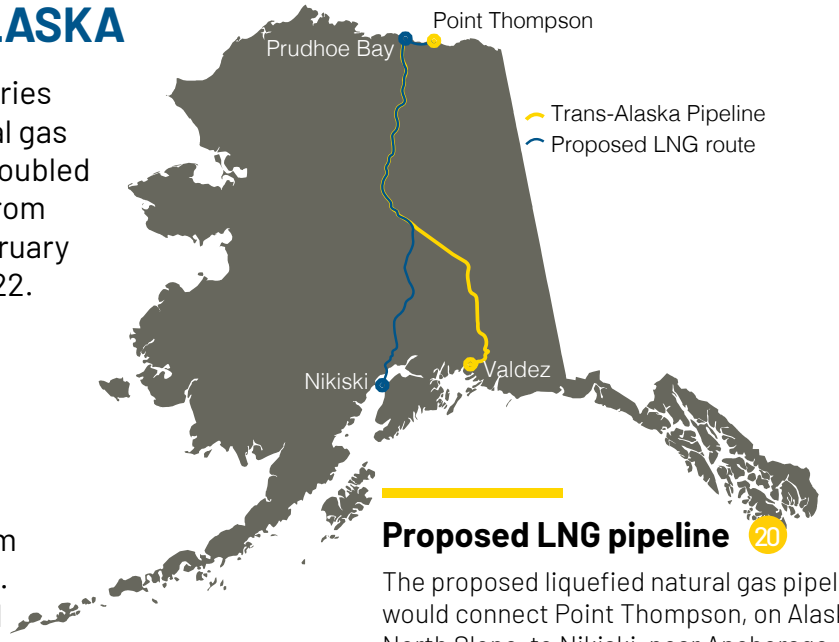


As Alaska becomes reliant on Chinese trade and investment, it also becomes more vulnerable to changes in U.S. foreign policy. If the federal government isolated China for its increasingly objectionable domestic and foreign policies, Alaska's economy would take a blow. Similar impacts to Alaska's seafood and timber industries were seen during President Trump's trade war with China. With more Chinese investment and exports to China, future conflict could evolve to jeopardize Alaska's oil sector.

LIQUEFIED NATURAL GAS IN ALASKA

As the West-Russia oil conflict continues, countries have increasingly turned toward liquefied natural gas to satisfy their energy needs. Demand for LNG doubled since the Russian invasion of Ukraine, shifting from about $5 million British thermal units in late February 2022 to about $10 million Btus in late August 2022.

For decades, Alaska provided LNG to Japan, but exports declined as competition from other producers increased. In light of the oil conflict, Japan is once again interested in Alaskan LNG. This energized new LNG project ideas in Alaska, bringing the proposed trans-Alaska pipeline from Point Thomson to Nikiski back into the spotlight. The installation of an LNG terminus is estimated to cost $40–45 billion, making it an investment that requires strategic foresight.



Proposed LNG pipeline 20

The proposed liquefied natural gas pipeline would connect Point Thompson, on Alaska's North Slope, to Nikiski, near Anchorage. A portion of the route would follow the existing Trans-Alaska Pipeline.

POLICY IMPLICATIONS *of* ALASKA IN INTERNATIONAL AFFAIRS

In response to Russia's invasion of the Ukraine during Russia's current chairmanship of the Arctic Council, the other seven member states (including the U.S., which is a member via the state of Alaska) temporarily suspended their participation in and paused the work of the Arctic Council. Shortly before the completion of this report, China issued a statement that it will not recognize the Arctic Council for the duration of this punitive action. This adds to the tension surrounding Alaska's proximity to Russia and highlights the fact that Alaska's economy is deeply intertwined with other countries' domestic decisions. Decisions made by the Alaska Legislature can determine how dependent Alaska's energy future is on volatile global marketplaces.

AUTHOR & DATA INFORMATION

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Data credits

1 • Krauss, M., Holton, G., Kerr, J., & West, C.T., 2011. Indigenous Peoples and Languages of Alaska. Fairbanks and Anchorage: Alaska Native Language Center and UAA Institute of Social and Economic Research.

2 • ANCSA Regional Association

ALASKA'S ARCTIC OIL ECONOMY

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13 • Alaska Interagency Coordination Center, map created by Zav Grabinski

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15 • Department of Defense Climate Adaptation Plan, 2021

16 • Smith & Stephenson, 2013

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17 • Durham University; Ministry of Foreign Affairs, Denmark; Economist, 2022

18 • China Customs, India Trade Ministry, graph in AlJazeera, 2022

19 • The Economic Complexity Observatory

20 • Adapted from Alaska LNG

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