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Benchmarking Alaska's Competitiveness in Three Dynamic Sectors

FTI Consulting conducted an independent assessment of Alaska's economic competitiveness relative to select peer regions across three key dynamic sectors:

1. **Aerospace**
2. **Minerals and Natural Resources**
3. **Maritime Infrastructure**

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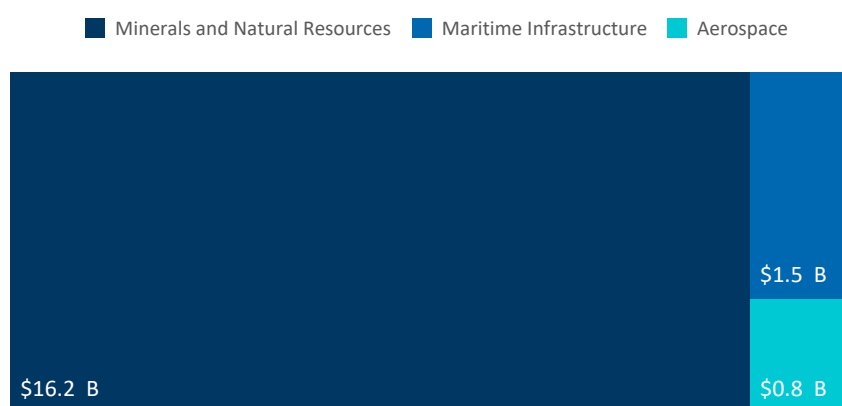
Executive Summary

This report evaluates Alaska's competitiveness across three dynamic sectors: **Aerospace**, **Minerals and Natural Resources**, and **Maritime Infrastructure**. These sectors encompass diverse industries that are critical to Alaska's economic stability and growth. Given Alaska's geographic scale and distinctive transportation system, these three sectors are highly interdependent. For example,

- Maritime infrastructure at the Port of Valdez transfers crude oil from the Trans-Alaska Pipeline System ("TAPS") into tanker vessels; and
- In-state refineries produce jet fuel refined from North Slope oil and fuel imports, ship it through maritime infrastructure, and supply Alaska's major freight hubs' fuel demand.

Minerals and Natural Resources is the largest of the three dynamic sectors, generating over \$16 billion in economic output in 2022. Figure 1 illustrates the relative size of each sector.

Figure 1 – 2022 Alaska Economic Output by Dynamic Sector (Billion 2024 USD)¹



Each sector enjoys abundant opportunities for growth. Alaska's location between Asia and the Lower 48 is a significant advantage in freight, and Asia–U.S. freight is projected to become one of the fastest-growing air cargo routes over the next decade. New major crude oil developments are expected to reverse a decade of declining North Slope oil production.

Beyond Alaska's established industries, the state has new opportunities for economic diversification. Space launch facilities, historically focused on government missions, are positioned to accommodate the next generation of satellite-based telecommunications while continuing to provide key sites for missile defense and other military activities. In parallel, Alaska's vast geological endowment of critical and strategic mineral resources presents significant potential to help meet growing domestic supply needs.

Alaska's three dynamic sectors reinforce the state's distinct economic advantages and strategic standing in both domestic and global markets. Evaluating each sector in the following report demonstrates how unique strengths and expansion opportunities drive the state's long-term competitiveness.

¹ "2022 Annual Business Survey," U.S. Census, accessed November 19, 2025, ([link](#)).

Aerospace

Alaska's aerospace sector, specifically the air freight and space launch industries, highlights growth in legacy and next-generation industries. While Alaska has long leveraged its strategic location to develop one of the world's busiest freight airports, the state has new opportunities to expand into commercial space launch activities for the rapidly growing low-earth orbit satellite industry. Its proximity to the Arctic also creates opportunities for national security investments, including missile defense related to the Golden Dome program, and other launch operations.

Alaska's Competitive Advantages

- **Strategic Location:** Alaska is closer to Asia than West Coast airports, which means aircraft can depart from Asia to Alaska with less fuel and more cargo. With respect to space launch, Alaska's wide azimuth range allows spacecraft to achieve high-inclination, polar, and sun-synchronous orbits.
- **Favorable Regulatory Environment:** Unique among U.S. states, Alaska is exempt from federal air cabotage laws. This allows international air freight carriers to connect through Alaskan airports to other destinations in the U.S. without transferring cargo to a domestic carrier. This exemption has helped Ted Stevens Anchorage International Airport evolve into a significant gateway for international air commerce.
- **Satellite Launch Capacity:** Alaska's space launch facilities at the Pacific Spaceport Complex and the Poker Flat Research Range offer capacity for low-earth orbit satellite launches. Alaska's availability contrasts with potential congestion in California, where Vandenberg Space Force Base's popularity among a wide range of space launch missions, from light- to heavy-lift launches, could create lengthy launch pad queues.

Opportunities for Growth

- **Close the Skilled Labor Gap:** Expanding aircraft maintenance technician training programs and developing new training pathways with direct paths from training to employment are vital to sustaining Alaska's air freight growth.
- **Upgrade Fuel Infrastructure:** Additional in-state jet fuel refinery capacity and construction of a novel sustainable aviation fuel ("SAF") production facility could reduce fuel costs and retain business from international carriers who may be subject to SAF consumption requirements.
- **Establish Space Launch Incentives:** Alaska should examine potential state incentives to attract the growing number of commercial light-lift space launches. Existing orbital and test ranges can develop into incubators for satellite technology by attracting research and development talent.

Conclusion

Alaska's aerospace sector, supported by an advantageous physical and regulatory environment, is primed for growth. Its legacy air freight industry, which will grow in tandem with global trade flows, can further improve workforce development and infrastructure expansion. The state's space launch industry, equipped with decades of experience launching government missions, can further expand into commercial satellite deployment.

Minerals and Natural Resources

Alaska consistently ranks among the top U.S. producers of oil, gas, and minerals. Mining and oil and gas extraction account for nearly 17% of Alaska's gross domestic product ("GDP"). Alaska's vast undeveloped oil, natural gas, and critical mineral reserves also represent key assets for U.S. economic and national security interests, supporting domestic energy independence and supply chain resilience for critical minerals.

Alaska's Competitive Advantages

- **World-Class Resource Potential:** 3.4 billion barrels of proven oil reserves lie beneath Alaska, the 4th largest quantity among U.S. states. Alaska also has the 3rd largest natural gas reserves. For non-oil and gas minerals, Alaska is ranked 1st for silver and zinc production and 2nd for gold and lead production.
- **Exceptional Labor Productivity:** Alaska's mining sector is by far the most productive among peer regions. In 2022, the sector generated more than \$1 million per employee and offered the highest average annual compensation at nearly \$127,000.
- **Strategic Geographic Position:** Alaska's proximity to Asian markets enables reduced shipping timelines for tanker vessels potentially exporting liquified natural gas ("LNG") relative to LNG export facilities elsewhere in the U.S.

Opportunities for Growth

- **Streamline Permitting and Improve Coordination:** Large-scale resource projects in Alaska often face complex and overlapping permitting requirements across federal and state agencies, which can extend development timelines. Improving coordination across these agencies and reducing duplicative review processes would help provide clearer timelines and more predictable paths for project development, supporting investment in oil and gas, as well as mineral resource projects.
- **Support Energy Delivery Infrastructure:** Further developing Alaska's energy industry will require reliable, large-scale energy and export infrastructure to support local processing and global exports. The proposed Alaska LNG pipeline from Prudhoe Bay to Nikiski could unlock stranded North Slope gas and stabilize long-term energy production in the state.
- **Encourage Mineral Exploration and Infrastructure Build-Out:** Beyond established production of gold, silver, zinc, and lead, Alaska holds significant deposits of critical minerals like copper, graphite, rare earth elements, cobalt, and germanium. Federal funding and national security-oriented policy support intensified exploration and development of Alaska's critical mineral endowment. Alaska should further promote mineral exploration and support the infrastructure projects necessary for the processing and transportation of mineral deposits in remote regions of the state.

Conclusion

Alaska is well-positioned to supply the rising global demand for energy while strengthening U.S. supply chains for critical minerals. The state's existing advantages, including vast proven and undiscovered reserves, form a strong foundation for sustained growth across the oil, gas, and other mining sectors.

Maritime Infrastructure

Alaska's ports and maritime transportation system form a critical backbone of the state's economy, as they facilitate a substantial share of crucial imports and exports. Infrastructure development should be a priority for the state as it looks to further develop core dynamic sectors and expand into new ones. Mariculture, a complementary component of maritime infrastructure, is also a rapidly developing sector within Alaska. Increased aquaculture production of oysters and kelp supports local and coastal economies. While the sector presents significant opportunities for diversifying the state economy, mariculture is not evaluated at length in this report.

Alaska's Competitive Advantages

- **Access to the Arctic:** As the sea ice recedes and opens new shipping lines, Arctic maritime operations are projected to increase in frequency and importance. Alaska's northern ports stand to benefit from greater activity in the Arctic as strategic military or commercial waypoints.
- **Major Infrastructure Development:** Major projects like the Port of Alaska Modernization Project, as well as other infrastructure projects, are already underway and will be vital to improving the state's maritime sector.
- **Consistent Federal Investment:** Multiple federal administrations have directed funding towards improving Alaska's port infrastructure or removed permitting obstacles preventing further infrastructure development. The Maritime Action Plan released by the current federal administration highlights Alaska's ports as an important area for future federal investment.

Opportunities for Growth

- **Reform Infrastructure Funding:** Alaska does not have a dedicated funding source for transportation infrastructure projects and relies largely on federal funding or local surcharges. Creating new, dedicated funding sources could help Alaska sustain long-term infrastructure projects.
- **Streamline Multimodal Operations:** Reducing at-grade crossings, expanding railyard capacity, and lengthening docks could help streamline connections between vessels, trucks, and railcars, improving efficiency and reducing costs.
- **Add System Redundancy:** Almost half of all imports are processed by the Port of Alaska. Increasing capacity at secondary ports creates a buffer for Alaska's shipping activity in the case of unforeseen weather events or other interruptions.

Conclusion

Current infrastructure projects will strengthen and expand Alaska's existing port and transportation infrastructure. While these investments help sustain Alaska's current economy, long-term economic growth requires long-term infrastructure planning. Federal funding is one pillar of Alaska's infrastructure development strategy, but it should be combined with other forms of financing, such as greater involvement with anchor tenants or state funding mechanisms supported by new fiscal policies.

Introduction

Alaska is home to a dynamic economy driven by a combination of established industries and emerging opportunities. Identifying Alaska's specific competitive advantages alongside opportunities for growth is intended to help inform targeted investments in the state and sustain long-term economic growth.

FTI Consulting, Inc. ("FTI Consulting") was engaged by Six-7 Strategies, LLC to prepare an independent report that evaluates Alaska's competitiveness across three dynamic sectors, identifies growth opportunities in those sectors, and benchmarks Alaska's performance against relevant peer regions located in the Lower 48 and select international markets. The three dynamic sectors evaluated in this report are: **Aerospace**, **Minerals and Natural Resources**, and **Maritime Infrastructure**.

This report was developed in three stages:

Stage 1: Market Landscape Assessment

Experts assessed the current market landscape in Alaska to identify key competitive advantages, evaluate policy incentives and barriers, and compile major projects under development or planned in each sector.

As part of this exercise, experts identified 5-10 regions within the U.S. and in select international markets as potential peers for Alaska. For each dynamic sector, four regions were selected as the most reasonable peer regions to benchmark against Alaska:

- **Aerospace:** British Columbia, California, Norway, and Washington
- **Minerals and Natural Resources:** Alberta, British Columbia, North Dakota, and Norway
- **Maritime Infrastructure:** British Columbia, California, Finland, and Norway

Stage 2: Sector Analysis & Stakeholder Interviews

FTI Consulting experts conducted sector-specific quantitative and qualitative analyses to evaluate Alaska's economic performance against its peers. Analyses focused on the core factors that drive investment in each sector, including energy costs, labor market conditions, logistics, and project development, with metrics tailored to each sector's needs.

Data for these analyses were sourced primarily from government data sources, such as the U.S. Energy Information Administration, Statistics Canada, Statistics Norway, and Statistics Finland. Qualitative analyses were supplemented by sector-specific reports and news items.

Experts validated these findings in interviews with a representative group of Alaskan stakeholders across the dynamic sectors. To preserve their confidentiality, these stakeholders are not named or quoted in this report.

Stage 3: Competitiveness Report

Findings from the Sector Analysis and Stakeholder Interviews were structured into the following report. Each section is organized as follows:

- **Introduction:** Establishes the central ideas and themes for each sector, emphasizing Alaska's position within a broader global context.
- **Growth Potential:** Assesses potential growth opportunities for Alaska compared to peer regions in each sector, highlighting public global or local projections of the sector where available.
- **Economy & Workforce:** Benchmarks Alaska against its peers in terms of key economic indicators, including output and employment. Discusses workforce challenges and workforce development strategies.
- **Infrastructure & Costs:** Highlights key infrastructure projects relevant to each sector and evaluates key factors that influence project feasibility, such as power and transportation costs, in Alaska and peer regions.
- **Public Policy:** Identifies key policy incentives in each region and areas for Alaska to consider potential policy reform.
- **Key Findings and Recommendations:** Summarizes the section's key findings for each region and outlines recommendations for the State of Alaska.

Aerospace

Introduction

This section analyzes the current and potential contributions of the aerospace industry to the economies of Alaska and relevant U.S. states, Canadian provinces, and Nordic countries. The aerospace industry as a whole is broad and this analysis focuses specifically on the role and importance of the air freight industry and space launch capabilities, including related sectors such as aerospace research, design, and manufacturing. This section begins with an overview of the aerospace sector both in general and in Alaska and outlines potential opportunities for the sector in Alaska. Next, the methodology for identifying competitive regions defined as regions that are presented as potentially viable alternatives to doing business in Alaska, is described. Finally, a competitive analysis is presented using relevant metrics and research related to current performance, industry growth potential, economic concerns and workforce availability, infrastructure and costs, and public policy across these regions.

Air Freight

In 2025, roughly 128.9 million metric tons of air freight cargo were delivered around the globe, representing \$142 billion in total economic activity.^{2,3} Nearly 3.9 million metric tons of all air freight cargo received at airports landed at Alaska's Ted Stevens Anchorage International Airport ("ANC"), making it the 3rd busiest air freight airport in the world. This makes it the top air cargo hub in the U.S., and globally, it is behind only Hong Kong International Airport and Shanghai Pudong International Airport. As outlined below, Alaska's strategic location between Asia and North America and key exemptions from cabotage laws provide competitive advantages in a sector that is expected to grow in the coming decades. In fact, Boeing forecasts 4.0% annual growth in global air cargo traffic through 2043, with the largest share of additional flows occurring between East Asia and North America, making Alaska an ideal location for further investment in this sector.⁴

Space Launch

Similar to Air Freight, Alaska enjoys significant geographic benefits that make the state an attractive location for space launches. Due to its location, the state can support polar, sun-synchronous, and high-inclination orbits while its large coastline and proximity to the Pacific Ocean provide large over-water launch corridors through sparsely populated airspace.⁵

The Pacific Spaceport Complex, one of only four orbital vertical rocket launch sites in the U.S., is owned and operated by the Alaska Aerospace Corporation and located on Kodiak Island on Alaska's southern coast. The Pacific Spaceport Complex has been the site of 35

² "World's Busiest Airports Revealed in Latest Global Rankings," *Airports Council International*, April 14, 2026, ([link](#)).

³ Table 3, "2025 Global Outlook for Air Transport," *IATA Sustainability and Economics*, June 2025, ([link](#)).

⁴ "World Air Cargo Forecast," *Boeing*, accessed January 5, 2026, ([link](#)).

⁵ "Alaska's Aerospace Future," *Alaska Business Initiative*, March 4, 2025, ([link](#)).

launches, primarily for the U.S. government, since it began operation in 1998.⁶ The number and frequency of space launches is expected to grow rapidly in the coming years, driven primarily by satellite proliferation. Estimates based on public plans suggest as many as 68,000 new satellites launched by the end of 2030, up from roughly 7,500 satellites in orbit as of 2023.⁷ Renewed interest in space exploration and global competition in rocketry are harbingers of growth for the space launch sector and related aerospace industries more broadly. This rapid growth presents a significant opportunity for Alaska to capture a greater share of space launch activity and nurture the development of related sectors such as aerospace research and design.

Peer Region Selection

Table 1 – Aerospace Peer Region Rationale

Region	Rationale
British Columbia	<ul style="list-style-type: none"> ■ Home to MDA, a leading Canadian space robotics and instruments manufacturer. ■ Proximity to Washington and Boeing attracts investment, such as \$61 million for manufacturing and data analytics technologies in 2024. ■ Vancouver International Airport is a major cargo hub for the Pacific Northwest.
California	<ul style="list-style-type: none"> ■ Processes a similar amount of international and domestic air freight cargo tonnage compared to Alaska. ■ Major commercial and government space launch hub (Vandenberg Space Force Base). ■ Significant aerospace manufacturing industry.
Norway	<ul style="list-style-type: none"> ■ Only Nordic country with a permanent, orbital launch spaceport.⁸ ■ Significant government investment in space-related research, particularly satellites. ■ Similar international freight market traffic compared to British Columbia.
Washington	<ul style="list-style-type: none"> ■ The aerospace manufacturing sector employs 2% of Washington's workforce. ■ Half of all low-earth satellites are manufactured in Washington.

⁶ "2025 Annual Report," *Alaska Aerospace Corporation*, accessed June 10, 2026, ([link](#)).

⁷ Daehnick et al., "Space launch: Are we heading for oversupply or a shortfall?" *McKinsey & Company*, April 17, 2023, ([link](#)).

⁸ Sweden's Esrange spaceport, inaugurated in 2023, has not yet conducted an orbital mission. The first launch is scheduled for 2028 ([link](#)).

- Significant state and federal investment in aerospace manufacturing.

Alaska's Aerospace Industry

Air Freight

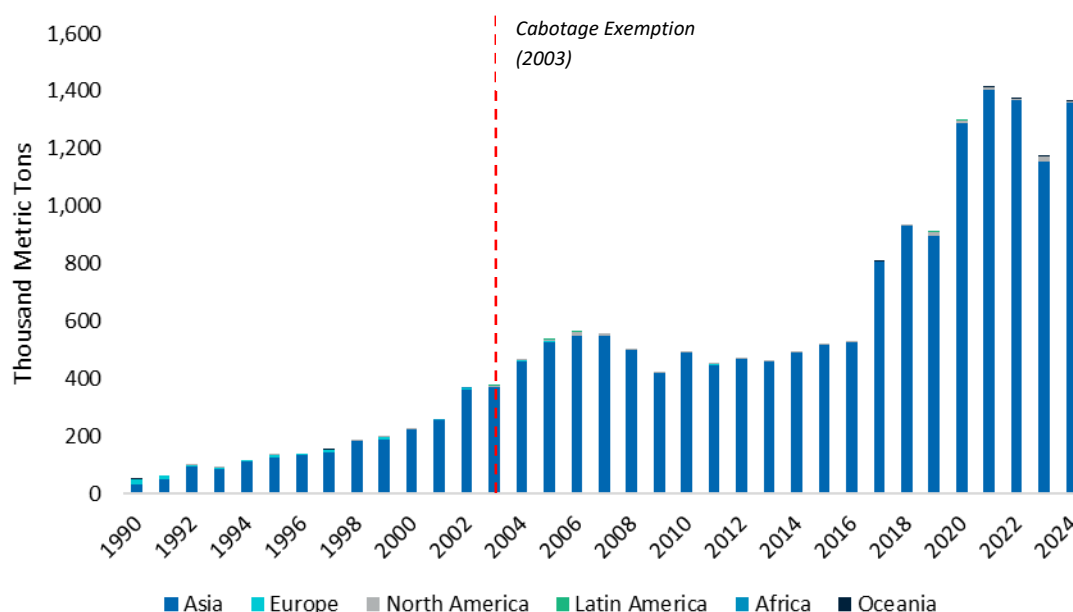
In the U.S., air cabotage law prohibits the “transportation of persons, property, or mail for compensation or hire between points of the U.S. in a foreign civil aircraft.”⁹ As such, foreign cargo carriers are generally not permitted to operate between U.S. states. Alaska, due to the Stevens Amendment (named for the late Alaskan Senator Ted Stevens) and other Department of Transportation (“DOT”) rulings, enjoys limited exceptions to cabotage provisions that provide the state with a significant competitive advantage. Foreign-owned cargo flights are permitted to land in Alaska and transfer cargo for further shipments to other U.S. airports without having been considered to have broken the “international journey.” For example, a single flight from Bangkok could land at ANC and transfer cargo to multiple continuing segment flights bound for the Lower 48.¹⁰ Carriers may even land cargo from different international gateways and transfer it among multiple continuing flights.¹¹ In California, on the other hand, a foreign carrier landing at Los Angeles International Airport (“LAX”) would have to transfer cargo bound for other U.S. locations to a domestic carrier. These exemptions have permitted Alaska to evolve as a pivotal logistics hub for air freight, attracting multiple international carriers. As shown in Figure 2 below, Alaska has served as a key gateway for shipments from Asia since the Ted Stevens cabotage exemption was enacted in 2003.

⁹ Navigation of foreign civil aircraft, 49 U.S.C § 41703, 2003, ([link](#)).

¹⁰ “Alaska Advances Cargo Transfer Rights,” *Air Cargo News*, November 15, 2016, ([link](#)).

¹¹ *Ibid*.

Figure 2 – Air Cargo Inbound to Alaska by Region (1990-2024)¹²



Space Launch

Alaska's Pacific Spaceport Complex has six launch pads supporting solid, liquid, and hybrid suborbital, light-lift, and small-lift launch vehicles, in addition to a portfolio of launch support facilities that match the Eastern and Western launch ranges: a command center, a payload processing facility, a weather operations center, an instrumentation field, a maintenance control facility, an integration and processing facility, a spacecraft and assemblies transfer building, and a rocket motor storage facility.¹³ Alaska is also home to the Poker Flat Research Range, the world's only scientific rocket launching facility owned by a university.¹⁴ Poker Flat is operated by the University of Alaska Fairbanks under contract with NASA's Wallops Flight Facility and has primarily been used for launching sounding rockets.

In August 2025, Alaska's Pacific Spaceport Complex hosted a government launch, suspected to be a hypersonic missile test, the Pacific Spaceport Complex's 35th mission.¹⁵ Previously, the site has conducted launches by Astra and Long Wall (formerly known as ABL Space Systems), both U.S. firms developing launch vehicles primarily for defense use and satellite deployment. Astra's Rocket 4.0 was designed to be an affordable, low-cost option with an average weekly launch cadence, making it well suited to Alaska-based launches.¹⁶ Alaska is also attracting potential new investment to the Poker Flat Research Range. Moonshot Space, a startup, is considering the Poker Flat Research Range for its novel electromagnetic launcher. The launcher promises to increase payload carrying capacity by 40% and reduce

¹² "T-100 International Market (All Carriers)," *Bureau of Transportation Statistics*, ([link](#)).

¹³ "Spaceports," *Alaska Aerospace Corporation*, accessed January 6, 2026, ([link](#)).

¹⁴ "Poker Flat Research Range," *Alaska Aerospace Corporation*, accessed January 6, 2026, ([link](#)).

¹⁵ James Brooks, "Kodiak spaceport hosts secretive federal government rocket launch, likely a hypersonic missile test," *Alaska Beacon*, August 25, 2025, ([link](#)).

¹⁶ "Rocket 4 Payload User's Guide," *Astra*, November 2022, ([link](#)).

costs. Moonshot Space signed a memorandum of understanding with the Alaska Aerospace Corporation in April 2026.¹⁷

Alaska has also hosted military testing missions, including missile defense and space vehicle launches. In 2019, for example, the Pacific Spaceport Complex was chosen as the site for a series of joint Israeli-American tests of the Arrow III exoatmospheric anti-ballistic missile that can intercept intercontinental ballistic missiles in space and may also serve as an anti-satellite weapon.¹⁸ As interest in further developing missile defense capabilities in the United States ramps up, Alaska's space launch ranges could see a significant increase in military activity due to its strategic location.

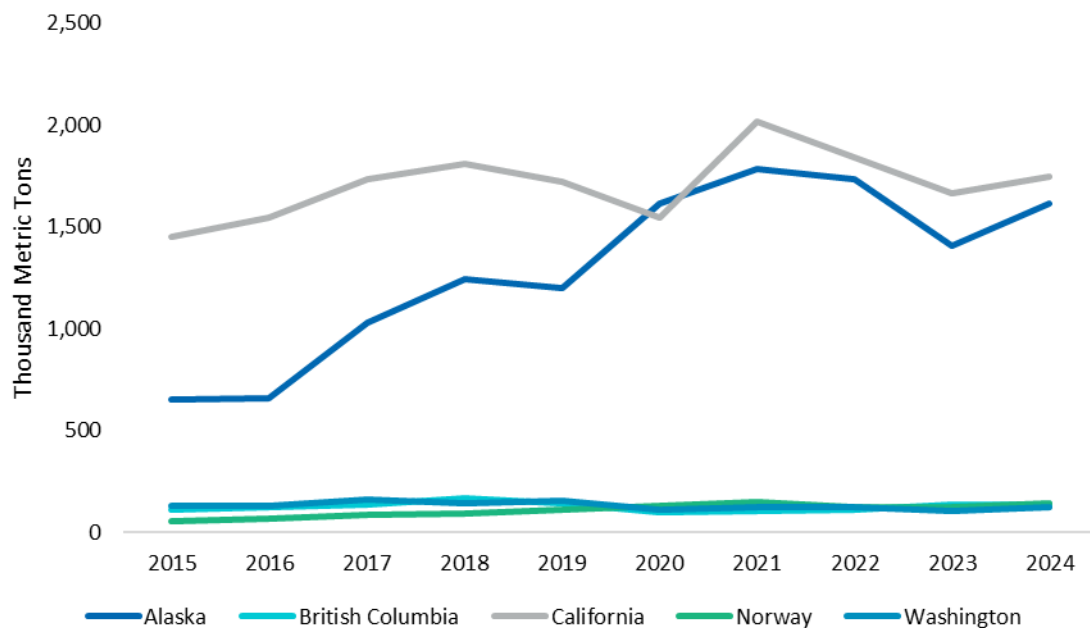
¹⁷ Davis Hovey, "First-of-its-kind launcher from Moonshot Space could be coming to Alaska," *KMXT*, April 22, 2026, ([link](#)).

¹⁸ "Arrow 3 (Israel)," *CSIS Missile Defense Project*, accessed January 6, 2026, ([link](#)).

Air Freight Competitive Analysis

Alaska and California deal with an order of magnitude more international air cargo traffic than Washington, British Columbia, and Norway. Below, Figure 3 highlights how California and Alaska handled similar cargo traffic in 2024. British Columbia was a distant third among the benchmarked regions. Domestic cargo traffic volumes were similar to international cargo traffic among the regions of interest.

Figure 3 – International Cargo Traffic, 2015-2024¹⁹



Alaska and California process comparable volumes of international air cargo when measured at the statewide level, although the underlying operational models differ significantly. Alaska's international cargo activity is overwhelmingly concentrated at Ted Stevens Anchorage International Airport (ANC), which functions primarily as a transpacific cargo transfer and technical stop hub. In contrast, California's cargo volumes are distributed across several large airports, led by Los Angeles International Airport (LAX) and San Francisco International Airport (SFO), and are driven more heavily by origin-and-destination demand associated with California's large consumer and industrial economy.

All else equal, California should expect to have more air cargo imports than Alaska based on population, e-commerce, and supply chain demands. Additionally, California has two major cargo hubs: while LAX dominates with roughly 76% of international cargo tonnage landed in California, San Francisco International Airport ("SFO") (21%) also receives a significant amount of traffic.²⁰ This presents a stark contrast with Alaska, where nearly all international cargo traffic (99.9%) landed in the state flows through ANC.²¹

¹⁹ "T-100 International Market (All Carriers)," U.S. Bureau of Transportation Statistics, ([link](#)).

²⁰ Ibid.

²¹ Ibid.

Given Alaska's strategic location, it is no surprise that 13 of the top 25 air cargo carriers operate out of ANC, including major U.S. and Asian carriers, in addition to freight operations conducted by passenger airlines such as Alaska Airlines.²²

Table 2 – Major Air Freight Carriers by Region^{23,24,25,26,27,28}

Region	Major Air Freight Carriers
Alaska	FedEx, UPS, Atlas Air Cargo, China Southern Airlines, Cathay Pacific Airways, Cargolux Airlines Int'l, Air China, Singapore Airlines, China Airlines, Kalitta Air, Eva Air, and China Cargo Airlines
British Columbia	UPS
California	FedEx, UPS, Atlas Air Cargo, Cathay Pacific Airways, Cargolux Airlines Int'l, Singapore Airlines, China Airlines, Eva Air, Emirates SkyCargo, Korean Air, Lufthansa German Airlines, United Airlines, Nippon Cargo Airlines, and China Eastern Airlines
Norway	FedEx, UPS, Qatar Airways Cargo, Emirates SkyCargo, Turkish Cargo, and Korean Air
Washington	British Airways, Cargolux Airlines Int'l, Cathay Pacific Airways, China Airlines, Emirates SkyCargo, FedEx, Korean Air, Singapore Airlines, and United Airlines

As shown in Table 2, many of the same airlines are present across the peer regions. However, the operational role of ANC differs significantly from other airports in the U.S. and around the world. Many of these carriers utilize ANC for transshipment, refueling, and technical-stop operations while serving different origin-and-destination markets elsewhere. This specialized role and status provided by federal transfer authorities distinguish Alaska from other peer regions.

Growth Potential

Alaska's air cargo industry is poised for significant long-term growth due to its role in facilitating global commerce. A recent Boeing forecast projects that cargo flows between East Asia and North America will expand by a 4.2% CAGR from 2024 to 2043, as shown in

²² The top 25 air cargo carriers are defined by 2024 scheduled cargo tonne-kilometres using IATA's World Air Transport Statistics (WATS) data. ANC also serves additional cargo carriers not reflected in the top 25 carrier table, including Korean Air, Nippon Cargo Airlines, SF Express, and Western Global Airlines.

²³ Rebecca Jeffrey, "Top 25 cargo carriers: Major gains in 2024," *AirCargo News*, September 3, 2025, ([link](#)).

²⁴ "Airline Contacts," *Ted Stevens Anchorage International Airport*, accessed January 6, 2026, ([link](#)).

²⁵ "Integrators and Air Cargo Carriers," *Vancouver International Airport*, accessed January 6, 2026, ([link](#)).

²⁶ "LAX Air Cargo Directory," *Los Angeles Customs Brokers*, accessed January 6, 2026, ([link](#)).

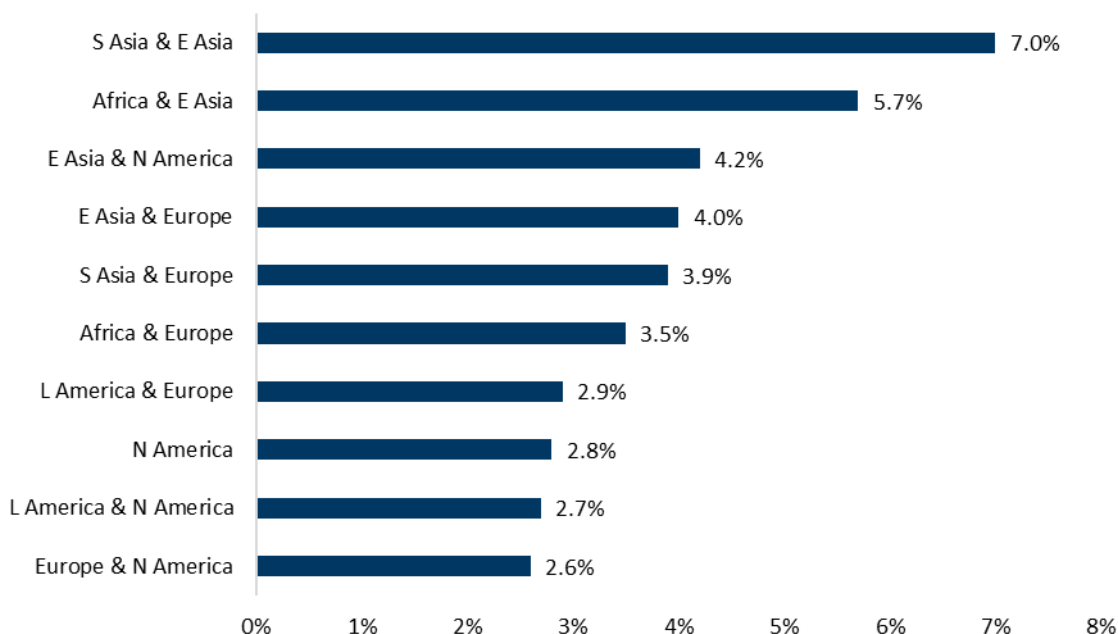
²⁷ "The Nordic air cargo hub," *Avinor*, accessed January 6, 2026, ([link](#)).

²⁸ "Air Cargo Carriers," *Seattle-Tacoma International Airport*, accessed January 6, 2026, ([link](#)).

Figure 4. Alaska, British Columbia, California, and Washington all stand to benefit from increased trade with East Asian countries, but Alaska's strategic location and unique policy incentives position the state to attract a large share of overall growth.

Among Alaska's peer regions, California is expected to remain Alaska's closest competitor, whereas Washington and British Columbia will continue to compete as rival hubs in the Pacific Northwest.²⁹ Washington's air transportation sector faces capacity constraints and is experiencing difficulties with expansion projects because its major airport is surrounded by highways and residential neighborhoods.³⁰ Norway's air freight growth is primarily driven by seafood exports to North America and Asia.³¹ Cargo flows between Europe and North America and East Asia and Europe are projected to expand at a 2.6% and 4% CAGR, respectively, from 2024-2043.

Figure 4 – Air Cargo 2024-2043 CAGR by Flow³²



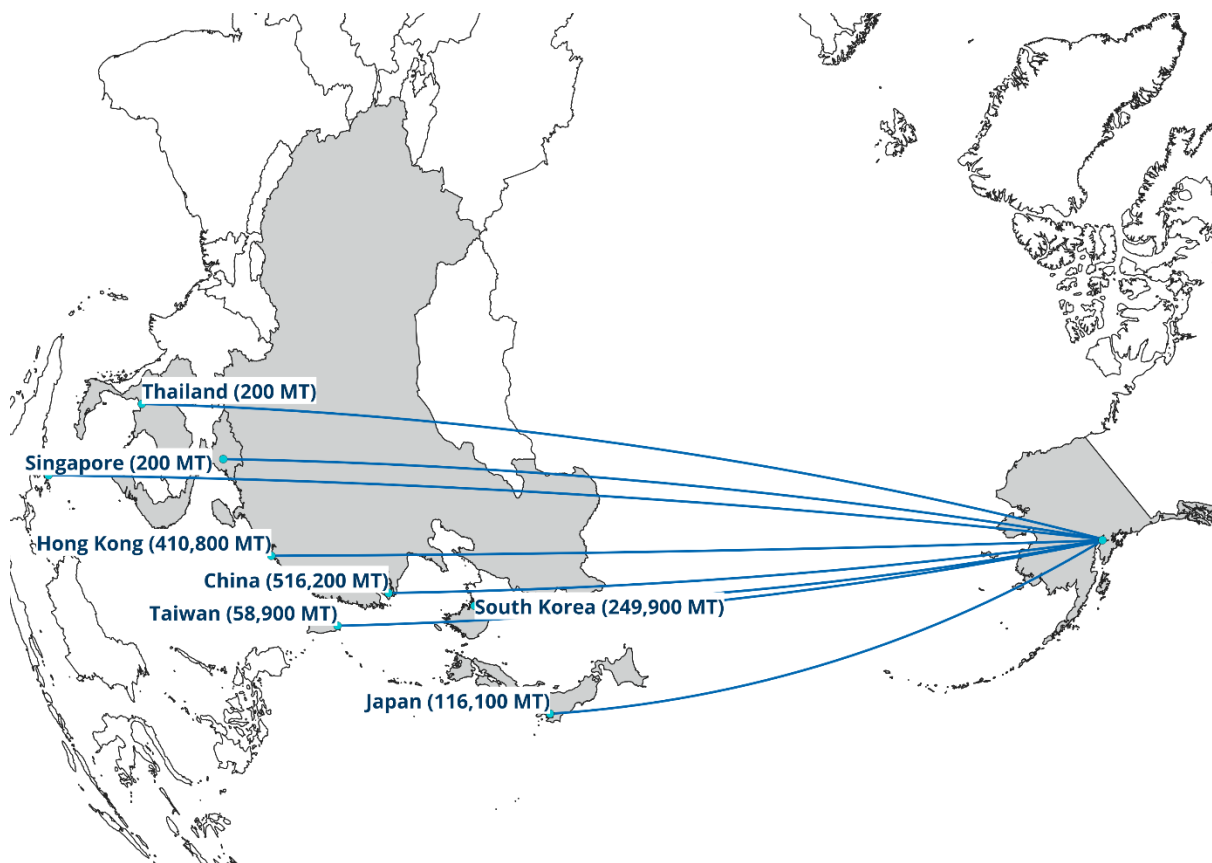
Below, Figure 5 displays current air cargo flows between Asian countries and Alaska, highlighting significant cargo volumes originating in China, Hong Kong, South Korea, and Japan.

²⁹ Kenneth Chan, "Inside the global competition to bring new airlines and routes to Vancouver International Airport," *DH Urbanized*, December 23, 2025, ([link](#)).

³⁰ "Commercial Aviation in Washington," *Washington State Institute for Public Policy*, December 2025, ([link](#))

³¹ "The Nordic air cargo hub," *Avinor*, ([link](#)).

³² "World Air Cargo Forecast, 2024-2043," *Boeing*, ([link](#)).

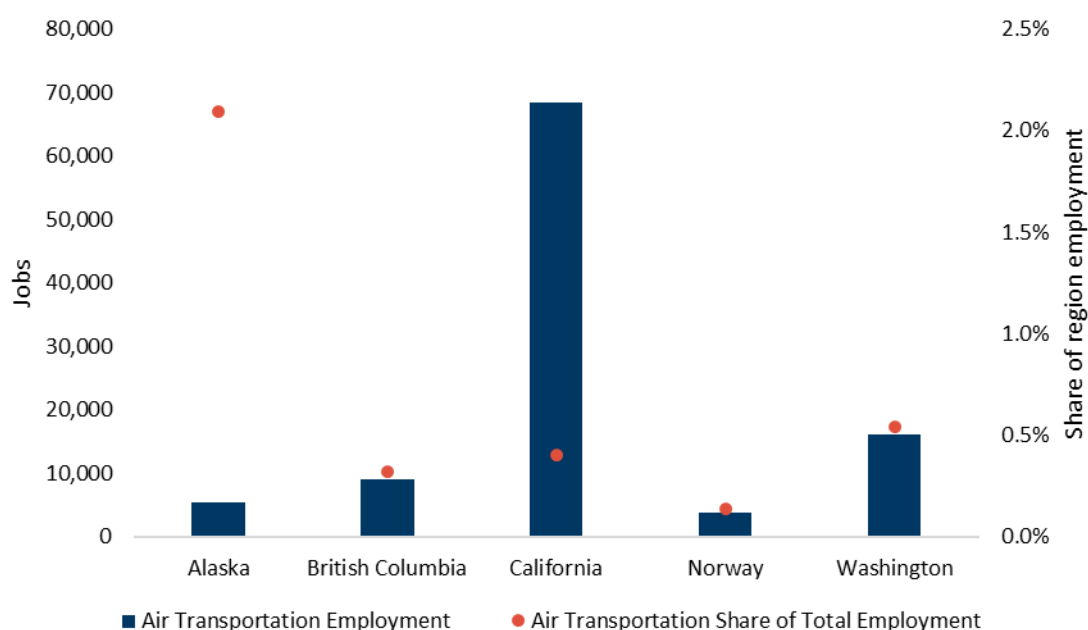
Figure 5 – Top 10 Cargo Flows Between Asia and Alaska (2024)³³

Economy and Workforce

ANC is a vital economic engine for Alaska, as the air freight sector employs a significant number of people. As shown below in Figure 6, nearly 5,500 people are employed by broadly defined air transportation businesses in Alaska, representing 2.1% of all workers in the state, more than four times greater than the share of air transportation employment in any other peer region.

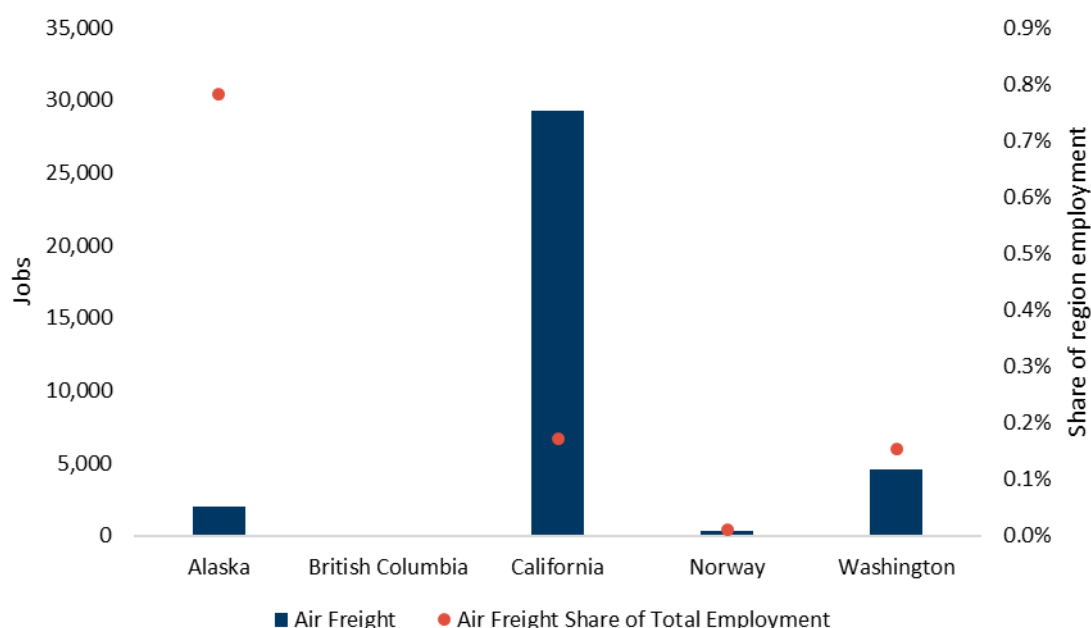
³³ "T-100 International Market (All Carriers)," Bureau of Transportation Statistics, ([link](#)).

Figure 6 – Air Transportation Employment (2022)³⁴



Below, Figure 7 highlights the significance of the more narrowly defined air freight sector employment to each region, excluding British Columbia where data is not publicly available. These workers are those employed by businesses classified as primarily air freight and by businesses that provide other airport services such as refueling and ground support. Alaska is primarily an international market and generally serves as an intermediate stop for cargo tonnage before being forwarded on to its final destination. As such, other airport operations, including fixed base operators, fueling and maintenance services, and other auxiliary services, are included in the definition of air freight. These figures may exclude workers employed by primarily passenger airlines, such as air freight handlers. Alaska Airlines, for example, has a significant number of dedicated cargo planes in addition to belly cargo on passenger planes, but it is not clear from survey data how these workers are classified.

³⁴ "2022 Annual Business Survey," *U.S. Census*, accessed November 19, 2025, ([link](#)); "Enterprises by detailed NACE Rev. 2 activity and special aggregates," *Eurostat*, updated August 12, 2025, ([link](#)); "Labour statistics consistent with the System of National Accounts," *Statistics Canada*, May 20, 2025, ([link](#)); "Employment, register-based," *Statistics Norway*, updated February 26, 2025, ([link](#)).

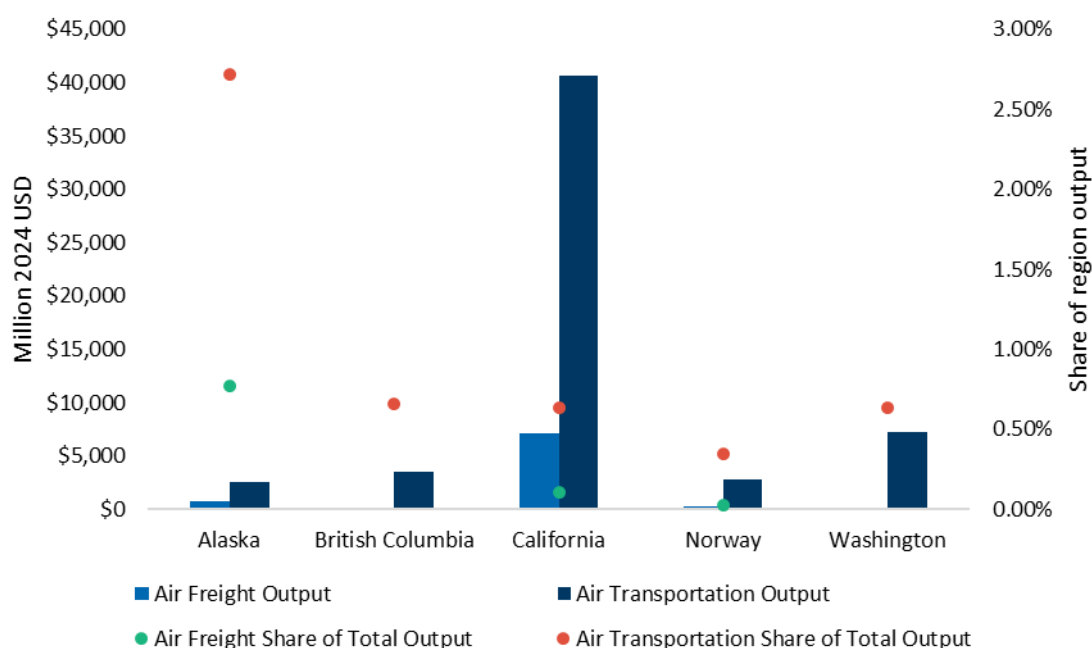
Figure 7 – Air Freight Transportation Employment (2022/2023)^{35,36}


As shown in Figure 8, total output in Alaska's air transportation sector represents more than 2.7% of all output in the state. Air freight, which is a subset of air transportation, represents 28% of this, or 0.77% of total state output. Despite similar international air freight tonnage, California's revenues are significantly higher on a raw basis compared to Alaska. This may be the result of Alaska's primary function as an intermediate stop for longer international journeys. Because international carriers landing in Alaska do not have to transfer cargo onto a domestic carrier's aircraft, domestic carriers do not earn revenue from all flights departing from Alaska to another U.S. airport. Therefore, although substantial cargo activity occurs in Alaska, all revenues generated within the state may not appear in the Annual Business Survey, which only covers U.S. air cargo firms.

³⁵ "2022 Annual Business Survey," *U.S. Census*, accessed November 19, 2025, ([link](#)); "Enterprises by detailed NACE Rev. 2 activity and special aggregates," *Eurostat*, updated August 12, 2025, ([link](#)); "Labour statistics consistent with the System of National Accounts," *Statistics Canada*, May 20, 2025, ([link](#)); "Employment, register-based," *Statistics Norway*, updated February 26, 2025, ([link](#)).

³⁶ British Columbia air freight employment data was not available. Washington air freight employment data was available only in the 2023 County Business Pattern data: "2023 County Business Patterns," *U.S. Census*, accessed January 7, 2026, ([link](#)).

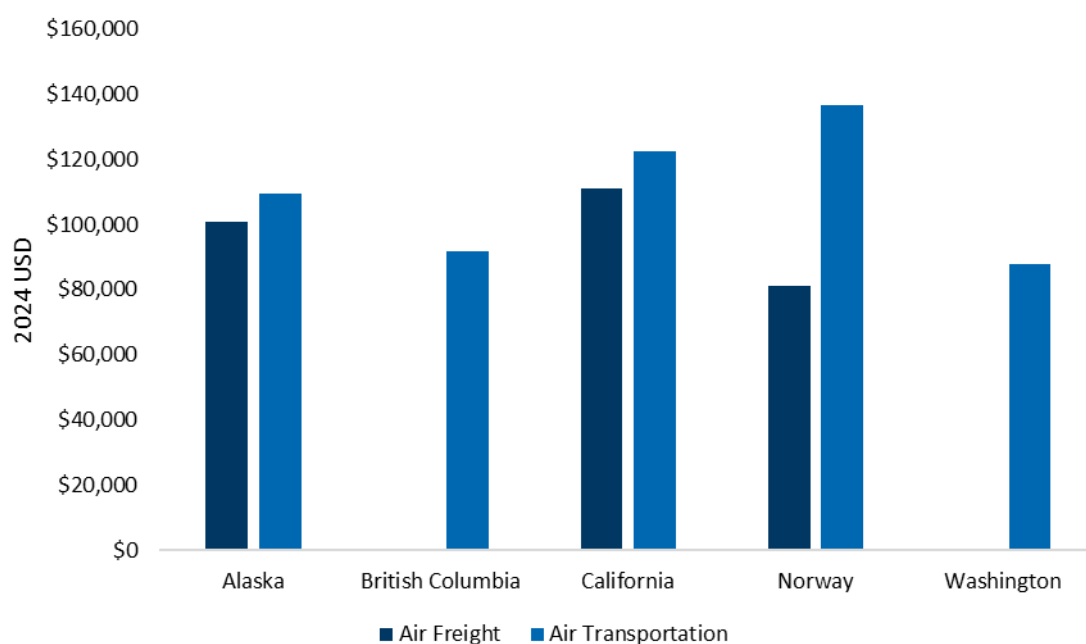
Figure 8 – Air Transportation/Air Freight Output, by Region (2022)³⁷



Air freight operators in Alaska enjoy significant benefits, including lower labor costs and increased productivity compared to the regions analyzed. Average annual labor costs in the broader air transportation sector are also competitive in Alaska at about \$109,000 per employee, which is lower than labor costs in California and Norway. In regions where data specific to air freight is available, Alaska's average labor cost of just over \$101,000 per employee represents a significantly lower cost than California, where average labor costs are about \$111,000 per year.

³⁷ "2022 Annual Business Survey," *U.S. Census*, accessed November 19, 2025, ([link](#)); "Enterprises by detailed NACE Rev. 2 activity and special aggregates," *Eurostat*, updated August 12, 2025, ([link](#)); "Output, by sector and industry, provincial and territory," *Statistics Canada*, November 6, 2025, ([link](#)).

Figure 9 – Average Air Transportation/Air Freight Annual Labor Costs per Employee, by Region (2022)^{38, 39, 40}



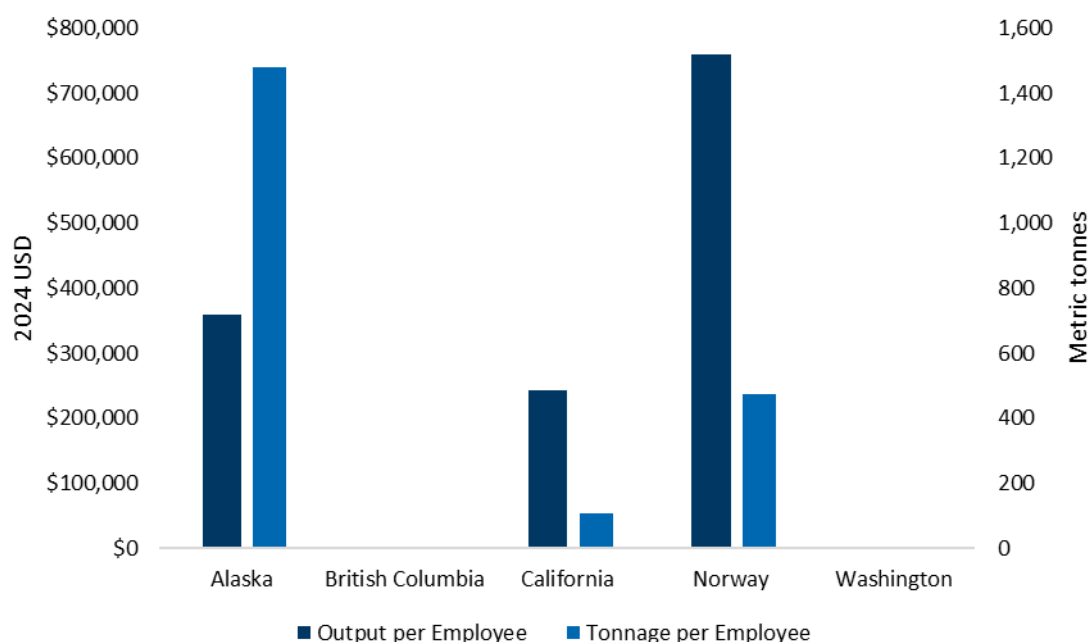
Despite lower labor costs, labor productivity among air freight operators is relatively similar between Alaska and California in terms of output, or revenue, per employee. However, as shown below in Figure 10, Alaskan freight operators process significantly more metric tons of cargo per employee than California or Norway.

³⁸ Air freight industry labor cost data was not available for British Columbia.

³⁹ Washington air freight employment data was available only in 2023 County Business Pattern data: "2023 County Business Patterns," *U.S. Census*, accessed January 7, 2026, ([link](#)).

⁴⁰ "2022 Annual Business Survey," *U.S. Census*, accessed November 19, 2025, ([link](#)); "Enterprises by detailed NACE Rev. 2 activity and special aggregates," *Eurostat*, updated August 12, 2025. ([link](#)); "Employment by industry, annual," *Statistics Canada*, released March 27, 2025, ([link](#)); "Labour statistics consistent with the System of National Accounts (SNA), by job category and industry," *Statistics Canada*, released May 20, 2025. ([link](#)).

Figure 10 – Air Freight Labor Productivity, by Region (2022/2024)⁴¹



Alaska's air freight sector is more productive than California's in terms of output and tonnage per employee. While California processed \$40 billion worth of cargo in 2022 compared to Alaska's \$2.5 billion, California also employed 14 times as many workers. California's lower labor productivity reflects differences in operational demands between Alaska and California.

Alaska's cargo transfer rights provide foreign cargo carriers operational flexibility not available at Lower 48 airports under standard U.S. cabotage restrictions. Handling international air freight in California is likely a more labor-intensive process than it is in Alaska. According to the Bureau of Labor Statistics' OEWS data for 2024, Alaska's air transportation sector employed 600 manual freight movers while California employed 5,200.⁴²

The Alaskan air transportation sector provides employment opportunities for individuals with various educational and vocational backgrounds. More than half (52%) of occupations in Alaskan air transportation do not require more than a high school diploma or require no formal education credential, while another 38% require vocational training (aircraft mechanics, technicians) or other specialized non-university training (commercial pilots). On average, the occupations that do not require more than a high school diploma earn roughly \$58,000 per year, while aircraft mechanics (\$93,000) and pilots (\$171,000) earn significantly

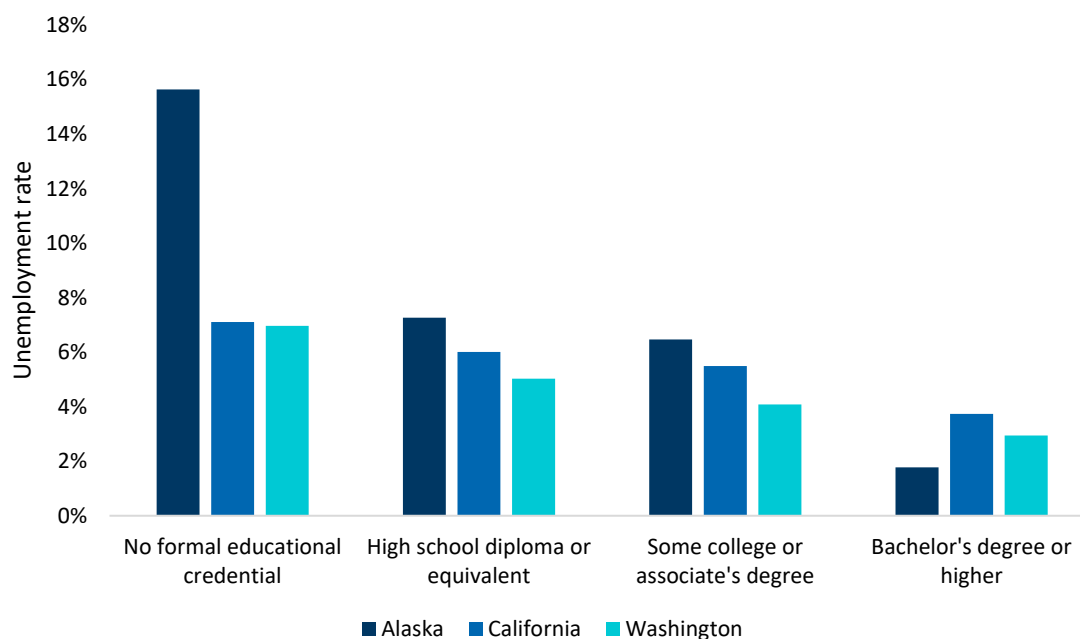
⁴¹ Revenue for the air freight industry was not available for British Columbia and Washington. "2022 Annual Business Survey," *U.S. Census*, accessed November 19, 2025, ([link](#)); "Enterprises by detailed NACE Rev. 2 activity and special aggregates," *Eurostat*, updated August 12, 2025, ([link](#)); "Air Carrier Statistics," *Bureau of Transportation Statistics*, August 2025, ([link](#)); "Monthly Air Cargo Traffic by Airport and Destination Group," *Statistics Norway*, November 25, 2025, ([link](#)).

⁴² "Occupational Employment and Wage Statistics," *Bureau of Labor Statistics*, ([link](#)).

more. Despite strong salaries, the demand for new aircraft mechanics is expected to outpace supply over the coming years unless more individuals can be trained and certified.⁴³

Expanding air freight operations in Alaska would require attracting the necessary workers and the state has a relatively large pool of workers available. As shown in Figure 11 below, the unemployment rate among individuals with educational attainment of a high school diploma or less in Alaska is 33% higher than in California.

Figure 11 – Available Workforce by Educational Attainment, by Region (2024)⁴⁴



As Alaska looks to expand its air cargo industry, the state will have to contend with an aircraft mechanic shortage, which will only worsen as more mechanics retire.⁴⁵ Alaska has many workforce development programs in place, such as partnerships with the Department of Defense (“DoD”) and high school outreach, that aim to attract and retain necessary talent for these roles.⁴⁶ However, Alaska may benefit from considering other workforce development strategies adopted by British Columbia, the largest aviation maintenance, repair, and overhaul (“MRO”) industry in Canada, such as the SkilledTradesBC program, which is similar to Alaska’s State Training and Employment (“STEP”) program.^{47,48} British Columbia’s system, in contrast to Alaska’s, promotes closer alignment of training, certification, and subsequent pathways tied to employment in the province, which may make the programs more successful at translating to employment within the sector.

⁴³ “Mechanic shortage expected to continue at least through 2035,” *General Aviation News*, October 15, 2025, ([link](#)).

⁴⁴ “2024 American Community Survey,” *U.S. Census*, accessed January 8, 2026, ([link](#)).

⁴⁵ Derek Costanza et. al, “Not Enough Aviation Mechanics,” *Oliver Wyman*, January 2023, ([link](#)).

⁴⁶ “Alaska’s Workforce Future,” *Alaska Workforce Alliance*, March 2025, ([link](#)).

⁴⁷ SkilledTradesBC ([link](#)).

⁴⁸ “State Training and Employment Program,” *Alaska Department of Labor and Workforce Development*, ([link](#)).

Other regions have adopted broader workforce development strategies, like the California Workforce Development Board's workforce development grant programs and Washington's Job Skills program.^{49,50} California also runs the Employment Training Panel, which finances upskilling programs using a special payroll tax.⁵¹

Collective bargaining rules in Norway may benefit existing employees in the air freight sector while hindering further development. The Nordic labor model practiced in Norway and neighboring countries involves closer coordination between labor unions, the government, and private sector firms on wages and working conditions than labor relations in the U.S. and Canada.⁵² This has led to at least one dispute between a Norwegian airport and an international passenger carrier over labor union rules.⁵³

Infrastructure and Costs

Jet fuel costs are a major variable input cost for the air freight and air transport sectors. According to the Bureau of Economic Analysis, petroleum products are the highest intermediate cost, making up nearly 26% of total input costs.⁵⁴ To date, Alaska produces a substantial share of the petroleum products consumed within the state, including jet fuel. Alaska's North Slope has been a historically strong producer of crude oil. Although production remains below its 1988 peak of 1,974 thousand barrels per day, new projects are expected to reverse the long-term decline in coming years.⁵⁵ North Slope production is projected to increase from approximately 460,000 barrels per day in 2025 to more than 600,000 barrels per day by 2032.⁵⁶

Much of this crude oil is moved from the North Slope to a pair of refineries in the southern part of the state via TAPS. These refineries, Valdez and Kenai, make up more than 74% of the operable refinery capacity in the state.⁵⁷ Kenai in particular is configured to maximize jet fuel for ANC.⁵⁸ However, the state's demand for jet fuel exceeds its refining capacity, and Alaska imports jet fuel from West Coast refineries (often processing North Slope crude which is then shipped back to Alaska) and from overseas.⁵⁹ More petroleum products crossed the dock at the Don Young Port of Alaska in 2023 than any year previously, primarily driven by air freight demand at ANC, suggesting demand for jet fuel is outpacing in-state

⁴⁹ California Workforce Development Board, ([link](#)).

⁵⁰ "Job Skills Program," Washington State Board, ([link](#)).

⁵¹ California Employment Training Panel, ([link](#)).

⁵² "Wage Formation and the Nordic Model," *Nordic Council of Ministers*, May 7, 2025, ([link](#)).

⁵³ Chris Loh, "Wizz Air: No Union Ban With Norway Move," *Simple Flying*, October 16, 2020, ([link](#)).

⁵⁴ "Input-Output Accounts," *Bureau of Economic Analysis*, ([link](#)).

⁵⁵ "Alaska North Slope Crude Oil Production," *U.S. Energy Information Administration*, ([link](#)).

⁵⁶ "The Economic Impacts of the Oil and Gas Industry in Alaska," *Alaska Oil & Gas Association*, August 2025. Accessed 10/5/2026, ([link](#)); "Spring 2026 Revenue Forecast," *Alaska Department of Revenue*, March 13, 2026. Accessed 10/5/2026, ([link](#)).

⁵⁷ "Capacity of Operable Petroleum Refineries by State as of January 1, 2025," *U.S. Energy Information Administration*, ([link](#)).

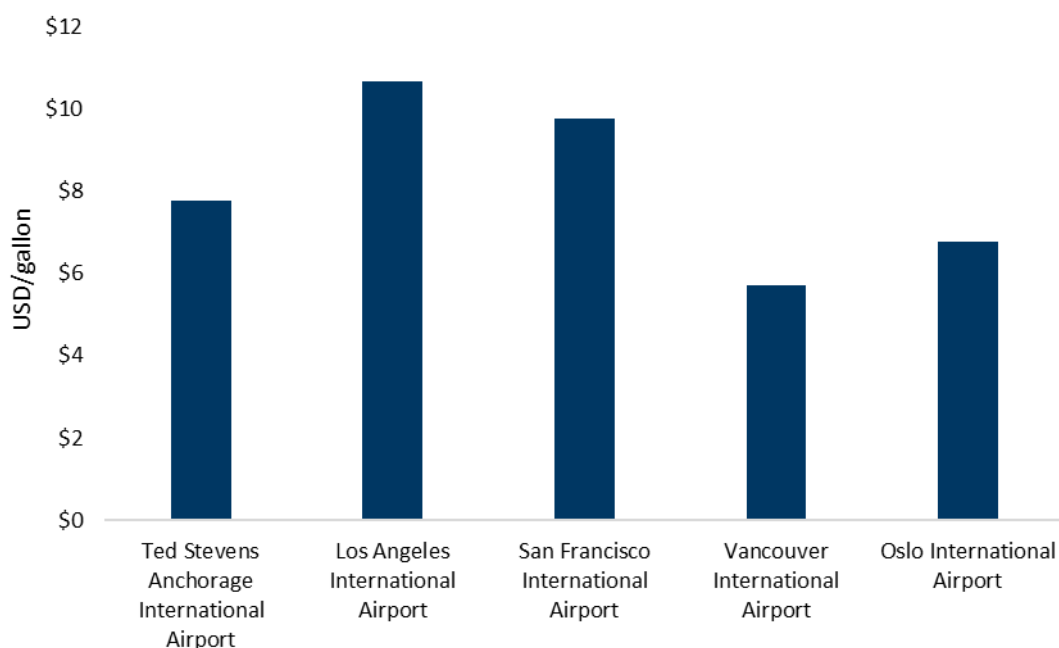
⁵⁸ Isaac Stone Simonelli, "Where Does All That Oil Go?" *Alaska Business*, October 2, 2018, ([link](#)).

⁵⁹ "Alaska," *U.S. Energy Information Administration*, ([link](#)).

supply.⁶⁰ Emerging technologies, such as coal fractionation for synthetic jet fuel production, may present additional opportunities to help address this supply gap.⁶¹

Despite these supply constraints, jet fuel prices in Alaska are competitive with those in other states. As of January 8, 2026, full-service Jet A prices at ANC were \$7.77/gallon.⁶² While significantly cheaper than prices at LAX (\$10.68/gallon) and SFO (\$9.78), jet fuel prices in Alaska are approximately 37% higher than the U.S. national average of \$5.62/gallon.⁶³ Lower fuel prices at British Columbia's Vancouver International Airport ("YVR") are supported by a diverse jet fuel supply network, including a pipeline between the airport and a major refinery in Burnaby, British Columbia, and a new 8-mile pipeline connecting the airport to a marine terminal in Richmond, British Columbia.^{64,65}

Figure 12 – Jet Fuel Prices by Region⁶⁶



ANC is currently undergoing new developments that will increase air cargo throughput and potentially attract new freight activity. FedEx is expected to complete a \$42 million domestic sorting facility by the summer of 2026.⁶⁷ Additionally, Alaska Cargo and Cold

⁶⁰ Alex DeMarban, "Port of Alaska sees surge in cement and fuel shipments, a positive sign for construction and air cargo," *Anchorage Daily News*, February 25, 2024, ([link](#)).

⁶¹ "Alaska Coal Deposits, Location, Type, Potential & Alaska Use History," *Alaska Department of Natural Resources*, May 18, 2026.

⁶² "Local Fuel Prices," *AirNav*, accessed January 27, 2026, ([link](#)).

⁶³ "Fuel price report," *AirNav*, accessed January 27, 2026, ([link](#)).

⁶⁴ "Powering the Future of Aviation Energy," *AvEnergy*, ([link](#)).

⁶⁵ "Vancouver Airport Fuel Delivery," *British Columbia Energy Regulator*, ([link](#)).

⁶⁶ "Local Fuel Prices," *AirNav*, ([link](#)); "Fuel price report," *AirNav*, ([link](#)); "Price List January 2026," *Aviation Fueling Services Norway*, ([link](#)); "Federal and state aviation fuel taxes." *U.S. Energy Information Administration*, ([link](#)).

⁶⁷ "2025 Q1 & Q2 Biannual Report," *Alaska International Airport System*, ([link](#)).

Storage recently signed a 55-year lease to develop a runway-adjacent 700,000+ square-foot cold storage warehouse facility, with construction expected to begin in the summer of 2026.⁶⁸ Current cold-storage at the airport is sparse, limiting the ability to transship perishable and temperature-sensitive goods; this project will increase competitiveness and make Alaska “a more desirable Transpacific cargo hub.”⁶⁹

Alaska's main air freight competitor, California, is also taking steps to boost cargo capacity by redeveloping aging facilities into an airside facility covering 1.6 million square feet of floor space, incorporating technological improvements to increase efficiency, such as automated material handling equipment.⁷⁰ Likewise, in 2024, Canada invested \$75 million to expand YVR's cargo capacity by 160,000 metric tons.⁷¹

Washington's primary cargo hub, the Seattle-Tacoma International Airport (“SEA”), received approval last year from the Federal Aviation Administration (“FAA”) for 31 development projects, including a new cargo warehouse, but a petition from local residents filed in the Ninth Circuit may delay the projects.⁷² Completing these projects actually could benefit Alaska's air cargo sector in the long run; a new cargo route between SEA and ANC was launched in October 2025, signaling a complementary relationship between infrastructure expansion at SEA and increased air cargo traffic at ANC.⁷³

In Norway, the air cargo sector is generally focused on increasing exports of key domestic products rather than serving as a logistics hub. A new seafood cargo route between Oslo and Shanghai opened in January 2026.⁷⁴

Public Policy

Alaska offers a comprehensive set of incentives for potential investors in the air cargo space. While its peer regions offer tax incentives that may indirectly benefit the air cargo industry, Alaska provides direct benefits in the form of streamlined taxes, project finance support, and fee waivers.

⁶⁸ “Alaska Cargo & Cold Storage,” *Rocky Mountain Resources*, ([link](#)).

⁶⁹ Kristi A. Warden, “Alaska Cargo and Cold Storage Project,” *Federal Aviation Administration*, April 30, 2024, ([link](#)).

⁷⁰ Eric Kulisch, “LAX airport picks developer for transformational cargo project,” *FreightWaves*, July 25, 2023, ([link](#)).

⁷¹ “YVR welcomes funding to increase cargo and supply chain capacity for the region,” *Vancouver International Airport*, January 11, 2024, ([link](#)).

⁷² Lauren Rosenblatt, “Cities appeal Sea-Tac airport expansion plans, including new terminal,” *The Seattle Times*, December 8, 2025, ([link](#)).

⁷³ “NAC launches Seattle – Anchorage Route to Power Alaska's Future,” *Northern Air Cargo*, September 11, 2025, ([link](#)).

⁷⁴ “Direct Oslo-Shanghai cargo flights boost Norwegian seafood exports to China,” *Aviation24.be*, January 27, 2026, ([link](#)).

Table 3 – Air Freight Policy Incentives by Region⁷⁵

	Infrastructure 	Development 	Operations 
Alaska	<ul style="list-style-type: none"> ■ Airport Infrastructure Grant Program* ■ Airport Terminals Program* ■ FAA Airport Improvement Program* ■ Don Young Alaska Aviation Safety Initiative* ■ AIDEA Project Finance Programs 	<ul style="list-style-type: none"> ■ Veteran Employment Tax Credit ■ Alaska Safety Alliance Program 	<ul style="list-style-type: none"> ■ International Jet Fuel Tax Exemption ■ AIAS Landing Fee Waivers ■ Cabotage Exemption ■ STEP Program
California	<ul style="list-style-type: none"> ■ Airport Infrastructure Grant Program* ■ Airport Terminals Program* ■ FAA Airport Improvement Program* ■ CA AIP Matching Grant ■ Local Airport Loan Program 	<ul style="list-style-type: none"> ■ Employment Training Panel ■ California Workforce Development Board 	<ul style="list-style-type: none"> ■ Low-Carbon Fuel Standard ■ Advanced Clean Trucks Program
Washington	<ul style="list-style-type: none"> ■ Airport Infrastructure Grant Program* ■ Airport Terminals Program* ■ FAA Airport Improvement Program* ■ Airport Aid Grant Program 	<ul style="list-style-type: none"> ■ Job Skills Program ■ High Demand Program (Enrollment) Funds 	<ul style="list-style-type: none"> ■ N/A
British Columbia	<ul style="list-style-type: none"> ■ Full Expensing** ■ National Trade Corridor Fund** 	<ul style="list-style-type: none"> ■ StrongerBC FutureSkills Grant ■ B.C. Employer Training Grant ■ Training Tax Credit for Apprentices ■ SkilledTradesBC 	<ul style="list-style-type: none"> ■ Low-Carbon Fuel Program ■ Low-Carbon Fuel Incentive ■ International Motor Fuel (Jet Fuel) Tax Exemption
Norway	<ul style="list-style-type: none"> ■ Electrification Infrastructure Investments 	<ul style="list-style-type: none"> ■ Trial Youth Work Tax Credit 	<ul style="list-style-type: none"> ■ ReFuelEU SAF Mandate

The One Big Beautiful Bill Act (“OBBBA”) authorized \$40 million to modernize aviation safety infrastructure within Alaska as part of the Don Young Alaska Aviation Initiative. This funding will go toward installing and maintaining weather sensors and surveillance cameras that help pilots and air traffic controllers coordinate safe air transportation routes.⁷⁶

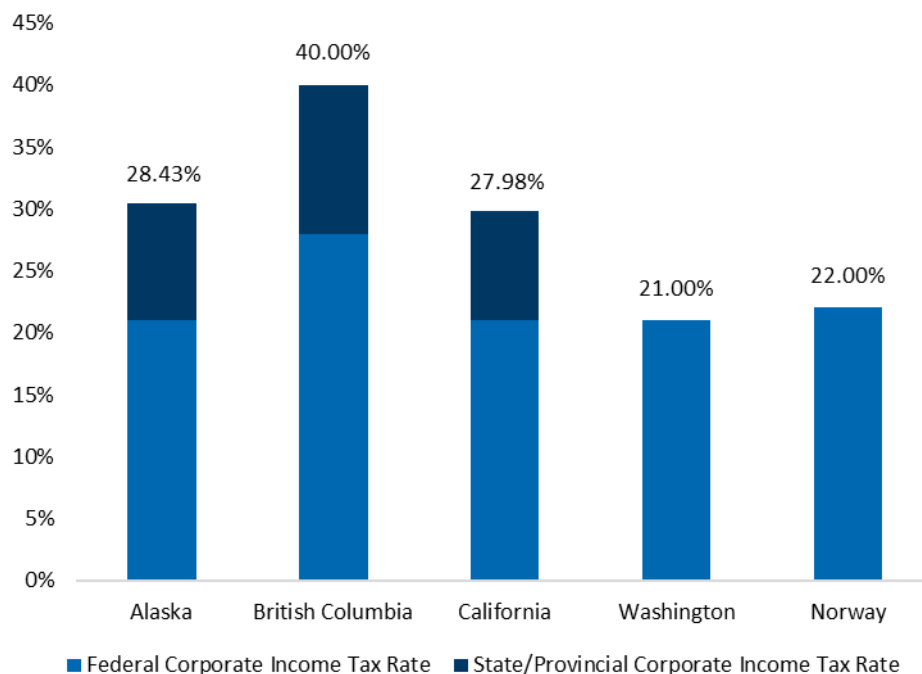
Alaska's streamlined tax structure is a distinct competitive advantage over its peer regions. While Alaska's top-bracket corporate income tax rate is on par with California's and significantly lower than the corporate income tax rates in British Columbia, the state's

⁷⁵ * = U.S. Federal Policy; ** = Canadian Federal Policy

⁷⁶ Jay Wiles, “Where is the \$12.5 billion for ATC modernization going?” AOPA, July 10, 2025, ([link](#)).

strongest incentive is its consolidated tax code.⁷⁷ Unlike other regions, Alaska does not impose a state sales or personal income tax. For example, California levies both a 7.25% sales tax and a top-bracket personal income tax of 13.3%.⁷⁸

Figure 13 – Aerospace Top-Bracket Corporate Income Tax Rate by Region⁷⁹



Unique among Alaska's peers in terms of taxation, Washington imposes no personal income tax, a sales tax of 6.5%, and a business and occupation ("B&O") tax in lieu of a corporate income tax.⁸⁰ The tax applies to business-to-business transactions, which means the same good or service may be taxed more than once before it is sold to final consumers. For this reason, the B&O tax may impose a higher tax burden on businesses than corporate income tax, even if B&O rates are lower.⁸¹

In addition to its 22% corporate tax rate, Norway leverages a two-tiered personal income tax structure, with a 22% base personal income tax rate plus a progressive tax rate up to

⁷⁷ Tax rates shown do not account for all tax credits or deductions and do not measure the total tax burden in each jurisdiction.

⁷⁸ "Taxes In California," *Tax Foundation*, ([link](#)).

⁷⁹ U.S. rates account for the deduction of state corporate income taxes from federal taxable income. Canada applies a flat 10% abatement for provincial taxes. Washington imposes a gross receipts tax instead of a corporate income tax ([link](#)). Abir Mandal, "State Corporate Income Tax Rates and Brackets, 2026," *Tax Foundation*, January 5, 2026, ([link](#)); "Corporate income tax rates and business limits," Government of British Columbia, updated April 30, 2025, ([link](#)); Lars Walby et. al, "Norway," PwC, updated January 16, 2026, ([link](#)).

⁸⁰ "Taxes In Washington," *Tax Foundation*, ([link](#)).

⁸¹ "Resisting the Allure of Gross Receipts Taxes: An Assessment of Their Costs and Consequences," *Tax Foundation*, February 6, 2019, ([link](#)).

17.7% for top-bracket earners. Instead of a sales tax, Norway assesses a value-added tax ("VAT") of 25%, in line with many other European countries.⁸²

Through the Alaska Industrial Development and Export Authority ("AIDEA"), Alaska works with potential investors to finance projects. AIDEA's loan participation program has supported the development and financing of select aviation and airport-related businesses (e.g., aircraft services and area development), with the ability to support the aviation sector through financing for construction, expansion, and other activities in the state.⁸³

Investors in new cargo routes within the Alaska International Airport System ("AIAS") receive an incentive in the form of waived landing fees. Rescheduled cargo service, when cargo service previously performed at a non-AIAS airport is now performed at an AIAS airport, can have landing fees waived for 12 months. Similarly, new, non-stop, and scheduled cargo service between a city not previously a part of AIAS's cargo service and an AIAS airport can also receive 12 months of waived landing fees.⁸⁴ The majority of airports in the U.S. do not have major incentive programs, especially for cargo service, reinforcing Alaska's position as a top cargo stop.⁸⁵

Air carriers face regulatory requirements across certain jurisdictions regarding the use of sustainable aviation fuel ("SAF"). The U.S. landscape for SAF policy has focused on creating market-based incentives for the use of SAF rather than mandating SAF consumption. At the federal level, the 45Z Clean Fuel Production Credit allows SAF producers to claim a \$0.35 or \$1.75 tax credit per gallon. At the state level, Washington offers a similar SAF production tax credit. Washington and California also include market-based incentives in their fuel standards to encourage SAF consumption. No U.S. state has implemented a SAF mandate.

In peer regions outside of the U.S., SAF mandates are already in place. British Columbia is the only Canadian province to impose a SAF mandate, requiring 1% SAF by volume starting in 2028. Norway, soon to adopt the ReFuelEU mandate's 70% target by 2050, has mandated a 0.5% blend of "advanced biofuels" since 2020. In British Columbia and Norway, carriers must adjust their operations to comply with sustainable fuel consumption rules, whereas in the U.S., SAF consumption remains voluntary.

⁸² Lars Walby et. al, "Norway," PwC, updated January 20, 2026, ([link](#)).

⁸³ "Infrastructure Development," *Alaska Industrial Development and Export Authority*, ([link](#)).

⁸⁴ Ibid.

⁸⁵ "Alaska International Airport System Planning Study," *Anchorage and Fairbanks International Airports*, ([link](#)).

Table 4 – SAF Policies by Region^{86,87,88,89,90,91,92}

Region	SAF Policies
United States	<p>As of January 1, 2025, the 45Z Clean Fuel Production Credit is:</p> <ul style="list-style-type: none"> ■ \$0.35 per gallon of SAF for all producers, and ■ \$1.75 per gallon for producers that meet prevailing wage and apprenticeship requirements
Alaska	<ul style="list-style-type: none"> ■ No state policies.
British Columbia	<ul style="list-style-type: none"> ■ B.C.'s Low Carbon Fuel Act mandated 1% SAF by volume in 2028, 2% by 2029, and 3% from 2030 onward. ■ The BC Low Carbon Jet Fuel Incentive Program allows eligible airlines to apply for cash or credits based on SAF consumption.
California	<ul style="list-style-type: none"> ■ CA's Low-Carbon Fuel Standard grants credits for the use of SAF that can be sold in the broader LCFS market.
Norway	<ul style="list-style-type: none"> ■ 0.5% mandate of "advanced biofuels" since 2020, which increases to 30% by 2030. ■ Planned adoption of the ReFuelEU mandate, which targeted a 2% blend for 2025 and aims to achieve a 70% blend by 2050.
Washington	<ul style="list-style-type: none"> ■ Production Tax Credit: In-state SAF producers may claim a tax credit of up to \$2 per gallon on SAF with a lifecycle GHG emissions 50% lower than conventional jet fuel. ■ Clean Fuel Standard: Like California's Low-Carbon Fuel Standard, Washington allows SAF users to claim credits for consumption.

Increased voluntary demand for SAF from international carriers presents an opportunity for Alaska's air cargo sector. SAF demand, both mandated and voluntary, is projected to grow rapidly from 2025 to 2035. If the market for SAF grows, and the price gap between conventional jet fuel and SAF narrows, California and Washington's existing SAF infrastructure would make those regions more attractive to international carriers seeking a lower emissions footprint. Alaska is already preparing for that possibility. In an effort supported by the cargo carrier Atlas Air, plans have been outlined for a 150-million-gallon

⁸⁶ "Clean Fuel Production Credit," U.S. Department of Energy, ([link](#)).

⁸⁷ "Low Carbon Fuel Standard requirements," Government of British Columbia, updated August 12, 2025, ([link](#)).

⁸⁸ Sudeshna Mohanty et. al, "Understanding California's Low Carbon Fuel Standards Regulation," Rocky Mountain Institute, October 4, 2023, ([link](#)).

⁸⁹ "Sustainable Aviation Fuel Market Outlook," Rocky Mountain Institute, updated October 2024, ([link](#)).

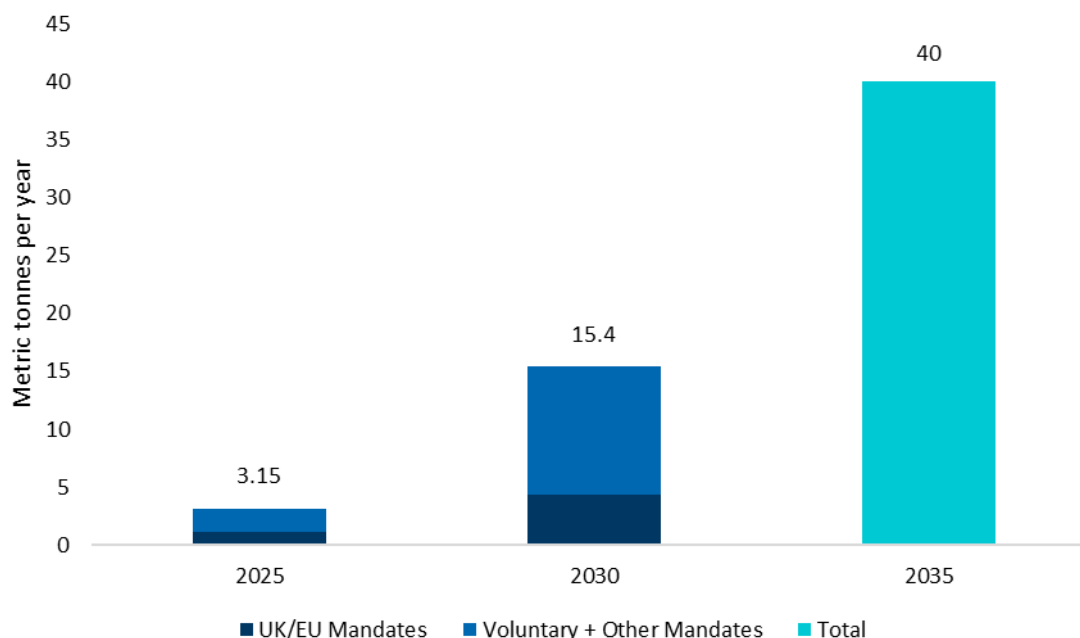
⁹⁰ "Norway Aligns With ReFuelEU: A Strategic Shift Toward Sustainable Aviation," Vurdhaan, ([link](#)).

⁹¹ "Sustainable Aviation Fuels," Port of Seattle, ([link](#)).

⁹² "Low Carbon Jet Fuel," Vancouver International Airport, ([link](#)).

capacity SAF plant near Anchorage. If the plant were built, the price of SAF produced in Anchorage could be competitive with other regions due to Alaska's abundant supply of feedstocks into the SAF production process, primarily fish oil and wood biomass.⁹³

Figure 14 – Global SAF Demand Growth (2025-2035)



Alaska's peer regions are pursuing additional environmental regulations that affect the air transportation sector. The California Air Resources Board ("CARB") has adopted a series of regulations that require airport support vehicles, such as shuttles and drayage trucks, to transition to low- or zero-emission technologies.⁹⁴ Washington's State Environmental Policy Act ("SEPA") has been cited as an impediment to aviation infrastructure projects.⁹⁵ Canada's Aviation Climate Plan for 2022-2030 set a 10% SAF consumption target for 2030 and a net-zero aircraft emissions target for 2050.⁹⁶

⁹³ Tim Bradner, "Fuel for Thought: Alaska hopes SAF plant will protect lucrative cargo traffic," *S&P Global*, May 14, 2025, ([link](#)).

⁹⁴ "California's Actions in Reducing Emissions from Airports and Aircraft," *California Air Resource Board*, July 19, 2024, ([link](#)).

⁹⁵ "Commercial Aviation in Washington," *Washington State Institute for Public Policy*, December 2025, ([link](#)).

⁹⁶ "Aviation Climate Action Plan 2022 and 2023 report," *Transport Canada*, ([link](#)).

Key Findings and Recommendations

Table 5 – Air Freight Key Findings

	Alaska	British Columbia	California	Norway	Washington
Current Industry	World-class logistics hub. In 2025, ANC was the 3 rd busiest air freight airport in the world, handling about 3% of global air cargo.	Distant third to Alaska and California in terms of cargo traffic. Competes directly with Washington.	Close competitor to Alaska in the air freight market across several airports, with 1.7% of global air cargo handled at LAX.	Significantly lower cargo volumes than Alaska or California. Flows are generally seafood export driven.	Significantly lower cargo volumes than Alaska or California. Competes directly with British Columbia.
Growth Potential	Poised to capture a large share of the projected 4.2% CAGR in transpacific cargo from 2024-2043 as a key intermediate stop for international journeys.	Some growth potential given expected transpacific cargo flows, but more likely to compete with Washington as a Pacific Northwest hub.	Expected to remain Alaska's main competitor in trans-pacific air freight flows.	While air cargo flows between East Asia and Europe are expected to grow by 4% annually, Norway's growth is primarily export related.	Some growth potential given expected transpacific cargo flows, but more likely to compete with British Columbia as a Pacific Northwest hub.
Economy and Workforce	Air freight operators benefit from low labor costs and high productivity. Evidence suggests that rising workforce demands in the sector can be met by Alaska's available workforce.	Robust skilled workforce development programs, including SkilledTradesBC, the StrongerBC Future Skills Grant, the Training tax credit for apprentices, and the Employer Training Grant Program.	Average labor costs are higher than in other regions. Funds an employee training program through an employment training tax and disburses competitive workforce development grants through the state workforce development board.	Norway's economic policy involves close coordination between labor unions, government, and the private sector to sustain high employment, strong worker protections, and high wages.	Offers a Job Skills program and other workforce development initiatives; however, state policy is focused on developing the aerospace manufacturing sector.
Infrastructure and Costs	Jet fuel costs are competitive. Planned warehouse infrastructure and hardstand construction at ANC will expand cargo capacity.	Significant expansion planned at Vancouver International Airport to expand cargo capacity by 50%. Diverse supply of jet fuel from local refineries, Alberta, and Washington.	Renovating old cargo facilities with automated cargo processing equipment.	No major infrastructure projects. Focus on increasing exports of high-demand products like salmon. Self-sufficient energy and fuel producer.	31 announced projects at SEA and a new cargo route between SEA and ANC. Expanded infrastructure in Washington may lead to additional air freight flows between Washington and Alaska.
Public Policy	The cabotage exemption is Alaska's greatest competitive advantage, followed by its streamlined tax structure.	Imposes the only SAF mandate in North America; at the federal level, Transport Canada has targeted net-zero emissions in the air transport sector by 2050.	By 2035, CARB mandates a 100% zero-emission drayage truck fleet and an increasing share of zero-emission vehicles among other truck classes.	Early adopter of a SAF mandate, with plans to adopt the more stringent ReFuelEU mandate.	Encourages but does not mandate SAF consumption. Industry participants have noted that SEPA has an impact on infrastructure projects.

Recommendation #1: Reform skilled workforce development programs

An aging workforce, coupled with pandemic-related early retirements, and a lack of new technicians has led to significant aviation maintenance workforce shortfalls across the country that are predicted to worsen in the coming years.⁹⁷ Boeing, for example, projects that the aviation industry will require 710,000 new maintenance technicians over the next 20 years.⁹⁸ Currently, the University of Alaska Anchorage and the University of Alaska Fairbanks both offer training programs to qualify aviation maintenance technicians, but the size of these programs may be a limiting factor. At Anchorage, the program accepts up to 24 new students each semester, while Fairbanks accepts up to 25 students each year.^{99,100} Alaska Native Corporations and other organizations such as the Yuut Elitnaurviat Learning Center in the Yukon-Kuskokwim Delta Region also offer vocational training programs or scholarships.^{101,102} Expanding aircraft maintenance technician training programs and developing new training pathways via state programs, partnerships with ANC's, public-private partnerships, and private-led initiatives are vital to sustaining Alaska's air freight growth. The state of Alaska and air freight operators should also examine federal grants for aviation workforce development. For example, the state should encourage the Federal Aviation Administration to continue the Aviation Workforce Development Grant Program.

Recommendation #2: Expand in-state jet fuel refining capacity

Alaska can improve the competitiveness of its air freight sector by reducing jet fuel costs. Encouraging the development of additional refinery capacity to transform Alaska's abundant North Slope crude oil into jet fuel will reduce the cost of doing business and reduce reliance on refineries in the Lower 48 and abroad. Shipping crude to Washington to be refined and shipping back jet fuel adds unnecessary transportation costs, exacerbated by Jones Act requirements that shipments between U.S. states travel on U.S.-built, owned, flagged, and crewed vessels.

Recommendation #3: Consider alternative fuel production to attract or retain carriers

Given Alaska's unique situation in relation to international air freight operations afforded by cabotage exemptions and geography, the state should encourage the development of SAF production. Producing SAF in Alaska may retain and attract new global carriers who are expected to face increasing pressure to reduce environmental impacts. Alaska's access to forest biomass and fish oil provides a potential low-cost and abundant feedstock for production facilities.¹⁰³

⁹⁷ Aaron Karp, "Aviation Maintenance Technician Shortage Threatens Post-COVID Rebound," *Avionics International*, April 2023, ([link](#)).

⁹⁸ "Solutions to fill the aviation maintenance skills shortage," *Boeing*, July 23, 2025, ([link](#)).

⁹⁹ "Aviation Maintenance Technology," *University of Alaska – Anchorage*, ([link](#)).

¹⁰⁰ "Aviation Maintenance," *University of Alaska – Fairbanks Community & Technical College*, ([link](#)).

¹⁰¹ Yuut Elitnaurviat People's Learning Center ([link](#)).

¹⁰² "Ahtna Vocational Program," *Ahtna*, ([link](#)).

¹⁰³ Tim Bradner, "Fuel for Thought: Alaska hopes SAF plant will protect lucrative cargo traffic," *S&P Global*, May 14, 2025, ([link](#)).

Space Launch Competitive Analysis

Domestically, California is Alaska's main competitor in terms of space launch capabilities.

Vandenberg Space Force Base in Santa Barbara County hosts both military space launches and civil and commercial space launches, including the Delta IV and Atlas V programs led by Lockheed Martin and Boeing. SpaceX has also used Vandenberg as a launch site in the past, with plans to use the base for dozens of launches in the coming years, primarily to deploy government and commercial satellites.¹⁰⁴ Vandenberg, however, has primarily served medium- to heavy-lift launches, which differs from the small-lift launch vehicles deployed at the Pacific Spaceport Complex.

Norway is positioning itself to compete with Alaska for small-lift launches. Its Andøya Space Center benefits from its northern location, making it well-suited for launching satellites into polar or sun-synchronous orbit. Originally founded in 1962 as a rocket range, it had generally been used to launch sounding rockets until the Andøya Spaceport was established in 2018. Andøya Spaceport is designed to launch small payloads and satellites. This mission, combined with its geography, minimal air traffic, and open ocean corridors, makes Andøya a primary competitor to Alaska's Pacific Spaceport Complex. However, this program is still in its infancy. The inaugural launch by Isar Aerospace took place in March 2025 and resulted in a failure and no further launches have been attempted.

Washington and British Columbia's aerospace sectors specialize in manufacturing and support services. Approximately 50% of low-earth orbit satellites are manufactured in Washington, as well as most Boeing aircraft.¹⁰⁵ British Columbia has the least developed space launch sector among Alaska's peer regions, although Vancouver is home to Boeing IT and distribution divisions.¹⁰⁶

Below, Table 6 highlights the number of recent space launches and the presence of major aerospace companies operating within each region.

Table 6 – Current Launch and Aerospace Presence, by Region

Region	Launches (2020-Present)	Major Aerospace Company Presence
Alaska	10 ¹⁰⁷	Astra, Long Wall (ABL Space Systems)
British Columbia	N/A	Boeing Vancouver
California	~160 ¹⁰⁸	SpaceX, Boeing, Rocket Lab USA, Lockheed Martin

¹⁰⁴ "Vandenberg SFB Launch Schedule," *RocketLaunch*, accessed January 6, 2026, ([link](#)).

¹⁰⁵ "Aerospace & Aviation," *Washington State Department of Commerce*, ([link](#)).

¹⁰⁶ "Boeing Canada," *Boeing*, ([link](#)).

¹⁰⁷ "2025 Annual Report," *Alaska Aerospace*, ([link](#)).

¹⁰⁸ "Vandenberg Air Force Base," *Space Stats*, ([link](#)).

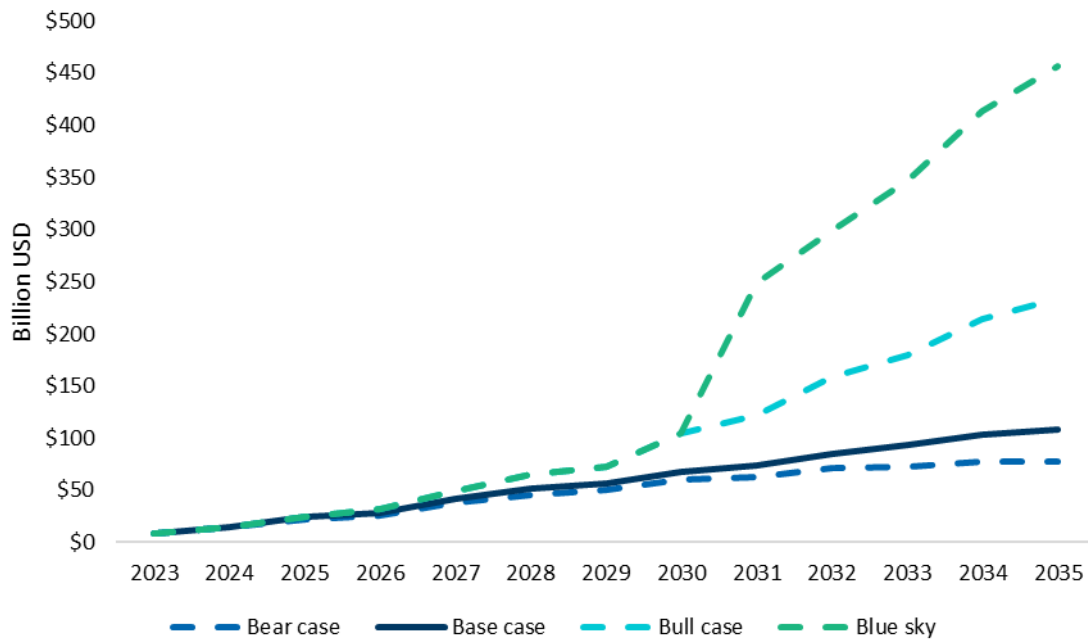
Norway	1	Isar Aerospace, Kongsberg
Washington	N/A	Boeing, SpaceX, Blue Origin, L3Harris (Aerojet Rocketdyne)

Growth Potential

The global outlook for low-earth orbit (“LEO”) satellites is strong, and Alaska is well-suited to capture a significant share of this market based on experience hosting these small-lift launches for both the military and the private sector. Goldman Sachs forecasts that the LEO market, broadly defined, will more than double in size over the next five years, growing from \$25 billion in 2025 to between \$60 and \$100 billion by 2030, resulting in a cumulative 70,000 satellites.¹⁰⁹

The forecast includes scenarios ranging from the bear case, in which satellite service subscription growth (e.g., broadband service subscriptions) is 20% lower than the base case, to the blue sky case, in which subscription growth is 20% higher than in the base case from 2023-2030 and then grows at an accelerated rate from 2031-2035. The bull case is the same as the blue sky case except for the accelerated trajectory after 2030.

Figure 15 – Low-Earth Orbit Satellite Market Projection (2023-2035)



Historical data from 2008-2023 indicates that, within the U.S. space launch market, the small-lift segment is growing faster than the heavy-lift segment, although medium-lift launches consistently make up most of the market.¹¹⁰ Growth in the medium- and heavy-launch segments has raised concerns in California about spaceport congestion, which is not an issue for Alaskan spaceports.¹¹¹

¹⁰⁹ “The global satellite market is forecast to become seven times bigger,” *Goldman Sachs*, March 5, 2025, ([link](#)).

¹¹⁰ Mitch Semanik et. al, “U.S. Private Space Launch Industry is Out of this World,” *U.S. International Trade Commission*, November 2023, ([link](#)).

¹¹¹ Jan Tegler, “Launch Pads Struggle to Keep Pace with Expanding Industry,” *National Defense*, January 29, 2026, ([link](#)).

Moving forward, Alaska and Norway will compete for market share in the small-lift segment. In January 2025, the U.S. signed an agreement with Norway to allow Norwegian spaceports to launch U.S. commercial spacecraft.¹¹²

Washington and British Columbia are not likely to enter the space launch market directly, but their aerospace manufacturing and services industries will continue to supply space launch activities. Washington's governor recently invested \$350,000 from the state's Economic Development Strategic Reserve Fund into a Seattle-based satellite manufacturing facility.¹¹³

The creation of the Golden Dome Initiative — a multi-billion-dollar, space-based missile defense shield system — is a promising development for Alaska's space launch industry. The initiative seeks to develop a "catch-all" missile defense system to counter ICBMs, hypersonic missiles, and drones and has identified space-based interceptors as a priority.¹¹⁴ Alaska's previous experience hosting flight tests of Terminal High Altitude Area Defense ("THAAD") ballistic missile interceptors for the Missile Defense Agency and the joint Israeli-American Arrow class of interceptors and its strategic location suggest significant growth potential supporting military space launch activities in the coming years.

Economy and Workforce

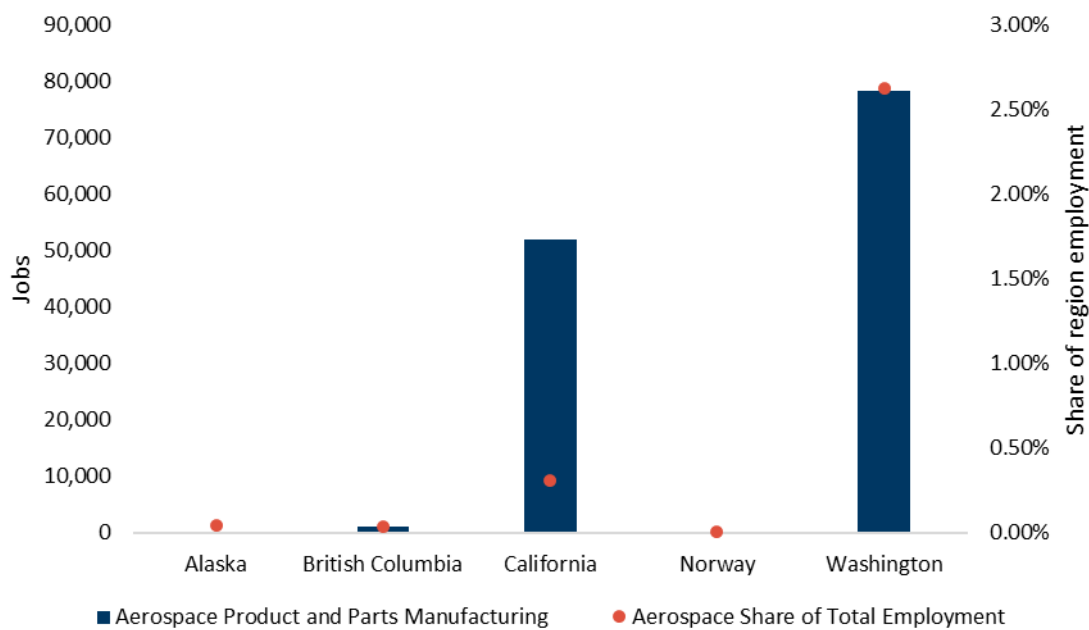
Given the longstanding aerospace manufacturing supply chain that has developed around the historical birthplace of Boeing, Washington State is home to the most aerospace manufacturing employees in our benchmarking regions at nearly 80,000 workers, as shown in Figure 16, representing over 2.6% of the state's workforce. California, home to Lockheed Martin's "Skunk Works," also has a long history of primarily defense-related aerospace development and has the second-most manufacturing employment at more than 52,000 workers, representing 0.3% of the state's total employment. To date, Alaska has primarily served as a launch location rather than as a host to aerospace manufacturing.

¹¹² "U.S.–Norway Technology Safeguard Agreement," *U.S. Embassy in Norway*, January 16, 2025, ([link](#)).

¹¹³ "Governor Ferguson awards \$350k to Portal Space Systems for Bothell expansion," *Washington Department of Commerce*, December 10, 2025, ([link](#)).

¹¹⁴ "Another 340 firms approved to bid on Golden Dome work worth up to \$151B," *Defense One*, January 15, 2026, ([link](#)).

Figure 16 – Aerospace Manufacturing Employment (2022) ^{115,116}

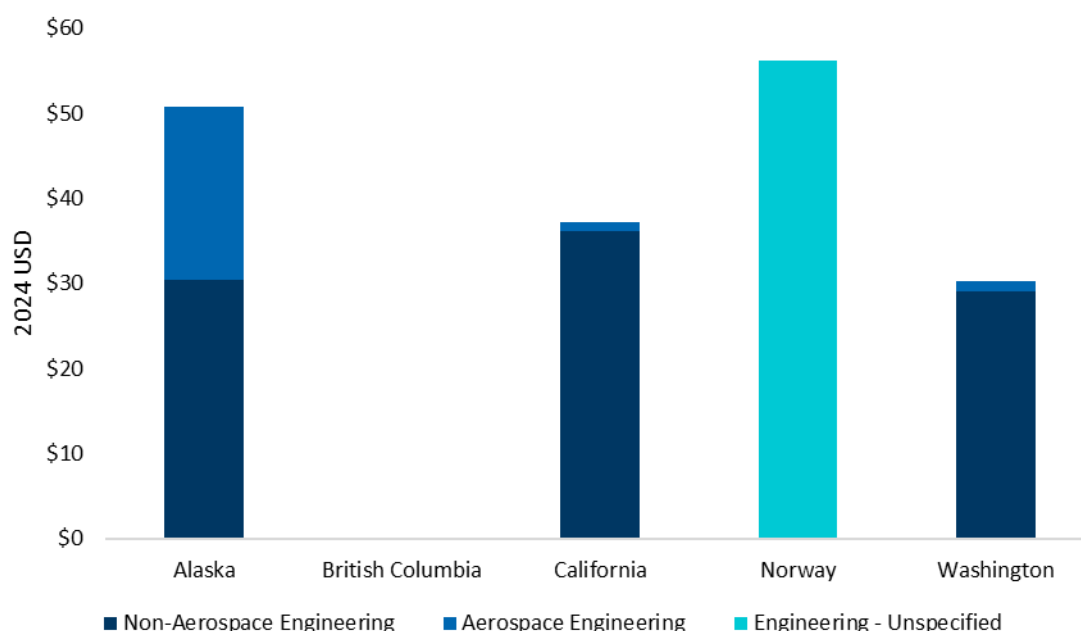


Alaska's remoteness and existing launch and testing capabilities should be more attractive for engineering and research and development activities, particularly military applications, than significant local manufacturing capacity. The University of Alaska Fairbanks, for example, has recently launched a new aerospace engineering degree and maintains a Space Systems Engineering Program as well as an Aerospace Systems Engineering program focused on Unmanned Aircraft Systems design and operations in the arctic. Alaskan universities, primarily Fairbanks, leveraged nearly \$38 million of engineering research and development expenditures in 2024. While smaller in absolute terms compared to a state like California, Alaska's engineering research and development expenditures are 36% higher than California's on a per capita basis.

¹¹⁵ "2022 Annual Business Survey," *U.S. Census*, accessed November 19, 2025, ([link](#)); "Enterprises by detailed NACE Rev. 2 activity and special aggregates," *Eurostat*, updated August 12, 2025, ([link](#)); "Labour statistics consistent with the System of National Accounts," *Statistics Canada*, May 20, 2025, ([link](#)); "Employment, register-based," *Statistics Norway*, updated February 26, 2025, ([link](#)).

¹¹⁶ Employment data was unavailable for the Norwegian aerospace product and parts manufacturing industry.

Figure 17 – Per Capita Engineering R&D Expenditures by Universities, by Region (2024) ¹¹⁷



Alaska's peers offer workforce development programs and tax incentives that target employment specifically in the space launch and aerospace manufacturing industries. Washington's Evergreen Manufacturing Growth Grants program awards grants of \$200,000-\$400,000 for businesses and innovation clusters, and the High Demand Program offers competitive grants for training programs geared at high-demand occupations.^{118,119} California sponsors a \$9.5 million space industry workforce development plan in collaboration with Vandenberg Space Force Base and local universities, comprising the Vandenberg Works and Vandenberg Innovates initiatives.¹²⁰

Norway's space launch workforce is supported by the state-owned Andøya Space company, which provides academic and experiential learning opportunities to students in Norway's higher education system.¹²¹ NASA's counterpart in the European Union, the European Space Agency, also offers a graduate trainee program open to Norwegian graduate students.¹²²

Infrastructure and Costs

In terms of space launch infrastructure, Alaska maintains a competitive advantage over regions like Norway for light-lift, satellite deployment launches. Norway's Andøya Spaceport, with just one unsuccessful orbital launch, trails behind Alaska's Pacific Spaceport Complex in terms of launch

¹¹⁷ Available British Columbia higher education engineering R&D expenditures data included spending on natural sciences. "2024 Higher education R&D expenditures," *National Science Foundation*, ([link](#)); "Statistics on research and development in the higher education sector," *Statistics Norway*, ([link](#)); "Statistics on population," *Statistics Norway*, ([link](#)); "2024 American Community Survey," *U.S. Census*, ([link](#)).

¹¹⁸ "Evergreen Manufacturing Growth Grants," *Washington State Office of Minority & Women's Business Enterprises*, ([link](#)).

¹¹⁹ "High Demand Program (Enrollment) Funds," *Washington State Board of Community and Technical Colleges*, ([link](#)).

¹²⁰ "Space Vandenberg," REACH, ([link](#)).

¹²¹ "Norwegian Space Academy," *Andøya Space*, ([link](#)).

¹²² "Graduates: ESA Graduate Trainees," *The European Space Agency*, ([link](#)).

experience and operating infrastructure. While still in development, Andøya Spaceport projects a full operational capacity of up to 30 missions per year across two to three orbital launch pads.¹²³ Pacific Spaceport Complex's operators expected similar demand by 2030, though, to date, there are no public launches scheduled in 2026.^{124,125}

Beyond orbital launch facilities, both regions have significant sub-orbital and sounding rocket launch capabilities, including at Alaska's Poker Flat Range. As the world's only university-owned rocket launching facility, Poker Flat attracts world-class research activity. Located in interior Alaska, the facility can launch rockets that fly over sparsely populated tundra, reducing safety risks and deconfliction issues.¹²⁶ In addition to Alaska's strategic geography, the state's aerospace sector stands to benefit from deep ties to the University of Alaska Fairbanks, NASA, and the military.

Multiple Alaskan space launch infrastructure projects are in development. Additional investment in the Alaska Aerospace Corporation's Pacific Test Range, which extends 1,100 miles southwest from Alaska's Pacific Spaceport Complex, would expand the Pacific Spaceport Complex's down-range telemetry capabilities, enabling operators to collect more data on rockets.¹²⁷ At the southwest tip of the planned Pacific Test Range, the Aleut Corporation has partnered with SpinLaunch to develop a new spaceport on Adak Island specializing in low-earth orbit satellite launches.¹²⁸ If completed, SpinLaunch and the Pacific Spaceport Complex would share the existing range, expanding overall space launch capacity in Alaska.

There are no space launch infrastructure projects planned in either Washington or British Columbia. In California, state funding for the Vandenberg Works and Innovates programs also helps finance infrastructure development through the Vandenberg Accelerates initiative, which plans to expand the Vandenberg Base's critical infrastructure as well as a launch viewing platform.¹²⁹

Public Policy

Alaska and its peer regions leverage a combination of tax policy and coordination with federal or, in Norway's case, international governmental entities to stimulate activity in the space launch sector.

¹²³ "Orbital launch services," *Andøya Space*, ([link](#)).

¹²⁴ "Pacific Spaceport Complex – Alaska Spaceport Master Plan 2020-2030," *Alaska Aerospace Corporation*, March 2021, ([link](#)).

¹²⁵ "Pacific Spaceport Complex – Alaska Launch Schedule," *RocketLaunch*, ([link](#)).

¹²⁶ "Poker Flat Research Range," *University of Alaska Fairbanks*, ([link](#)).

¹²⁷ Davis Hovey, "Alaska Aerospace seeks to create a test range from Kodiak Island to the Aleutians," *KMXT*, September 4, 2025, ([link](#)).

¹²⁸ "Aleut Partners with SpinLaunch," *The Aleutian Current*, April 3, 2025, ([link](#)).

¹²⁹ "Space Vandenberg," *REACH*, ([link](#)).

Table 7 – Space Launch Policy Incentives by Region¹³⁰

	Infrastructure 	Development 	Operations 
Alaska	<ul style="list-style-type: none"> ■ Golden Dome Act* ■ FAA Reauthorization* ■ Poker Flat Research Range ■ Alaska Aerospace Corporation Property Tax Exemption 	<ul style="list-style-type: none"> ■ R&D Tax Credit* ■ AK SBIR/STTR Grant Program ■ AK R&D Tax Credit 	<ul style="list-style-type: none"> ■ National Space Grant College and Fellowship Project* ■ STEP Program
California	<ul style="list-style-type: none"> ■ National Security Space Launch Program* ■ Golden Dome Act* ■ Space Flight Property Tax Exemption ■ Vandenberg Accelerates 	<ul style="list-style-type: none"> ■ R&D Tax Credit* ■ Net Operating Loss Carryback ■ California Competes Tax Credit ■ Tax Exemption for R&D Property ■ CA R&D Tax Credit ■ Vandenberg Innovates 	<ul style="list-style-type: none"> ■ National Space Grant College and Fellowship Project* ■ California Workforce Development Board ■ Vandenberg Works ■ Vandenberg Innovates
Washington	<ul style="list-style-type: none"> ■ Portal Space Systems Satellite Manufacturing Investment ■ Sales and use tax exemptions for aerospace product development computer spending 	<ul style="list-style-type: none"> ■ B&O credit for preproduction development expenditures ■ Preferential B&O tax rates for aerospace product development and aircraft repair firms 	<ul style="list-style-type: none"> ■ National Space Grant College and Fellowship Project* ■ High Demand Program (Enrollment) Funds ■ Job Skills Program ■ Evergreen Manufacturing Growth Grants
British Columbia	<ul style="list-style-type: none"> ■ N/A 	<ul style="list-style-type: none"> ■ Lunar Exploration Accelerator Program (LEAP)** ■ Scientific Research & Experimental Development Tax Credit 	<ul style="list-style-type: none"> ■ N/A
Norway	<ul style="list-style-type: none"> ■ Tromsø Arctic Space Center (proposed)*** 	<ul style="list-style-type: none"> ■ European Launcher Challenge*** ■ ESA Contributions*** ■ Innovation Norway ■ SkatteFUNN R&D Tax Credit ■ Research Council of Norway 	<ul style="list-style-type: none"> ■ ESA Graduate Training Program*** ■ Norwegian Higher Education Space Programs (QBDebris) ■ Norwegian Space Academy

All regions, including Alaska, offer tax credits for research and development (“R&D”) activities. Businesses operating in Alaska or California can claim R&D tax credits against both state and federal income taxes.^{131,132} Washington offers B&O tax credits for both general “pre-product development expenditures” and aerospace-specific R&D expenses.¹³³ In Norway, the SkatteFUNN R&D tax credit allows businesses to claim surplus deduction as a tax refund.¹³⁴

¹³⁰ * = U.S. Federal Policy; ** = Canadian Federal Policy; *** = European Union Policy

¹³¹ “Alaska and the R&D Tax Credit,” *Swanson Reed*, ([link](#)).

¹³² “R&D Tax Credits and Deductions Explained,” *Bloomberg Tax*, November 3, 2025, ([link](#)).

¹³³ “Tax incentive programs,” *Washington State Department of Revenue*, ([link](#)).

¹³⁴ “Innovation Funding Incentives: Norway,” *ABGI*, ([link](#)).

U.S. federal agencies support a range of aerospace programs in Alaska and California. The 2024 FAA Reauthorization bill reauthorizes the administration's drone test ranges, including funding a top drone research program at the University of Alaska Fairbanks. The program develops and tests drones for use in-state and across the country, taking advantage of Alaska's unique environment and large geographic area for testing opportunities.¹³⁵ As part of the National Security Space Launch program, the U.S. DoD invests billions of dollars into defense-related launches at the Western Range at Vandenberg Space Force Base and Florida's Cape Canaveral Space Force Station.¹³⁶

Federal and state alignment on space policy drives further public investment in Alaska's space industry. The federal government recently awarded up to \$80 million in funding for infrastructure development at Alaska's Pacific Spaceport Complex and Poker Flat Research Range. Up to \$45.5 million will fund improvements at the Pacific Spaceport Complex, including \$22 million for upgrading its payload processing site. The Poker Flat Research Range also received \$4 million to upgrade equipment used for the missile testing at the range. The Alaska Aerospace Corporation was also awarded a \$28 million military contract to operate missile facilities.¹³⁷

Norway's space launch policy is executed in conjunction with other European countries. Norway has been a member of the European Space Agency ("ESA") since 1987. In 2025, the government committed 292 million euros towards the ESA's budget and signed a letter of intent with the ESA's director general to establish an Arctic Space Center in Tromsø.¹³⁸ Out of Norway's total contribution to the ESA, 30 million euros were designated for the European Launcher Challenge, which should draw broader European interest and investment in Andøya Spaceport.

The expansion of U.S. missile defense capabilities and investments via the Golden Dome program, described earlier, is expected to make Alaska an even more important strategic location. Already, sites in Alaska, such as the Clear Space Force Station, have served as a testing ground for technology designed to track ballistic missiles and could be used in the future as Golden Dome sensors.¹³⁹ Existing proposals, such as the Golden Dome Act of 2025, include extensive funding for sites across Alaska, including nearly \$1 billion to be used for an expansion of interceptors housed at Fort Greely, upgrades to the Alaska Radar System, and the construction of an Alaska-based Aegis Ashore missile defense system.¹⁴⁰ The state's aerospace corporation has recognized this potential, issuing a request for information related to the construction of temporary housing facilities at the Pacific Spaceport Complex to support military operations.¹⁴¹

¹³⁵ "Alaska Center for UAS Integration," *University of Alaska Fairbanks*, ([link](#)).

¹³⁶ "Defense Primer: National Security Space Launch Program," *U.S. Congress*, ([link](#)).

¹³⁷ Davis Hovey, "Alaska Aerospace to upgrade its spaceport facilities with federal funds," *KMXT*, February 25, 2026 ([link](#)).

¹³⁸ "Norway sets ESA spending priorities for next period," *Norwegian Space Agency*, November 28, 2025, ([link](#)).

¹³⁹ "U.S. Golden Dome homeland defense initiative progresses," *Indo-Pacific Defense Forum*, October 6, 2026, ([link](#)).

¹⁴⁰ U.S. Congress, Senate, Committee on Armed Services, *GOLDEN DOME Act of 2025*. 119th Cong., 1st sess., S.2142. ([link](#))

¹⁴¹ Davis Hovey, "Alaska Aerospace starts to plan Kodiak housing for Golden Dome workers," *Alaska Public Media*, August 15, 2025, ([link](#)).

Key Findings and Recommendations

Table 8 – Space Launch Key Findings

	Alaska	British Columbia	California	Norway	Washington
Current Industry	Separate spaceport and test range can compete for small-lift satellite and defense industry projects.	No space launch capabilities. Strong ties to Boeing with an emphasis on IT products and distribution over aerospace manufacturing.	Vandenberg Space Force Base hosts medium- to heavy-lift launches for major commercial and government space projects.	Andøya Spaceport is the primary competitor to Alaska for small-lift launches.	Manufactures approximately 50% of low-earth orbit satellites. Boeing is the largest private employer in the state.
Growth Potential	Commercial low-earth orbit satellite market is forecast to grow to \$100 billion by 2030. Development of Golden Dome and related missile defense technologies presents a significant opportunity for the state.	Likely to remain specialized in Canadian aerospace industry services.	Capacity challenges may follow increasing launches from Vandenberg Base.	Signing the U.S.-Norway Technology Safeguard Agreement in 2025 opened the door for Norway to directly compete with Alaska for commercial launches.	Geographic constraints prevent a space launch industry in Washington. Manufacturers and service providers will continue to supply missions elsewhere.
Economy and Workforce	Universities deploy 36% more R&D funds per capita than California. UA-Fairbanks is integrated with Poker Flat Research Range.	Limited manufacturing workforce. Space launch IT service providers compete with other tech providers for talent.	Vandenberg received a \$9.5 million grant from the state to fund a broad workforce development program covering the skilled trades and aerospace engineers.	Andøya Space and the European Space Agency sponsor training programs for Norwegian students.	Home to the most aerospace manufacturing employees across all peer regions and supported by state grant programs.
Infrastructure and Costs	Orbital vertical launch and sub-orbital launch capabilities, with plans to expand advanced missile testing infrastructure. Strong existing military infrastructure.	The region does not offer space launch infrastructure.	The Vandenberg Accelerates program plans to expand critical infrastructure at Vandenberg Space Force Base.	The Norwegian government owns 90% of the Andøya Spaceport's parent company.	The region does not offer space launch infrastructure.
Public Policy	Federal drone research programs and the Golden Dome project benefit the state's program. No personal income tax can help to attract talent.	Encourages innovation with the Scientific Research & Experimental Development tax credit.	Billions of federal investment dollars into defense-related launches and a state R&D tax credit help develop the industry.	Domestic investments into the space launch sector are complemented by the European Launcher Challenge.	B&O tax credits for general and aerospace-specific R&D support innovation in Washington's space sector.

Recommendation #1: Consider satellite R&D incentives

Alaska should examine the possibility of providing state incentives to attract commercial light lift launches to help the state capture a larger share of the rapidly growing satellite launch market. Alaska's existing orbital and testing ranges can serve as an incubator for satellite development.

Recommendation #2: Deepen ties between Alaskan universities and NASA

The State of Alaska and Alaskan Universities such as UAA and UAF should further develop their strong aerospace programs by deepening ties with NASA and providing state incentives to attract R&D talent from around the world to the state. Alaska's strong energy supply and land availability can be leveraged to attract aerospace manufacturing, particularly in satellites and other space launch vehicles, to help develop the in-state supply chain and position Alaska as a key hub in the space launch sector.

Recommendation #3: Collaborate with federal defense agencies on Arctic operations

Alaska should continue to work with the U.S. military and supporting agencies, such as the Missile Defense Agency, to attract research, testing, and Golden Dome deployment activities to the state. Federal leadership should be continually informed of the strategic role that Alaska will play in future U.S. Arctic operations.

Minerals and Natural Resources

Introduction

Alaska's resource wealth has long been a defining driver of the state's economic and fiscal structure. In recent years, significant national attention has turned towards advancing domestic resource development, with particular emphasis on tapping into Alaska's rich, undeveloped reserves.^{142, 143} As the largest state in the U.S., the state's total land area covers over 570,000 square miles. Given this vast terrain, it is not surprising that Alaska consistently ranks among the top U.S. states for oil, gas, and various mineral reserves and their corresponding production.

Table 9 illustrates Alaska's leading position among U.S. states for commodity production. The state is first in the nation in terms of silver and zinc production and ranks in the top five in oil, natural gas, gold, and lead production.

Table 9 – Alaska's U.S. 2024 Commodity Production¹⁴⁴

Resource	U.S. Production Rank
Oil	5 th
Natural Gas	5 th – gross withdrawals; 12 th – marketed production
Zinc	1 st
Gold	2 nd
Silver	1 st
Lead	2 nd

Given its scale and significant production base, Alaska is well-positioned to help meet rising energy and electrification demands. Six of the 100 largest oil fields in the U.S. are located on the North Slope.¹⁴⁵ Despite declining production in its largest field, Prudhoe Bay, recent forecasts indicate a potential surge in statewide crude oil output.¹⁴⁶ This jump is largely driven by new developments on the North Slope, where abundant natural gas reserves also exist. Beyond oil and gas, the state possesses vast mineral deposits, including both precious and critical minerals, with significant

¹⁴² "Unleashing Alaska's Extraordinary Resource Potential," *The White House*, January 20, 2025, ([link](#)).

¹⁴³ "President Donald J. Trump Delivers Monumental State of the Union Address as America Enters Golden Age of Prosperity," *U.S. Department of the Interior*, March 4, 2025, ([link](#)).

¹⁴⁴ "Alaska Profile Analysis," *U.S. Energy Information Administration*, ([link](#)); "Natural gas gross withdrawals and production," *U.S. Energy Information Administration*, ([link](#)); David J. Szumigala, "Critical Minerals, Strategic Minerals and Minerals in Alaska," *Alaska Department of Natural Resources*, 2026, ([link](#)).

¹⁴⁵ "Alaska Profile Analysis," *U.S. Energy Information Administration*, ([link](#)).

¹⁴⁶ "EIA forecasts Alaska crude oil production to grow 13% in 2026," *U.S. Energy Information Administration*, ([link](#)).

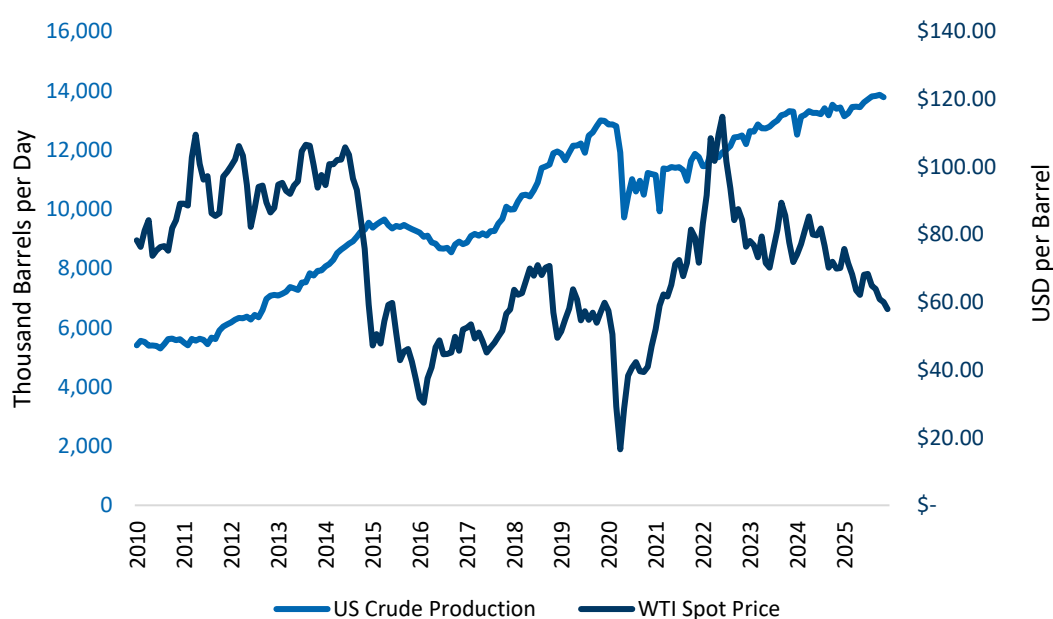
potential for future development. Combined, these oil, gas, and mineral resources form a critical component of energy and supply chain security for the U.S.

Although minerals and natural resources encompass a wide range of industries, including agriculture, forestry, fishing, and hunting, this analysis focuses on the mining and oil and gas extraction sectors, which account for nearly 17% of Alaska's GDP.¹⁴⁷ The current and potential contributions of these industries are benchmarked to a peer group of U.S. states, Canadian provinces, and Nordic countries to assess their competitiveness within evolving energy and mineral markets.

Oil and Gas

The U.S. has established itself as the world's top oil producer, surpassing both Russia and Saudi Arabia in the past decade.¹⁴⁸ Though the nation produces more crude oil domestically than ever before, oil is traded on the global market and is subject to global supply and demand shocks. Member countries of the Organization of the Petroleum Exporting Countries ("OPEC") collectively steer global oil supplies and, therefore, prices. In the U.S., oil prices are commonly benchmarked to the West Texas Intermediate ("WTI") standard, a light crude oil. Figure 18 shows historical U.S. average daily production alongside the monthly WTI price, which has fluctuated between \$55 to \$81 per barrel in 2025.¹⁴⁹

Figure 18 – WTI Oil Price and U.S. Production¹⁵⁰



¹⁴⁷ "SAGDP2 Gross domestic product (GDP) by state," *U.S. Bureau of Economic Analysis*, accessed February 19, 2026, ([link](#)).

¹⁴⁸ "United States produces more crude oil than any country, ever," *U.S. Energy Information Administration*, March 11, 2024, ([link](#)).

¹⁴⁹ "Crude Oil Prices: West Texas Intermediate (WTI) - Cushing, Oklahoma," *Federal Reserve Bank of St. Louis*, accessed February 19, 2026, ([link](#)).

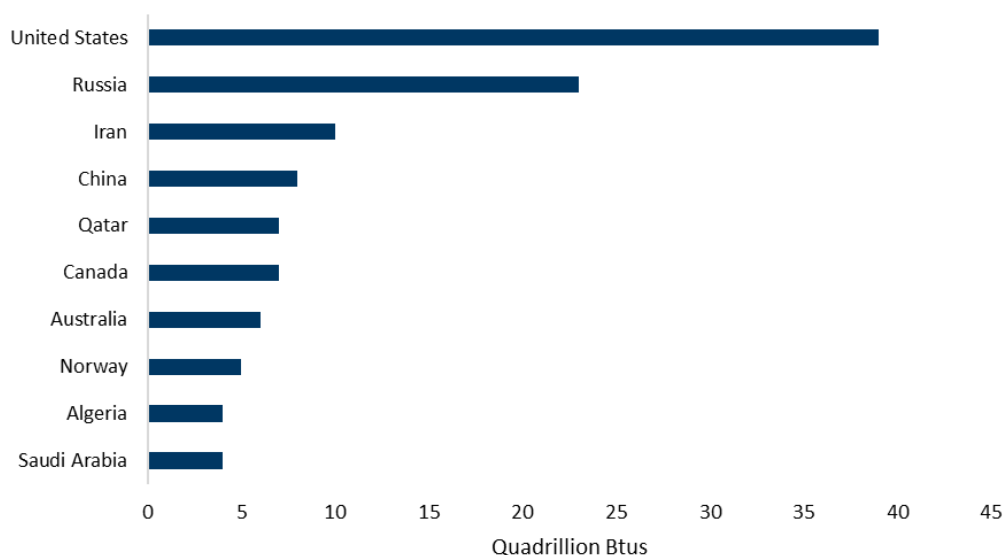
¹⁵⁰ "Crude Oil Production," *U.S. Energy Information Administration*, February 6, 2020, ([link](#)); "Cushing, OK WTI spot price FOB (Dollars per barrel)," *U.S. Energy Information Administration*, February 19, 2020, ([link](#)).

For most of the U.S., short-term oil price fluctuations can dictate production at individual operating wells, as operators will shutter production if the price does not cover their short-term operating costs. This threshold can range widely, from under \$10 to as much as \$80, and varies based on numerous well-specific factors, including operators' practices, regional regulations, and oil well formations. Data from the 2025 Dallas Fed Energy Survey indicates an average operating cost of \$41 per barrel in the U.S.¹⁵¹ New wells require higher oil prices to justify not only operating costs but also the cost of new drilling activity. The price required for new wells to be profitable varies based on well characteristics, ranging from \$30 to \$90 per barrel.¹⁵² Oil producers in Alaska are generally less price responsive, primarily due to seasonal windows for exploration and production ("E&P") activities, road construction, and longer project lead times.¹⁵³

Unlike the global oil market, natural gas markets have historically been confined within continental boundaries (i.e., the North American, European, and Asian markets). This is primarily because physical interstate/interprovincial pipelines are required to transport gas from production regions to demand centers, and no natural gas pipelines cross the Atlantic or Pacific Oceans. More recently, these markets have become increasingly connected as U.S. companies escalate LNG export capacity. LNG export terminals receive natural gas via pipeline and cool the methane into a denser liquid form to transport it across oceans via LNG tankers.

Figure 19 shows that the U.S. has led dry natural gas production for the last 15 years, ranking as the number one producer since 2011. In 2023, the U.S. produced 38% more natural gas than Russia, the world's second-largest producer.¹⁵⁴

Figure 19 – Top 10 Countries by Natural Gas Production (2023)¹⁵⁵



¹⁵¹ "Dallas Fed Energy Survey," *Federal Reserve Bank of Dallas*, March 26, 2025, ([link](#)).

¹⁵² Ibid.

¹⁵³ "Alaska state energy profile," *U.S. Energy Information Administration*, May 15, 2025, ([link](#)).

¹⁵⁴ "Dry natural gas production 2024," *U.S. Energy Information Administration*, accessed February 12, 2026, ([link](#)).

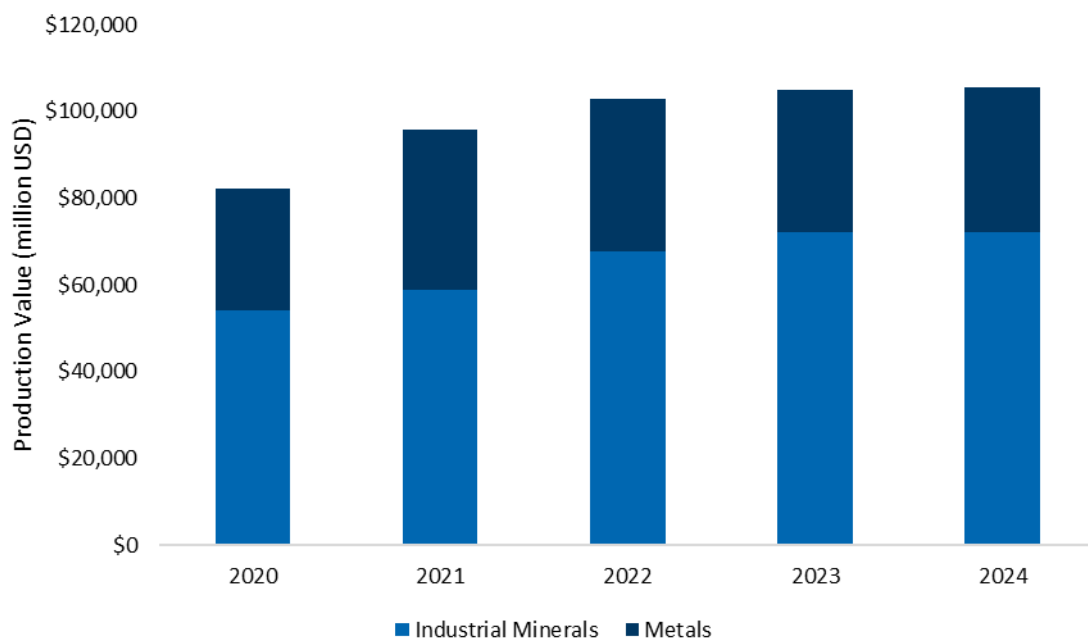
¹⁵⁵ Ibid.

Mining

Minerals and metals play a vital role across a range of industries spanning defense, energy infrastructure, and advanced technologies. Like oil and gas, the market is subject to global supply chains and increasing geopolitical tensions. In response to these pressures, the U.S. and other countries have begun prioritizing domestic mining and processing of these minerals. In 2024, the value of domestically mined minerals in the U.S. contributed \$106 billion to total GDP, excluding 'fuel minerals' such as coal or uranium.¹⁵⁶ While \$106 billion represents a small percentage of the total U.S. economy, the vast majority of these mined materials serve as essential inputs for everyday consumer products with a much larger economic footprint.

The U.S. Geological Survey ("USGS") classifies minerals as either metallic minerals, which include gold, silver, zinc, and lead, or industrial (non-metallic) minerals such as crushed stone and gypsum. Collectively, domestic and imported processed minerals support key downstream industries, contributing \$4.08 trillion to U.S. GDP.¹⁵⁷ Figure 20 shows the total U.S. production value for both metallic and industrial minerals.

Figure 20 – U.S. Raw Mineral Production Value by Category¹⁵⁸



¹⁵⁶ "Mineral Commodity Summaries 2025," U.S. Geological Survey, 2025, ([link](#)).

¹⁵⁷ Ibid.

¹⁵⁸ Ibid.

Peer Region Selection

Table 10 – Minerals and Natural Resources Peer Region Rationale

Region	Rationale
Norway	<ul style="list-style-type: none"> ■ Mature oil and gas production industry centered around major plays in the North, Norwegian, and Barents seas. ■ Petroleum industry has been estimated at 24% of Norway's GDP. ■ Innovative zinc smelting industry. Proposed upgrades at one of its smelting plants will make the plant the “most productive globally.”
Alberta	<ul style="list-style-type: none"> ■ Largest producer of crude oil among peer group (8x Alaska's annual average daily production). ■ Significant natural gas production accompanies Alberta's crude oil production.
British Columbia	<ul style="list-style-type: none"> ■ The "Golden Triangle" in British Columbia is home to some of the world's most productive gold and silver mines, including the Brucejack mine with production estimated until 2034. ■ At least four additional gold and silver mines have been proposed within the Golden Triangle.
North Dakota	<ul style="list-style-type: none"> ■ North Dakota's Bakken Crude shale formation contains valuable "light", "sweet" crude which is more easily refined into finished products. ■ The Bakken Crude formation also yields significant volumes of high-quality natural gas.

Alaska's Minerals and Natural Resources Industry

Oil and Gas

The discovery of oil reserves in Prudhoe Bay and the subsequent build-out of TAPS in 1977 cemented Alaska's status as a major petroleum-producing state.¹⁵⁹ Over the following decade, production grew rapidly and peaked in 1988 at over 2 million barrels a day.¹⁶⁰ This represented over 25% of total U.S. production and delivered widespread economic benefits to the state. Despite declining production over the years, oil remains a major industry for the state. Current proven oil reserves found in Alaska are estimated at 3.4 billion barrels.¹⁶¹ This ranks Alaska fourth in the U.S. for proven reserves and amounts to roughly 0.2% of the estimated 1.7 trillion barrels of global oil reserves. In 2025, operators in Alaska produced a daily average of 422,000 barrels, representing roughly 0.4% of the daily global oil supply.¹⁶² The vast majority of this production originates from

¹⁵⁹ “Trans-Alaska Pipeline System's 40th anniversary,” *Center for Strategic and International Studies*, June 19, 2017, ([link](#)).

¹⁶⁰ “U.S. Field Production of Crude Oil,” *U.S. Energy Information Administration*, ([link](#)).

¹⁶¹ “Alaska,” *U.S. Energy Information Administration*, May 15, 2025, ([link](#)).

¹⁶² “Crude Oil Production,” *U.S. Energy Information Administration*, ([link](#)).

the North Slope, the state's northernmost region that extends from the Brooks Range to the Arctic Ocean coastline. Despite these trends, recent forecasts predict a resurgence of oil production driven primarily by two developments on the North Slope that recently began production.¹⁶³ Combined with Willow and other prospective and planned developments, these projects are expected to contribute to increased oil production and revitalize the state's oil industry.¹⁶⁴

Figure 21 – Map of Alaskan North Slope Basin¹⁶⁵



Alaska also possesses one of the largest proven natural gas resource bases in the U.S., ranking third in the nation behind Texas and Pennsylvania. However, Alaska is only the twelfth largest state in terms of marketed dry natural gas. The disconnect between natural gas reserves and marketed production is primarily due to the lack of dedicated natural gas pipeline infrastructure to move gas south from the North Slope. Associated gas (i.e., natural gas produced alongside oil) found on the North Slope is primarily reinjected back into oil wells to maintain well pressure and enhance oil recovery (EOR).¹⁶⁶ This approach has preserved the state's natural gas reserves, making them available for future extraction.

Mining

Alaska hosts world-class mines and holds significant mineral potential within its undeveloped deposits. The state is an established producer of metallic minerals, such as gold, silver, zinc, and lead. The USGS's 2025 List of Critical Minerals highlights the value of its vast resource potential, with 57 out of the 60 of its federally designated "critical" minerals present in the state, though

¹⁶³ "EIA forecasts Alaska crude oil production to grow 13% in 2026," *U.S. Energy Information Administration*, November 19, 2025, ([link](#)).

¹⁶⁴ Alaska Department of Revenue, Spring 2026 Revenue Forecast. Accessed 10/5/2026. ([link](#)).

¹⁶⁵ "North Slope and Brooks Range Foothills," *Alaska Department of Natural Resources*, ([link](#)).

¹⁶⁶ Brett Watson, "Alaska, rich in petroleum, faces an energy shortage," *Alaska Beacon*, April 28, 2025, ([link](#)).

some are in trace amounts.¹⁶⁷ Defined under the Energy Act of 2020, these minerals — including zinc, graphite, rare earth elements (“REEs”), and more — are considered essential to the U.S. economy and national security. Alaska is well-positioned to provide a domestic resource base for both critical and non-critical minerals.¹⁶⁸ Current mining operations are concentrated on four major metals: gold, silver, zinc, and lead. As shown in Table 11, production in the state is driven by seven large-scale operational mines, as well as the smaller Dawson underground mine. In addition, the state has more than 150 placer mining operations.¹⁶⁹

Table 11 – Active Mines in Alaska¹⁷⁰

Project	Landowner / Developer	Region	Primary Mined Minerals
Red Dog	NANA Regional Corporation, Teck Alaska	Northwest Arctic Borough	Zinc, Lead, Silver
Kensington	Coeur	Juneau / Southeast Alaska	Gold
Pogo	Northern Star Resources Limited	Interior Alaska / Southeast Fairbanks	Gold
Greens Creek	Hecla	Admiralty Island / Southeast Alaska	Silver, Gold, Zinc, Lead
Fort Knox	Kinross Gold	Fairbanks North Star Borough	Gold
Usibelli	Usibelli Coal Inc	Healy	Coal
Manh Choh	Kinross, Contango Ore, Tetlin Native Corp.	Fort Knox / Interior Alaska	Gold
Dawson	Sundance Mining Group	Hollis / Prince of Wales Island, Southeast Alaska	Gold, Silver

¹⁶⁷ Alaska Critical Mineral Resource Assessments, *U.S. Geological Survey*, December 18, 2025, ([link](#)).

¹⁶⁸ “About the 2025 list of critical minerals,” *U.S. Geological Survey*, November 6, 2025, ([link](#)); Abbie Tingstad et. al, “Unlocking Alaska’s Critical Minerals Development Potential,” *RAND Corporation*, June 2024, ([link](#)).

¹⁶⁹ “Alaska’s Critical Minerals Industry: Economic Opportunities and Policy Considerations,” *Alaska Division of Geological & Geophysical Surveys*, 2026, ([link](#)).

¹⁷⁰ “Major Mines in Alaska,” *Alaska Miners Association*, ([link](#)); “Alaska’s Mining Industry,” *Resource Development Council for Alaska*, ([link](#)).

The scale of current Alaskan mining operations is reflected in Table 12. Alaska is the largest U.S. producer of zinc, and is a major producer of gold, silver, and lead. With sizable, untapped copper, gold, molybdenum, and coal resources, the state also has significant potential to expand its mining operations.

Table 12 – Alaska Primary Mining Production¹⁷¹

Resource	Production (short tons)	Percent of U.S. Production	Percent of World Production
Silver	515	42.5%	1.9%
Gold	26	14.8%	0.7%
Zinc	663,740	80.3%	5.0%
Lead	138,586	41.9%	2.9%

¹⁷¹ David J. Szumigala, "Critical minerals, strategic minerals and minerals in Alaska: A perspective towards future growth," *Alaska Division of Geological & Geophysical Surveys*, 2026, ([link](#)).

Oil and Gas Competitive Analysis

Although many of the legacy fields in Prudhoe Bay and on the North Slope are reaching an advanced maturation phase—where well pressures decline and production slows—Alaska continues to hold significant untapped potential from new developments. This is particularly true in the National Petroleum Reserve in Alaska (“NPR-A”), an area of federally owned land on the North Slope roughly the size of Indiana. While production from the reserve has historically been limited relative to its resource potential, recent leasing activity indicates strong industry interest in future exploration and development opportunities. In March 2026, the Bureau of Land Management (“BLM”) held a record-setting NPR-A oil and gas lease sale that generated more than \$163 million in bids and awarded 187 leases.¹⁷²

Oil production in Alaska's North Slope mainly comes from onshore conventional oil wells, which is quite different from the other peer group regions. Alberta's oil resources are trapped within oil sands and require mining or in-situ (i.e., injecting steam to produce bitumen) operations to extract crude oil from other minerals.¹⁷³ Almost all of Alberta's crude oil is produced from its oil sands, which are characterized as unconventional oil formations.¹⁷⁴ North Dakota's oil resources are also buried in unconventional geological formations and are typically extracted using hydraulic fracturing technology.¹⁷⁵ North Dakota is consistently the third-largest producer of oil in the country, owing to production in the Bakken Shale formation, specifically the Williston Basin.¹⁷⁶ Norway produces most of its oil via offshore platforms in the Norwegian Sea.

Among the peer regions examined, Alaska is most similar to Norway and North Dakota in regard to the quantity of proven oil reserves. The two peer regions closest to Alaska geographically have drastically different amounts of proven oil reserves. Among the peer group, British Columbia has the least amount of oil reserves, whereas the reserves from Alberta are nearly 50 times the amount in Alaska. Alberta's reserves represent 97% of all Canadian oil reserves, helping the country rank third globally for proven oil reserves behind only Venezuela and Saudi Arabia.¹⁷⁷ Proven oil reserves and production for each region are summarized in Figure 22 with Alberta's proven reserves of 166,000 million barrels not shown in the chart for scaling purposes.

¹⁷² “Interior Generates over \$163 Million from National Petroleum Reserve in Alaska Oil and Gas Lease Sale,” *U.S. Department of the Interior*, March 18, 2026. ([link](#))

¹⁷³ “Oil sands 101,” *Government of Alberta*, ([link](#)).

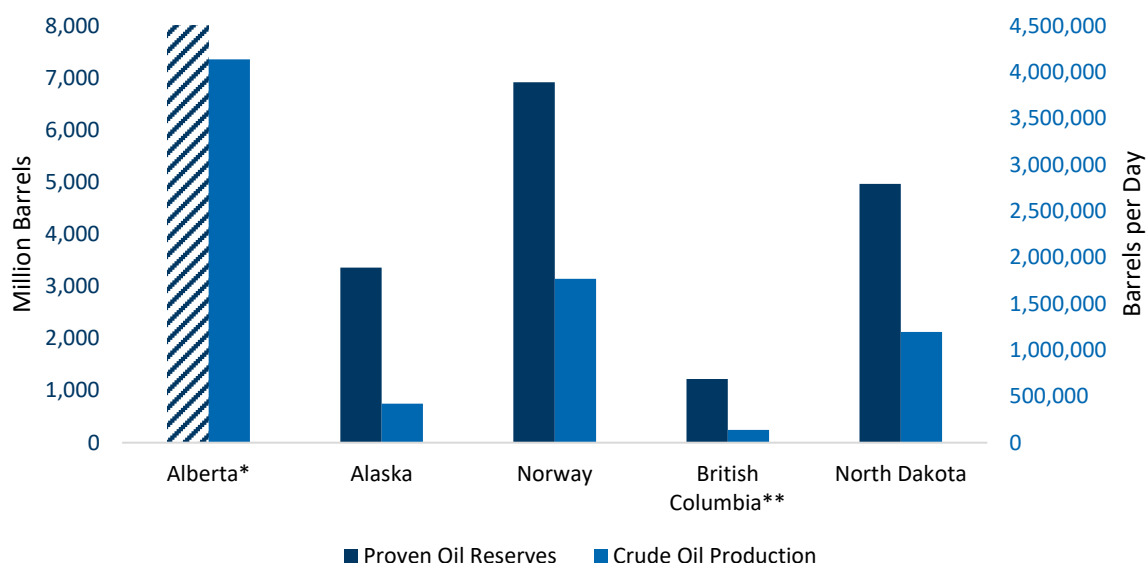
¹⁷⁴ “Oil production,” *Government of Alberta*, ([link](#)).

¹⁷⁵ “North Dakota,” *U.S. Energy Information Agency*, updated September 18, 2025, ([link](#)).

¹⁷⁶ *Ibid.*

¹⁷⁷ “Oil resources,” *Natural Resources Canada*, January 16, 2025, ([link](#)).

Figure 22 – Regional Comparison of Oil Reserves and Production ¹⁷⁸

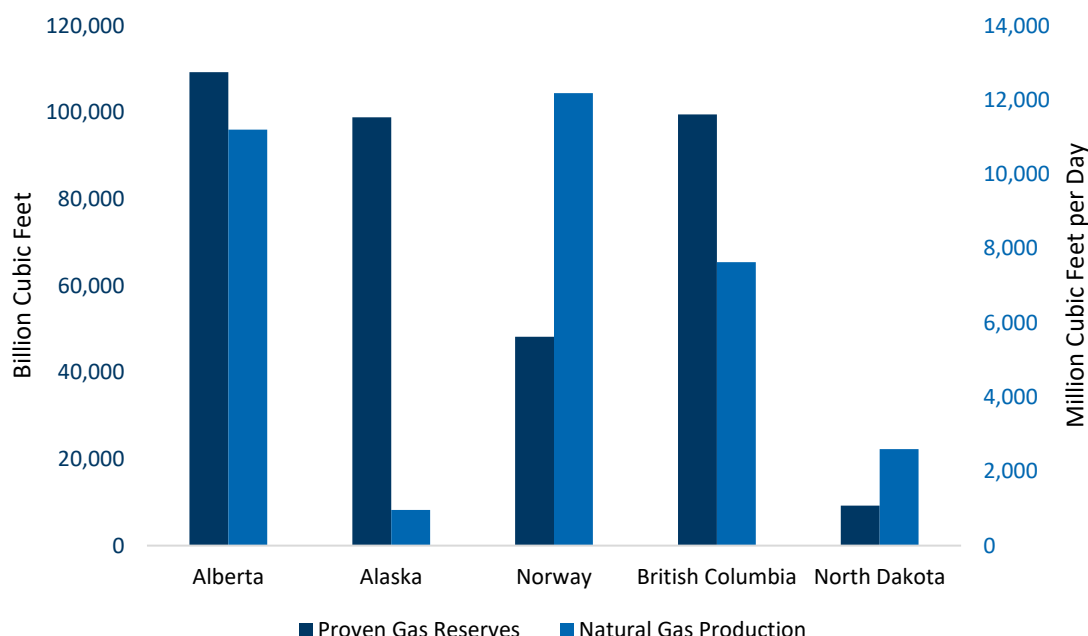


Although Alberta dominates the peer regions as far as total reserves, the type of oil produced from the oil sands is heavy, or highly viscous, with high sulfur content. Heavy and high sulfur crude oil (also referred to as *sour crude*) requires specific types of refineries that can handle and convert these types of oil into consumable products such as gasoline or diesel. Alaska's oil is lighter and has lower sulfur content relative to the oil from Alberta's tar sands. However, Alaskan crude is heavier and more sulfuric than the oil produced in North Dakota and Norway. This affects where the oil can be refined. North Slope crude oil is primarily shipped to West Coast refineries in Washington and California that are designed to handle Alaskan crude.

Relative to the peer regions, Alaska produces the smallest share of its proven reserves, as seen in Figure 23. This is largely due to the lack of pipeline infrastructure required to ship the natural gas off of the North Slope.

¹⁷⁸ * Alberta's estimated 166,000 million barrels of heavy crude proven reserves would distort this chart's axis. ** BC Energy Regulator reports proven and probable reserves together. Proven oil reserve data comes from various sources and were estimated in different years: 2025 (Norway), 2024 (British Columbia and the U.S.), and 2023 (Alberta). All production values are for 2024. Sources: [Alberta] "Oil Resources," *Natural Resources Canada*, January 16, 2025, ([link](#)); "ST3: Alberta energy resource industry monthly statistics," *Alberta Energy Regulator*, accessed February 17, 2026, ([link](#)); [British Columbia] "Reserves," *BC Energy Regulator*, December 31, 2024, ([link](#)); [U.S. states] "Crude Oil Production," *U.S. Energy Information Administration*, accessed February 6, 2026, ([link](#)); "Crude oil proved reserves, reserves changes, and production," *U.S. Energy Information Administration*, accessed February 6, 2026, ([link](#)); [Norway] "Norway Oil," *Worldometer*, 2025, ([link](#)); "Historical production," *NorwegianPetroleum.no.*, ([link](#)).

Figure 23 – Regional Comparison of Natural Gas Reserves and Production¹⁷⁹



Growth Potential

Alaska possesses a highly diversified renewable resource base, including hydropower, wind, biomass, solar, geothermal, and even emerging marine energy. These resources are deployed across the state at varying scales and play a key role in reducing energy costs and improving reliability, particularly in remote villages. Hydroelectric power remains the largest renewable contributor, historically supplying a quarter of statewide electricity in an average water year through 50 operational projects. The table below illustrates significant projects and systems within the state.

¹⁷⁹ Proven natural gas reserve data comes from various sources and were estimated in different years: 2024 (Alberta and British Columbia), 2023 (Norway), and 2021 (U.S. states). All production values are for 2024. **[Alberta]** “Natural Gas Removal Permits,” *Alberta Energy Regulator*, updated June 2025, ([link](#)); “Natural Gas,” *Alberta Energy Regulator*, June 2025, ([link](#)); **[British Columbia]** “British Columbia’s 2024 Oil and Gas Reserves and Production Report,” *BC Energy Regulator*, October 2025, ([link](#)); **[U.S. states]** “Natural Gas Reserves Summary as of Dec. 31,” *U.S. Energy Information Administration*, released December 30, 2022, ([link](#)); “Natural Gas Gross Withdrawals and Production,” *U.S. Energy Information Administration*, accessed February 6, 2026, ([link](#)); **[Norway]** “Norway,” *U.S. Energy Information Administration*, August 21, 2024, ([link](#)); “Historical production,” *NorwegianPetroleum.no*, ([link](#)).

Table 13 – Hydroelectric Power in Alaska ¹⁸⁰

Project / System	Capacity	Outlook
Bradley Lake Hydroelectric Project	120 MW	Core low-cost Railbelt renewable supply, providing ~9% of Railbelt electricity in average water years
Bradley Lake Expansion Project	Proposed ~180,000 MWh/year	Targeted shovel-ready status by 2031, with diversion of water to increase annual energy production by 50%.
Terror Lake Hydroelectric	30 MW	Islanded grid pathway and key baseload for Kodiak Island. Supports wind integration.
Snettisham Hydroelectric Project	~78 MW	Primary power source for Juneau, supporting industrial load (mining) and regional grid
Blue Lake Hydroelectric Project	~58 MW	Expanded reservoir and capacity that support Sitka and potentially regional energy exports

Beyond hydropower, Alaska's renewable energy portfolio includes wind energy, biomass, solar, and geothermal among other sources. Wind energy has expanded through major installations across the state, including utility-scale wind farms in the Railbelt region, as well as wind-diesel hybrid systems throughout western and interior Alaska.¹⁸¹ Solar development has seen greater adoption over the years due to technological advancements. Biomass resources remain localized but present opportunities with forest resources in the Interior and marine-based biofuels along coastal regions. Alaska's vast geothermal resource base, though largely untapped, is also notable.

Despite the growth in alternative forms of energy, such as wind and solar power, and increased demand for electric vehicles, world oil demand continues to grow. Global petroleum and liquid fuels consumption have only experienced a year-over-year decrease in three of the last thirty years, coinciding with global economic recessions.¹⁸² The EIA's latest International Energy Outlook forecasts a 0.7% average annual growth in global demand through 2050.¹⁸³ Demand in both Canada and the U.S. is forecast to grow through 2030 but then plateau through 2050.¹⁸⁴ Given this continued growth in global oil demand and sustained demand in Alaska's primary oil export markets (i.e., the U.S. and Asia), the state is well positioned to market a rebound in its oil production.

¹⁸⁰ Alaska Renewable Energy Alaska Project, "Renewable Energy Atlas," accessed March 24, 2026. ([link](#))

¹⁸¹ Ibid.

¹⁸² "Table G2. World gross domestic product by region, Reference case," *U.S. Energy Information Administration*, October 2023, ([link](#)).

¹⁸³ Ibid.

¹⁸⁴ Ibid.

Estimates of proven reserves in Alaska include only economically viable quantities that have been tested through geological and engineering data. Prior to resources becoming proved reserves obtained through E&P activities, the USGS may perform an assessment of undiscovered, technically recoverable resources. While these assessments are preliminary estimates and may provide a wide range, a 1998 USGS assessment estimated that land within the Arctic National Wildlife Refuge ("ANWR"), known as the ANWR 1002 area, may hold an additional 7.7 billion barrels of technically recoverable resources.^{185,186} This estimate increases to 10.4 billion barrels when including adjacent State and Native areas.¹⁸⁷ Similarly, a 2017 USGS assessment estimated 8.7 billion barrels of technically recoverable oil may exist in the NPR-A, adjacent State and Native lands, and State waters.¹⁸⁸ Recent activity has reinforced industry interest in these resources, exemplified by the March 2026 sales. This sale, resulting in over \$163 million in bids and 187 leases, represented the highest revenue and largest number of leased tracts in the program's history.¹⁸⁹ While lease acquisition does not guarantee future development, the results suggest increased investor confidence in the reserve's resource potential as producers view the NPR-A as an increasingly attractive area for future investment and resource development. Additional offshore exploration into the Arctic Ocean may further increase these resource estimates. Investments from E&P firms could help unlock these undiscovered resources, adding to Alaska's current 3.4 billion barrels of proven reserves. Since the majority of the state's natural gas reserves are associated gas, proven natural gas reserves could increase as E&P firms continue to discover new oil reserves.

Currently, Alaska has no natural gas pipeline infrastructure connecting to Canada or the Lower 48. Growth potential from increased natural gas demand would come from three primary sources: LNG production and export, Alaskan consumption for space or process heating, and in-state electricity generation. Global LNG demand is forecasted to increase 60% over the next 15 years, primarily driven by economic growth in Asia. Both Alaska's and British Columbia's proximity to Asian markets enables reduced shipping timelines—a distinct advantage relative to LNG cargoes from the U.S. Gulf Coast that must transit the Panama Canal. Shorter shipping timelines are specifically beneficial for LNG tankers, as a portion of the LNG in the tanker always vaporizes (known as boil-off), leading to less LNG being delivered the longer a ship is at sea.¹⁹⁰ Furthermore, in-state natural gas demand is likely to grow if additional access lowers costs for homes, businesses, and generators. Natural gas

¹⁸⁵ These numbers are the mean value estimates from the assessment. The USGS assessment also provides a range with a 95- and 5-percent probability range of 4.3 to 11.8 billion barrels for area 1002.

¹⁸⁶ U.S. Geological Survey, "Arctic National Wildlife Refuge, 1002 Area, Petroleum Assessment, 1998, Including Economic Analysis," Fact Sheet 0028-01, U.S. Department of the Interior, 2001, ([link](#))

¹⁸⁷ Ibid.

¹⁸⁸ David W. Houseknecht et al., *Assessment of Undiscovered Oil and Gas Resources in the Cretaceous Nanushuk and Torok Formations, Alaska North Slope, and Summary of Resource Potential of the National Petroleum Reserve in Alaska, 2017*, Fact Sheet 2017-3088 (Reston, VA: U.S. Geological Survey, December 2017), ([link](#))

¹⁸⁹ "Interior Generates over \$163 Million from National Petroleum Reserve in Alaska Oil and Gas Lease Sale," U.S. Department of the Interior, March 18, 2026. ([link](#))

¹⁹⁰ Note that energy from boil-off in LNG tankers is not wasted as it is still captured and typically used to help propel the ship. "LNG as fuel for ships: expert answers to 17 important questions," WARTSILA, June 19, 2024, ([link](#)).

could replace heating oil as a cheaper alternative for space heating, be utilized for electric utility power, or be consumed by industry or generation for new data centers.

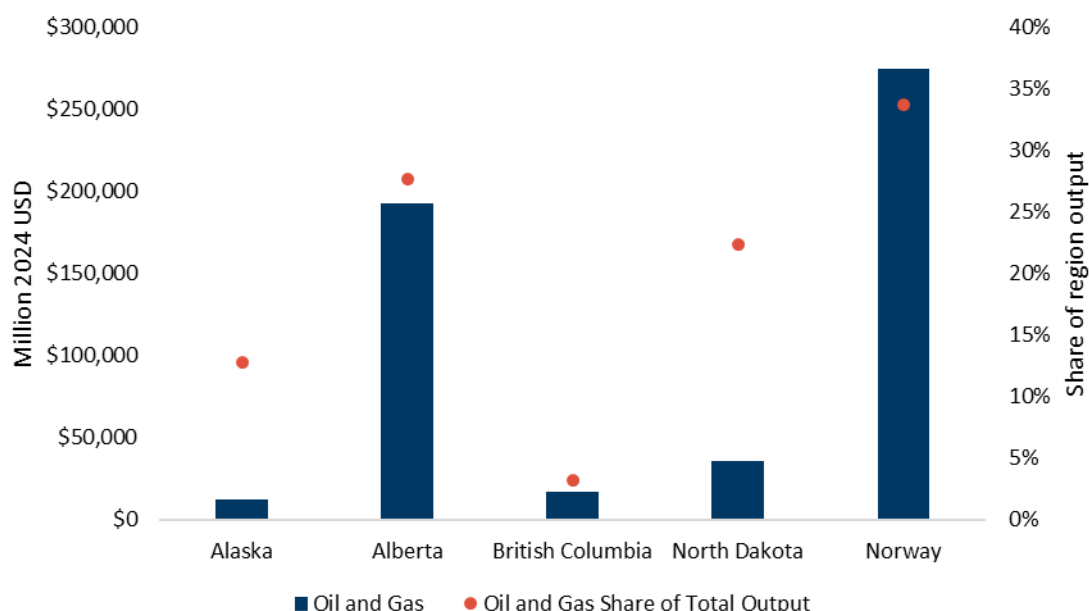
Similar to Alaska's natural gas stranded in the North Slope, North Dakota faces a lack of natural gas pipeline takeaway capacity, limiting its growth potential. British Columbia's natural gas growth will be driven by LNG demand and prices; unlike Alaska and the other peer regions, British Columbia's natural gas production is from largely non-associated gas (i.e., not produced with oil), making it less impacted by fluctuations in the global oil market. Norway has seen exports to the EU expand as European imports from Russia significantly declined following the invasion of Ukraine.

Although Norwegian oil production trended downward from 2001 to 2019, it has recently seen a resurgence. However, Norway's growth potential may be challenged by EU energy policy and the geopolitical outcomes between the EU and Russia.

Economy and Workforce

Alaska's oil and gas sector is an important economic driver for the state. In 2022, Alaska's oil and gas sector was responsible for about 12.8% of the state's total economic output, a much greater localized share than the entire U.S. oil and gas sector's 2.2% share of the U.S. economy. The oil and gas sectors in three of the four peer regions make up even greater shares of their respective region's economic output. Figure 24 shows each region's oil and gas sector's economic output in absolute terms and as a share of regional economic output.

Figure 24 – Oil and Gas Output by Region (2022) ¹⁹¹



The region with the largest oil and gas industry, Norway, is heavily supported by the Norwegian government. 67% of Equinor, Norway's primary oil company, is state-owned.¹⁹² Alberta is the

¹⁹¹ "2022 Annual Business Survey," *U.S. Census*, accessed November 19, 2025, ([link](#)); "Enterprises by detailed NACE Rev. 2 activity and special aggregates," *Eurostat*, updated August 12, 2025, ([link](#)); "Output, by sector and industry, provincial and territory," *Statistics Canada*, November 6, 2025, ([link](#)).

¹⁹² "The Norwegian state as shareholder," *Equinor*, ([link](#)).

second-largest region in terms of economic output followed by North Dakota. British Columbia has the smallest oil and gas industry among Alaska's peers in terms of the industry's share of overall output; however, the 2022 oil and gas economic output data on which this analysis relies does not reflect the completion of LNG Canada in 2025 or three additional proposed LNG facilities all expected to be in operation by 2029 in British Columbia. Once operational, these LNG facilities have an estimated combined output of 31 million metric tons per annum of LNG export capacity, which will likely spur natural gas production within the province.¹⁹³

Economic output does not necessarily reflect the amount of physical production in the region. Several factors explain differences in output. For example, Norway's crude oil trades at the Brent benchmark price. Figure 25 tracks the spread between the Brent and WTI prices, which benchmark crude prices for North Dakota. Over 2022, Brent crude oil traded at an average \$5 per barrel premium to WTI, reaching as high as \$10 per barrel in July 2022. In recent years, a barrel of crude oil produced in Norway is economically more valuable than a barrel of crude oil produced in the U.S. Long-term structural differences in the oil production industry in each region explain the benchmark price spreads. For one, WTI is calculated based on the price in Cushing, Oklahoma, which is landlocked, as opposed to Brent, which is based on the price at the North Sea and can be transported at lower cost. Historically, WTI traded at a premium to Brent before the U.S. shale revolution. Hydraulic fracturing technology rapidly increased U.S. crude oil productivity within the Lower 48 by increasing access to unconventional shale oil resources. Rapidly increasing production created a storage bottleneck in Cushing, which pushed the WTI price upwards until additional pipeline capacity became operational.¹⁹⁴ Since then, prices have converged, although Brent trades at a slight premium to WTI. Alberta's crude oil prices are measured by the Western Canada Select ("WCS") benchmark, which is consistently lower than WTI; however, because Alberta produces significantly greater volumes of crude oil than all other regions, the province's economic output is the second highest among Alaska and its peers.¹⁹⁵ The ANS West Coast price has generally tracked with the international Brent benchmark in recent years, according to data published by the Alaska Department of Revenue.¹⁹⁶ In 2022, the annual average ANS West Coast price was \$100.19 per barrel compared to Brent's \$98.83 per barrel, a \$1.36 per barrel premium.

¹⁹³ Robert Froehlich et. al, "Canadian LNG Industry: 2026 Outlook," *Norton Rose Fulbright*, February 2026, ([link](#)).

¹⁹⁴ "WTI vs. Brent oil prices: When and why do they diverge?" *The FRED Blog*, May 18, 2020, ([link](#)).

¹⁹⁵ "WCS oil price," *Government of Alberta*. ([link](#))

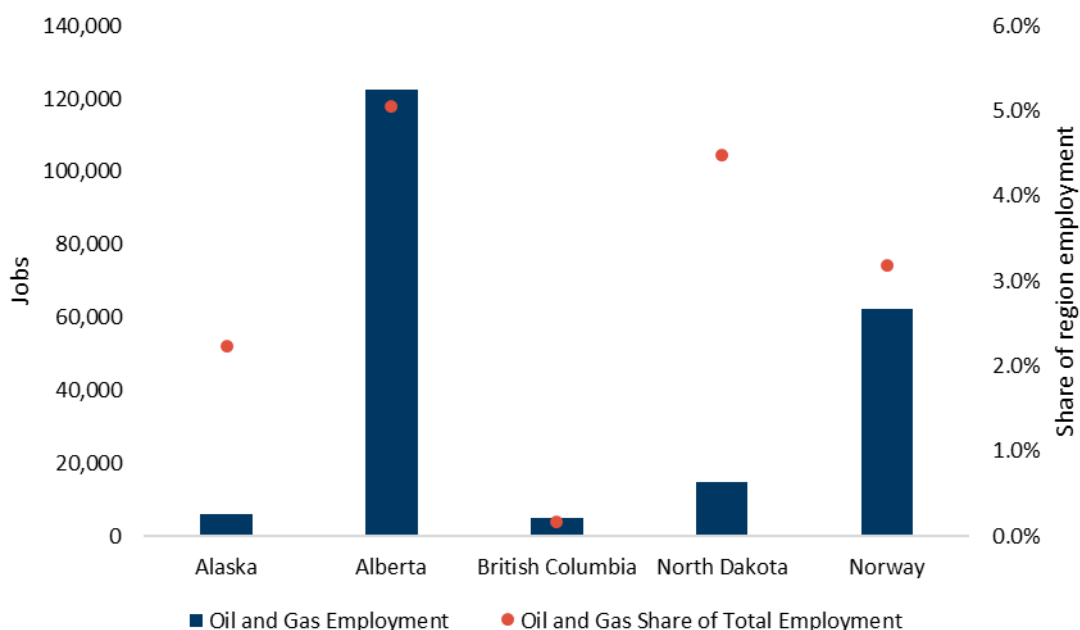
¹⁹⁶ "Crude Oil and Natural Gas Prices," *Alaska Department of Revenue*, ([link](#)).

Figure 25 – Monthly Brent – WTI Spread (2000-2026)¹⁹⁷

Oil and gas employment across Alaska and its peer regions mirrors economic output. As shown in Figure 26, Alaska's oil and gas sector employed close to 6,000 people in 2022, which represented about 2.2% of the state's total employment in that year. Norway's 3.2% oil and gas employment share is the closest to Alaska's among peer regions, whereas Alberta's and North Dakota's are higher at 5% and 4.5%, respectively. British Columbia's employment share is a negligible 0.17%. Alberta's oil and gas industry employs almost twice as many employees as Norway despite generating less economic output. One explanation for this difference is that oil production in Alberta is more labor-intensive than in Norway. Alberta's oil sands require mining and other specific oil retrieval operations which increase the capital and labor intensity per barrel of oil.

¹⁹⁷ "Crude Oil Prices: Brent – Europe," *Federal Reserve Bank of St. Louis*, ([link](#)). Graph derived by subtracting the monthly average WTI price from the monthly average Brent price.

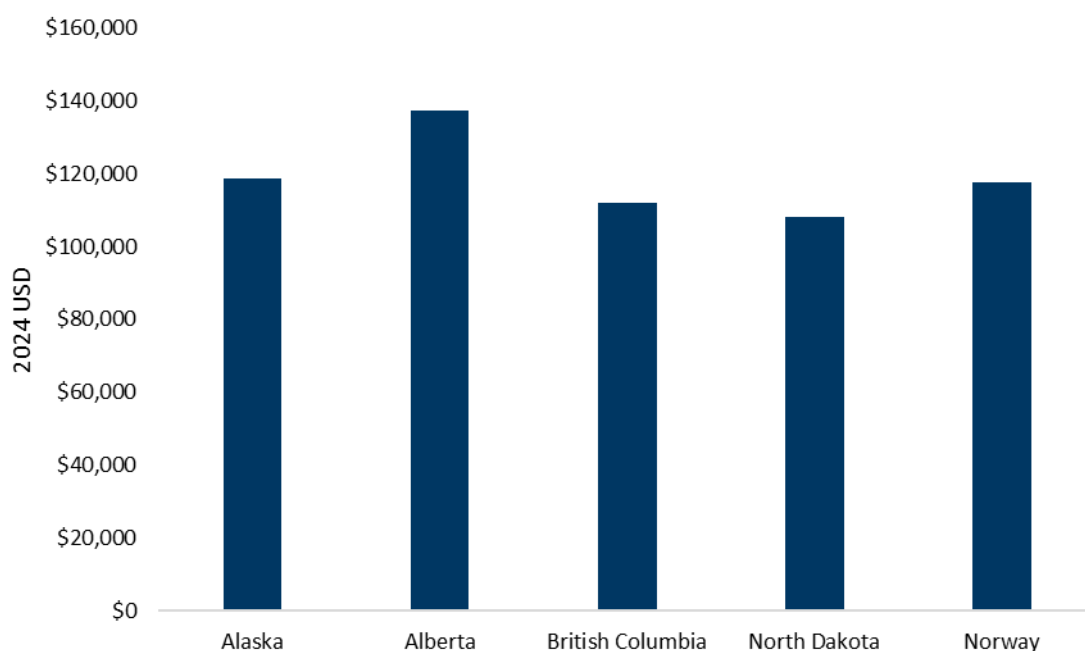
Figure 26 – Oil and Gas Employment (2022) ¹⁹⁸



Labor costs are competitive in Alaska's oil and gas sector, as shown in Figure 27. Among peer regions, Alberta's average annual compensation of \$137,000 is the highest; in comparison, Alaska's is \$119,000. Annual average compensation in the remaining peer regions is within \$10,000 of Alaska.

¹⁹⁸ "2022 Annual Business Survey," *U.S. Census*, accessed November 19, 2025, ([link](#)); "Enterprises by detailed NACE Rev. 2 activity and special aggregates," *Eurostat*, updated August 12, 2025, ([link](#)); "Labour statistics consistent with the System of National Accounts," *Statistics Canada*, May 20, 2025, ([link](#)); "Employment, register-based," *Statistics Norway*, updated February 26, 2025, ([link](#)).

Figure 27 – Oil and Gas Average Annual Labor Costs per Employee, by Region (2022) ¹⁹⁹



Alaska's oil and gas industry is poised for growth. However, ensuring that a larger share of that growth accrues to the state's residents requires greater investment in workforce development. A 2026 report from the Alaska Department of Labor and Workforce Development ("AKDOLWD") found that 40.5% of workers in the oil and gas industry were non-residents in 2024, up from 37.4% in 2023.²⁰⁰ AKDOLWD's analysis concluded that remote work sites and unusual schedules are the primary factors that explain the high percentage of non-residents working in the oil and gas industry.

Alaska's STEP program could increase the share of resident workers in the oil and gas industry. The STEP program distributes grants for training programs, including industry-specific training.²⁰¹ North Dakota and British Columbia offer similar recruitment and training incentives for employers. Employers in North Dakota can apply for a Workforce Recruitment Tax Credit to help defray the costs of filling difficult, high-salary positions or apply for the New Jobs Training Program, which reduces the cost of training new full-time employees.²⁰² British Columbia offers a similar Employer Training Grant Program and a Training Tax Credit for Apprentices linked to its SkilledTradesBC agency.²⁰³

¹⁹⁹ Ibid.

²⁰⁰ "Nonresidents Working in Alaska 2024," *Alaska Department of Labor and Workforce Development*, February 2026, ([link](#)).

²⁰¹ "State Training and Employment Program," *Alaska Department of Labor and Workforce Development*, ([link](#)).

²⁰² "Workforce Recruitment Tax Credit," North Dakota Office of State Tax Commissioner, ([link](#)); "North Dakota New Jobs Training Program," North Dakota Office of State Tax Commissioner, ([link](#)).

²⁰³ "B.C. Employer Training Grant," *WorkBC*, ([link](#)). ; "Training tax credit for apprentices," *Government of British Columbia*, ([link](#)).

Infrastructure and Costs

There are five operating refineries in Alaska with a total refining capacity of 166,000 barrels per day.²⁰⁴ These five refineries process on average roughly 70,000 barrels per day (about 15% of Alaska's total oil production) to help meet in-state demand for heating oils, motor gasoline and diesel, jet fuel, and fuel for electricity generation.²⁰⁵ The two refineries in the southern part of the state, one in Kenai and one in Valdez, produce the majority of Alaska's refined products and are dependent on TAPS to deliver crude oil out of the North Slope down to the Port of Valdez. Additionally, the refinery in Kenai receives tanker shipments through the Cook Inlet, primarily being shipped from Valdez around the Kenai Peninsula.

The other three refineries are located further north: one in the middle of the state near Fairbanks, and two smaller refineries on the North Slope, which produce fuel required for oil and gas operations. Although the state has a refining capacity of 166,000 barrels per day, this capacity is underutilized. This is likely due to a mismatch between product yield, refinery locations, and specific market demands (e.g., Alaska's high demand for jet fuel), which forces the state to be a net importer of refined fuel, primarily from South Korea.²⁰⁶

Although in-state oil refinement may be constrained, TAPS is operating well below its full capacity. TAPS flow peaked at 2.1 million barrels per day in 1988; however, the pipeline is currently operating at less than 25% of that throughput.²⁰⁷ This position gives Alaskan oil production the ability to ramp up without needing any additional pipeline infrastructure to transport the oil to port. Due to economies of scale, exporting crude oil via large oil tankers is generally cheaper than other non-pipeline transportation (e.g., rail or truck). In comparison, oil production in Alberta relies on the Trans Mountain ("TMX") pipeline, which was recently expanded in May 2024, but only transports up to 890,000 barrels per day to the port in Burnaby, British Columbia.²⁰⁸

This excess TAPS capacity is critical for the three more recent oil projects: the Nuna Project; the Pikka Phase 1 development, and the Willow Project, all located on the North Slope. As shown in Table 14, the three projects combined are estimated to have over \$12 billion in capital investment and support significant increased production. Beyond these projects, recent appraisal success at Quokka demonstrates the potential for additional North Slope production growth that could utilize available capacity within TAPS if development proceeds.²⁰⁹

²⁰⁴ "Alaska," U.S. Energy Information Administration, May 15, 2025, ([link](#)).

²⁰⁵ "Development of Alaska's ANWR would increase U.S. crude oil production after 2030," U.S. Energy Information Administration, June 14, 2018, ([link](#)).

²⁰⁶ Margaret Bauman, "Alaska exports outweigh imports, report states," *The Cordova Times*, June 4, 2025, ([link](#)).

²⁰⁷ "Trans Alaska Pipeline System (TAPS)," *Alyeska Pipeline Service Company*, accessed February 27, 2025, ([link](#)).

²⁰⁸ "Market snapshot: Trans Mountain Expansion eases pipeline constraints and increases exports to overseas markets," *Canada Energy Regulator*, September 10, 2025, ([link](#)).

²⁰⁹ "Santos Announces Alaska Appraisal Success and Provides Major Projects Update," *Santos*, August 20, 2025, ([link](#)).

Table 14 – Recent and Announced Investments in Alaska Oil and Natural Gas²¹⁰

Project	CAPEX	Added Production	In-Service Year
Nuna Project	\$1-3 Billion	20,000 barrels per day	2024
Pikka Phase 1 Project	\$2.6 Billion	80,000 barrels per day	2026
Willow Project	\$8.5-9 Billion	180,000 barrels per day	2029
TOTAL	\$12.5-14.6 Billion	280,000 barrels per day	

Since TAPS began transporting crude oil in the late 1970s, moving natural gas resources from the North Slope has been a key challenge for Alaska. Significant quantities of natural gas produced alongside oil are being reinjected at Prudhoe Bay gas management facilities. Production of marketable dry natural gas will remain limited until dedicated natural gas pipeline capacity out of the North Slope is constructed.

The Alaska LNG project has the potential to address this structural gap through an integrated system consisting of an approximately 800-mile, 42-inch pipeline from Prudhoe Bay to Nikiski, a gas treatment facility, and a liquefaction terminal capable of exporting up to 20 million metric tons of LNG per year.²¹¹ If constructed, the LNG facility could unlock significant amounts of natural gas currently stranded on the North Slope, making production economically viable through a corridor that connects reserves to both export markets in Asia and end users. First in-state gas is targeted to come online in the next decade with a planned capacity of approximately 3.3 Bcf/day, more than three times Alaska's current marketable dry gas production.²¹²

²¹⁰ "Nuna / Journey to first oil," *ConocoPhillips*, February 24, 2025, ([link](#)); "ConocoPhillips Alaska's Nuna project produces first oil," *Alaska Business*, December 20, 2024, ([link](#)); "Santos Announces Pikka FID," *Santos*, October 5, 2023, ([link](#)); Dermot Cole, "Willow project cost soars to \$9 billion, which will cut state revenue for years," *Reporting from Alaska*, November 10, 2025, ([link](#)).

²¹¹ "Alaska LNG project summary," *Alaska Gasline Development Corporation*, ([link](#)).

²¹² "President's Report," *Alaska Gasline Development Corporation Board of Directors Meeting*, September 3, 2026, ([link](#)).

Figure 28 – Alaska LNG Pipeline Project²¹³

The pipeline offers Alaska the opportunity to secure long-term energy and industrial security. Within the state, the Alaska LNG project can address power generation and energy delivery needs. Currently, the state has one of the highest electricity costs in the U.S., affecting both residents and energy-intensive industrial users.²¹⁴ If constructed, the pipeline could deliver reliable, lower-cost gas supply across Southcentral Alaska to support mining, IT infrastructure, and other industries.^{215,216} On a global scale, the pipeline could provide access to Northeast Asian and international markets, creating a Pacific-facing terminal for exports. Total capital project costs have ranged from approximately \$45 billion to \$55 billion for the full development, including the pipeline, gas treatment plant, and LNG export facilities. As of September 2026, the project remains under development, with ongoing commercial negotiations, financing efforts, and regulatory plans.²¹⁷

British Columbia is also seeking to expand natural gas pipeline infrastructure to meet growing LNG demand and increase production from natural gas fields in the northern part of the province. Gas production in British Columbia is transported south via the T-South pipeline system to consumers in Vancouver or exported to the U.S. Currently, the T-South pipeline is highly capacity constrained. Due to these constraints, producers in northern British Columbia sell natural gas at a significant

²¹³ Dragana Nikse, "Alaska's LNG project moves closer to reality after 10 years in the making, with Glenfarne as private investor," *Offshore Energy*, January 10, 2025 ([link](#)).

²¹⁴ "Electricity Cost by State 2026," *World Population Review*, 2026, ([link](#)).

²¹⁵ "Re: Alaska Gasline Development Corporation application for the Alaska LNG project, Docket Nos. CP17-178-000," *Resource Development Council for Alaska*, May 22, 2017, ([link](#)).

²¹⁶ "Alaska LNG completes federal permitting ahead of schedule," *Federal Permitting Improvement Steering Council*, December 11, 2025, ([link](#)).

²¹⁷ "AKLNG Full Project & Phase 1-Only Year-by-Year Summary of Government Revenue Current Law & HB 381 as Introduced," *Alaska Department of Revenue*, April 26, 2026. ([link](#)).

discount relative to other regional gas market hubs. To help alleviate these constraints, the Sunrise Expansion Program is a proposed expansion on the T-South to increase capacity by 300 Mcf per day and is targeted to be in service by late 2028. The project is estimated to cost roughly \$4 billion CAD (~\$3 billion USD).²¹⁸

Public Policy

Alaska's ability to responsibly and sustainably develop its hydrocarbon resources will depend on a combination of federal, state, and local policies and incentives. Notably, the frameworks around permitting and environmental regulations, as well as tax structures, will be critical tools to ensure that Alaska remains competitive in attracting labor and capital to the sector. Table 15 provides a comparison of policy mechanisms implemented in peer jurisdictions, including North Dakota, Alberta, British Columbia, and Norway, for insight into effective incentives and policy tools.

Table 15 – Oil and Gas Policy Incentives by Region²¹⁹

	Infrastructure 	Development 	Operations 
Alaska	<ul style="list-style-type: none"> ■ NEPA* ■ Energy Act of 2020* ■ IIJA Geological Mapping Funding* ■ Unleashing Alaska's Extraordinary Resource Potential Executive Order* ■ Alaska Exploration Incentives Act ■ Gas Exploration and Development ■ Defense Logistics Agency * 	<ul style="list-style-type: none"> ■ Expensing of Intangible Drilling Costs* ■ Depreciation Tax Deduction* ■ Defense Production Act* ■ Qualified Capital Expenditure/Well Lease Expenditure Credits ■ Qualified Oil and Gas Service Industry Expenditure Credit ■ AIDEA Project Finance Programs 	<ul style="list-style-type: none"> ■ Small Producers' Percentage Depletion* ■ STEP Program ■ Per Barrel Tax Credit ■ Sliding Scale Tax Credit ■ Oil and Gas Production Tax ■ Gross Value Tax Reduction ■ Tax Ceiling ■ Education Tax Credit
North Dakota	<ul style="list-style-type: none"> ■ NEPA* ■ Energy Act of 2020* ■ IIJA Geological Mapping Funding* ■ North Dakota Real Assets Fund 	<ul style="list-style-type: none"> ■ Expensing of Intangible Drilling Costs* ■ Depreciation Tax Deduction* ■ Defense Production Act* ■ Bank of North Dakota ■ Research Expense Credit 	<ul style="list-style-type: none"> ■ Small Producers' Percentage Depletion* ■ Workforce Recruitment Credit ■ North Dakota New Jobs Training Program ■ Oil & Gas Research Program
Alberta	<ul style="list-style-type: none"> ■ West Coast Pipeline Project ■ Technology Innovation and Emissions Reduction 	<ul style="list-style-type: none"> ■ Accelerated Investment Incentive** 	<ul style="list-style-type: none"> ■ MITACS** ■ Alberta Petrochemicals Incentive Program

²¹⁸ Patrick Davies, "Enbridge's \$4B Sunrise Expansion pipeline gets nod in B.C. Interior," *The Keremeos Review*, February 6, 2026, ([link](#)).

²¹⁹ * = U.S. Federal Policy; ** = Canadian Federal Policy

<div>British Columbia</div>	<ul style="list-style-type: none"> ■ Major Projects Office ■ Canada Infrastructure Bank 	<ul style="list-style-type: none"> ■ Accelerated Investment Incentive** 	<ul style="list-style-type: none"> ■ MITACS** ■ Natural Gas Corporate Income Tax Credit ■ B.C. Employer Training Grant Program ■ Training Tax Credit for Apprentices
	<ul style="list-style-type: none"> ■ Gassaco AS ■ Norwegian Petroleum Directorate 	<ul style="list-style-type: none"> ■ Norwegian Geological Survey 	<ul style="list-style-type: none"> ■ Oil and gas tax ■ Petroleum Tax Act

Alaska's unique land ownership model and competitive tax regime have streamlined processes for legacy resource projects, allowing the oil and gas industry to contribute significantly to the state's economy. The oil industry, in particular, has funded the state budget and provided economic returns to Alaskans since 1982, when the legislature first authorized dividend payments from the Permanent Fund.²²⁰ While the state retains authority over leasing, taxation, and revenue management on state lands, a substantial share of land and subsurface rights, approximately 60%, is federally owned, making the federal government a key stakeholder in land-use decisions. The remaining land is split between private owners, including Alaska Native Corporations and regional corporations.²²¹

Recent federal initiatives have focused on accelerating resource development in Alaska. The Executive Order, "Unleashing Alaska's Extraordinary Resource Potential," along with other executive orders, have established frameworks to expedite this development. These directives align with OBBBA and have applied mechanisms including Title 41 of the Fixing America's Surface Transportation ("FAST-41") permits and DoD funds to advance major projects. Notably, the BLM reopened 1.56 million acres of the Coastal Plain of ANWR for oil and gas leasing, effectively reinstating plans that had been revoked under the Biden administration.²²² The Alaska LNG pipeline has received significant federal support and a FAST-41 designation, enabling completion of federal permitting ahead of schedule.²²³

While Alaska has leaned in on these federal directives for major projects, lengthy permitting processes and environmental reviews can create uncertainty among developers and result in multi-year timelines.²²⁴ Recently, Alberta formalized its intent to shorten permitting timelines, signing an MOU with the Government of Canada to limit the process to a maximum of 2 years.²²⁵ Other peer

²²⁰ "Permanent Fund Dividend, Historical Timeline," *Alaska Department of Revenue*, ([link](#)).

²²¹ "Land Ownership in Alaska," *Alaska Department of Natural Resources*, ([link](#)).

²²² "Unleashing Alaska's Extraordinary Resource Potential," *The White House*, January 20, 2025, ([link](#)).

²²³ "Alaska LNG Completes Federal Permitting Ahead of Schedule," *Federal Permitting Improvement Steering Council*, December 11, 2025, ([link](#)).

²²⁴ "Last Frontier Lockup," *Office of Senator Sullivan*, ([link](#)).

²²⁵ "Canada-Alberta Memorandum of Understanding," *Office of the Prime Minister of Canada*, November 27, 2025, ([link](#)).

regions have streamlined these processes under centralized authorities and systems. North Dakota's system tracks permit applications through the entire process, enabling drilling permits to be obtained in days.²²⁶ As demand for natural resource production grows, speed to market and permitting reform will be key for project developers. Since much of the oil and gas production in Alaska is on federal land, coordinating these processes effectively will be vital for continued development in the near and long term.

To promote exploration and development activity, Alaska offers a competitive set of fiscal mechanisms and unique project backing. Similar to North Dakota, Alaska allows for the full expense of intangible drilling costs and offers qualified capital and well lease expenditure credits to offset upfront well costs. AIDEA, the state-owned financing corporation, offers revenue bonds, project financing, and an innovative infrastructure ownership model. While AIDEA can help reduce upfront capital requirements for developers, it can be constrained by its capital base. In contrast, the Bank of North Dakota, an official state-partnered bank, allows for greater lending capacity through its broader asset base, directing approximately \$1.1 billion in loan programs in 2024.²²⁷ Expanding AIDEA's capital base through similar revenue streams, without requiring direct state appropriations, could enable it to support numerous large-scale projects.

Table 16 shows Alaska's tax policies and incentives relative to peers.²²⁸ For oil and gas industries in these jurisdictions, there are distinct fiscal structures. Alaska and North Dakota rely primarily on production-based (severance) taxes levied on the value of outputs. In contrast, Alberta and British Columbia structure oil and gas revenues mainly through Crown royalty and concession systems combined with general corporate income taxation. Norway emphasizes a profit-based special tax regime rather than a stand-alone severance tax.

Table 16 – Oil Production Policies by Region²²⁹

Region	Primary Production / Severance Tax	Incentives and Offsets
Alaska	<ul style="list-style-type: none"> 35% Base Rate on the value at the point of production 	<ul style="list-style-type: none"> Per Barrel Tax Credits (\$0 - \$8 depending on the location) Gross Value Reduction for the first seven years of production

²²⁶ Lynn Helms, Testimony of Lynn Helms, Director of the North Dakota Industrial Commission Department of Mineral Resources, *U.S. House of Representatives Committee on Natural Resources*, May 8, 2013, ([link](#)).

²²⁷ "Bank of North Dakota releases 2024 Annual Report," *Bank of North Dakota*, May 2025, ([link](#))

²²⁸ Not inclusive of corporate tax structures.

²²⁹ "Alberta's Modernized Royalty Framework: Overview," *Government of Alberta*, April 2016, ([link](#)); "The Per Barrel Credit," *Alaska Oil and Gas Association*, April 14, 2025, ([link](#)); "Oil and Gas Severance tax," North Dakota Office of State Tax Commissioner, ([link](#)); "Royalty overview," *Government of Alberta*, ([link](#)); "Norway Corporate – Taxes on Corporate Income," *PwC*, 2026, ([link](#)).

North Dakota ²³⁰	<ul style="list-style-type: none"> ■ Oil: 11.5% Combined Base Rate (5% Production, 6.5% Extraction) ■ Gas: Adjusted flat rate per one thousand mcf on all nonexempt gas (updated annually) 	<ul style="list-style-type: none"> ■ Reduced 2% extraction rate for the first 75,000 barrels ■ Reduced rates outside of the Bakken formation
Alberta	<ul style="list-style-type: none"> ■ No sector-specific production / severance tax 	<ul style="list-style-type: none"> ■ Drilling and Completion Cost Allowance (C*) before higher rates apply
British Columbia	<ul style="list-style-type: none"> ■ No sector-specific production / severance tax 	<ul style="list-style-type: none"> ■ Natural Gas Corporate Income Tax Credit
Norway	<ul style="list-style-type: none"> ■ 56% Special Tax 	<ul style="list-style-type: none"> ■ Immediate expensing of investments against the special tax base ■ Refunds for exploration costs

From a fiscal perspective, Alaska's oil and gas production tax regime has kept prices competitive. Under SB-21, the annual production tax on oil is levied based on its value at the point of production at a 35% base rate.²³¹ This statutory base pushes marginal rates higher in high price environments, which can reduce fiscal volatility and improve predictability. Furthermore, incentives like the gross value reduction ("GVR") and per-barrel tax credit help offset tax liability in low price environments. Specifically, the GVR enables certain projects to exclude a portion of gross value from the tax base for the first seven years of production, while the per-barrel credit can be applied depending on the region and price of oil, ranging from \$0 to \$8.²³²

As Alaska looks to expand its LNG market, British Columbia's fiscal and regulatory approach to fast-tracking LNG exports may be particularly informative. The federal and provincial governments have utilized targeted tax incentives, such as accelerated capital cost allowance for low-carbon LNG facilities, and funding through the Major Projects Office.²³³ The province has further established a dedicated LNG income tax framework, along with the Accelerated Capital Cost Allowance from the Canadian government, enabling depreciation of capital expenditures early on. The overall royalty system is changing in 2027 for the first time in 30 years, moving toward a revenue minus cost model that reflects modern shifts in climate commitments and resource management.²³⁴

²³⁰ Imposed in lieu of property taxes.

²³¹ The "production tax" is gross value net of transportation, less lease expenditures. "Oil and Gas Production Tax Section Analysis," *Alaska Department of Revenue*, January 11, 2013, ([link](#)).

²³² "The Per Barrel Credit," *Alaska Oil and Gas Association*, April 14, 2025, ([link](#)).

²³³ "Prime Minister Carney announces second tranche of nation-building projects referred to the Major Projects Office," *Prime Minister of Canada*, November 13, 2025, ([link](#)).

²³⁴ "Petroleum and Natural Gas Royalties," *Government of British Columbia*, May 14, 2025, ([link](#)).

Though Alaska's credit programs and tax measures help offset development costs for producers, the predictability and durability of fiscal policy may be equally important for long-term investment decisions. Norway serves as an example of this approach. Its system is designed around a neutral tax principle that allows companies to expense capital investments and operating costs against the tax base so that investment decisions are not distorted by the tax system.²³⁵ The consistency in the underlying principles over time has supported a strong level of investment in petroleum activity, including extraction and pipeline transportation.²³⁶ In this context, maintaining fiscal stability alongside clear policy signaling is key to providing investors with the confidence to invest in industries characterized by longer time horizons and significant upfront capital commitments.

Beyond financial and economic incentives, Alaska remains a leader in responsible resource development, championing exceptionally low flaring intensity.²³⁷ Combined with vast resources, exploration incentives, and AIDEA financing support, the state is well-positioned to meet rising global energy demand through its oil and gas industry. Moving forward, preserving fiscal and policy stability to maintain investor confidence and addressing permitting bottlenecks that delay timelines will be critical to unlocking the state's full resource potential.

²³⁵ "The petroleum tax system," *Norwegian Petroleum*, updated October 15, 2025, ([link](#)).

²³⁶ "Growth in petroleum investment in 2025," *Statistics Norway*, February 12, 2026, ([link](#)).

²³⁷ Alaska's no flare policy allows natural gas to be flared or vented only in the case of emergencies or when EOR methods are not feasible during the early stages of well development.

Key Findings and Recommendations

Table 17 – Oil and Gas Key Findings

	Alaska	North Dakota	Alberta	British Columbia	Norway
Current Industry	Recent additions and potential growth in oil and gas production due to major projects on the North Slope.	Stable phase of oil and gas production following historic rapid growth, with producers focused on maintaining well efficiency in the Bakken.	Landlocked; major oil sands in the northeast ranking 3 rd in the world for proven oil reserves behind Venezuela and Saudi Arabia.	Shift in oil and gas industry trends to becoming a global exporter of LNG, with the Woodfibre LNG export terminal expected to be online in 2027.	Nearly all production of oil and gas is offshore, comprising nearly half of Norway's total exports.
Growth Potential	Three key developments will take advantage of underutilized capacity on TAPS and reverse a decades-long trend of declining oil production.	Requires additional natural gas pipeline takeaway capacity to serve growing demand in the lower 48.	The Trans Mountain Pipeline expansion is supportive of more crude oil production and exports to Asian markets through Westridge Marine Terminal in Burnaby, BC.	Natural gas production is closely tied to natural gas and LNG prices due to a high level of pure gas reserves and far less oil-associated gas.	Dependent on EU energy policy and the geopolitical outcomes between the EU and Russia.
Economy and Workforce	About 40% of oil and gas workers are non-residents. Competitive average annual incomes but lower labor productivity compared to Norway.	4.5% of North Dakota's labor force is employed by the oil and gas industry, which is second only to Alberta's 5%.	Oil sands operations may be considerably more labor-intensive than other forms of oil extraction, which explains Alberta's lower labor productivity.	Smallest oil and natural gas industry among Alaska's peers. Alaska and British Columbia employ a similar number of workers.	Greatest economic output among Alaska and other regions. Equinor, the country's largest producer, is 67% state-owned.
Infrastructure and Costs	Lack of dedicated natural gas pipeline infrastructure to unlock stranded natural gas reserves for in-state consumption or LNG export.	Existing infrastructure supports oil production and excess natural gas is often flared due to lack of natural gas pipeline capacity.	Pipeline infrastructure designed to transport crude oil production to export terminals in BC or select refineries that can process the heavy tar sands oil	Natural gas reserves in northern B.C. are pipeline-constrained, creating a negative price differential for BC producers relative to other regional gas hubs.	Effectively markets its associated gas due to robust natural gas pipeline infrastructure and restrictions on flaring/venting natural gas.
Public Policy	Coordinated federal efforts that prioritize and expedite project timelines; remaining uncertainty over long term tax policy environment and land management.	Permitting speed and exemptions for incentive wells maximize resource recovery and provide operational efficiency.	Strong provincial and national agreements for expedited permitting; royalty framework based on front-end cost recovery.	Currently transitioning away from the previous 30-year-long royalty framework. Strong focus on LNG export growth and infrastructure.	Consistent neutral principle regime that promotes stability and long-term investment.

Recommendation #1: Develop oil and natural gas infrastructure to reduce reliance on imported fuel and increase exports.

Alaska exports crude oil and imports refined crude products in order to meet state fuel demand. This imbalance creates an opportunity for Alaska to expand in-state refinement and become less dependent on imported fuel. Separately, abundant natural gas reserves are stranded on the North Slope due to a lack of dedicated natural gas infrastructure. Building the necessary infrastructure to unlock these reserves would provide immense economic benefit. Projects such as the Alaska LNG pipeline offer the potential to secure long-term, lower-cost, and reliable natural gas supply to both in-state consumers and allies in the global LNG market.

Recommendation #2: Streamline coordination among key stakeholders and provide permitting reform to assist with regulatory approvals.

Clarifying the role of agencies and reducing duplicative review requirements would greatly improve the efficiency of the permitting process and shorten development timelines for major energy projects. Peer regions have enhanced permitting efficiency by centralizing the process under a single system or authority. Though the federal ownership of land complicates this for Alaska, permitting reform can help standardize and expedite the coordination among key stakeholders, such as Indigenous communities, state and federal agencies, and private developers, to create more predictable permitting pathways.

Recommendation #3: Invest in transportation infrastructure and site-specific amenities for the workforce in the natural resources extraction sector.

Creating better connections between remote worksites and homes or investing in better amenities surrounding work sites could reduce the state's reliance on out-of-state labor by making it easier for Alaskans to view a career in the minerals and natural resources sector as a sustainable future.

Mining Competitive Analysis

Alaska far outpaces its peer regions in terms of mineral production potential. According to the 2024 Fraser Institute Annual Survey of Mining Companies, Alaska ranks as the top jurisdiction globally for mineral potential and third for mineral investment attractiveness, following Finland and Nevada.²³⁸ Mining sectors in Alberta and North Dakota are dominated by oil and gas and coal, with minimal production of metallic or industrial minerals. Norway, which hosts a large zinc smelter, imports 100% of its raw zinc minerals, with a substantial amount coming from Sweden. Although Norway had a long history of mining zinc, it ceased production in 1998.²³⁹ In January 2024, Norway's government planned to issue deep-sea mineral exploration permits but delayed the plan until at least 2029 after receiving significant pushback.^{240,241} On the other hand, British Columbia hosts significant metallic mineral production (copper and molybdenum), notably from the Highland Valley Copper mine.

Growth Potential

Future growth in Alaska's mineral production lies in both the expansion of current production and the exploitation of untapped critical mineral deposits essential for the modern economy. The Pebble deposit, in particular, is estimated to contain 57 billion pounds of copper, 71 million ounces of gold, and 3.4 billion pounds of molybdenum in measured and indicated resources.²⁴² In support of Alaska's immense potential, the USGS invested \$3.6M through the Earth Mapping Resources Initiative to provide high resolution geophysical data on areas hosting antimony, zinc, and tin and tungsten.²⁴³ Table 18 provides a summary of growth opportunities from the four primary metals where Alaska's mining sector is currently concentrated and five additional minerals with potential growth. In the near-term, Alaska can expand its existing base of mines targeting precious metals (e.g., gold, silver, zinc, lead) and indicated large-scale copper deposits. Critical mineral opportunities such as graphite, rare earths, cobalt, and germanium are a real opportunity, but may require a longer development horizon.

Table 18 – Key Alaska Opportunities in the Mining Sector

Mineral	Primary Applications	Alaskan Opportunities
Existing Operations		
Gold	Financial & Tech: Used as a hedge against inflation (bullion), used in jewelry, and in high-end electronics	Alaska is a top U.S. producer, with major operations like Fort Knox

²³⁸ Julio Mejía and Elmira Aliakbari, "Annual Survey of Mining Companies, 2024," *Fraser Institute*, July 29, 2025, ([link](#)).

²³⁹ "Zinc Mining: Data by Countries from 1970 to 2023," Statbase, accessed February 27, 2026. ([link](#))

²⁴⁰ Christian Elliot, "As Norway Considers Deep-Sea Mining, a Rich History of Ocean Conservation Decisions May Inform How the Country Acts," *Smithsonian Magazine*, April 21, 2025, ([link](#)).

²⁴¹ Blair McBride, "Norway halts deep sea mining," *Mining*, December 3, 2025, ([link](#)).

²⁴² "Northern Dynasty: New Pebble mineral resource estimate increases measured and indicated resources by 10%," *Northern Dynasty Minerals Ltd.*, August 20, 2020, ([link](#)).

²⁴³ "USGS invests \$3.6 million in Bipartisan Infrastructure Law funding to map critical minerals in Alaska," *U.S. Geological Survey*, December 19, 2024, ([link](#)).

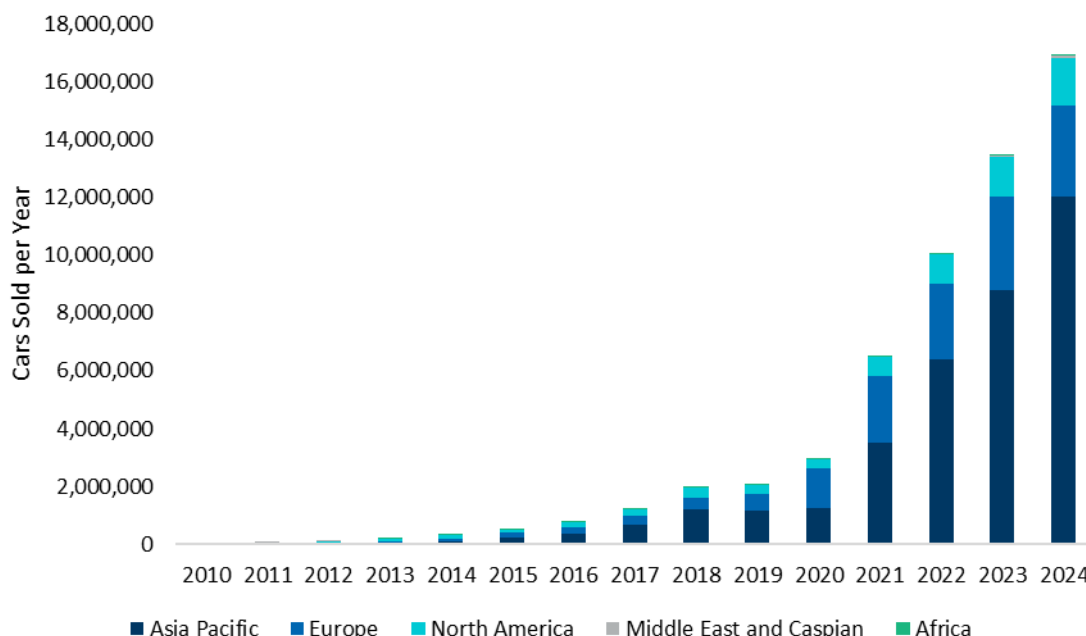
	due to its superior conductivity and corrosion resistance.	Mine and Pogo Mine leading the way.
Lead	Energy Storage: Critical for lead-acid batteries (used in almost all vehicles and for backup power systems) and for radiation shielding in medical and nuclear fields.	Often found alongside zinc; Alaska's Red Dog Mine is a significant global supplier of lead concentrate.
Zinc	Corrosion Protection: Used to galvanize steel for wind turbines and infrastructure. Also utilized in long-duration "zinc-air" energy storage batteries.	Red Dog Mine is one of the world's largest zinc producers.
Silver	Solar Energy: Critical for the conductive paste in photovoltaic solar panels and high-tech circuitry.	Greens Creek is one of the largest silver-producing mines in the world.
Potential Growth Opportunities		
Copper (most advanced)	Electrification: Essential for EV wiring, charging stations, and the national power grid.	Massive undeveloped deposits exist in the Pebble and Ambler districts.
Graphite	EV Batteries: The primary component of the anode in lithium-ion batteries.	Graphite Creek is the largest known graphite deposit in the United States.
Rare Earth Elements	Advanced Tech: Essential for permanent magnets in EV motors and guidance systems in defense technology.	Bokan Mountain is a high-priority prospect for heavy rare earth elements.
Cobalt	Battery Stability: Used in EV batteries to prevent overheating and extend life; also used in jet engine superalloys.	Found in significant concentrations in the Ambler Mining District .
Germanium	Optics & Comms: Used in fiber-optics and solar cells.	Currently produced as a byproduct at Red Dog Mine .

Global demand for many of these metals is driven by the rapid expansion of data centers, electric vehicles ("EV"), and energy infrastructure. As Figure 29 shows, EV sales were 33 times higher in 2024 than they were a decade ago, with the Asia-Pacific region—primarily China—leading this growth. By 2025, EV sales are expected to exceed 20 million units, representing roughly one in four new cars sold, rising to 40% of all sales by 2030.²⁴⁴ Undeveloped Alaskan deposits of cobalt, rare

²⁴⁴ "Global EV Outlook 2025," *International Energy Agency*, May 14, 2025, ([link](#)).

earth elements, copper, and graphite can help supply the raw materials needed to produce batteries and specialized EV components.

Figure 29 – Battery Electric Vehicle Sales by Region²⁴⁵



On top of global demand trends, U.S. federal policies will bolster demand for Alaskan metals amid national security and supply chain reliability concerns. The U.S. currently imports the vast majority of its critical minerals, with over 50 percent of U.S. demand for several commodities coming from China in 2025.²⁴⁶ Alaska's resources have been a priority for national defense and economic sovereignty, offering a secure, domestic resource base for these materials. Federal mandates that create strategic stockpiles of REEs will directly drive exploration and development of Alaskan deposits known to contain these strategic assets. Government grants, stockpile purchases, and other public funding mechanisms may help advance critical mineral projects. However, the long-term competitiveness of individual projects will ultimately depend on underlying fundamentals, including ore grade and metallurgical characteristics. While the timeline for transitioning a mine from exploration to production is lengthy, Alaska has several advanced projects poised to drive future growth. As shown in Table 19, the mines currently in permitting or evaluation stages carry many of the desired mineral commodities.

²⁴⁵ Ibid.

²⁴⁶ "Mineral Commodity Summaries 2025," U.S. Geological Survey, March 2025, ([link](#)).

Table 19 – Mines in Exploration or Development²⁴⁷

Project	Landowner / Developer	Region	Minerals
Graphite Creek	Graphite One Inc	Nome / Seward Peninsula	Graphite, rare earths
Bokan-Dotson Ridge	Ucore Rare Metals	Prince Wales / Ketchikan	Rare earths (dysprosium, terbium, yttrium)
Donlin Gold	Calista Corporation, TKC, Nova Gold, Barrick	Bethel / Southwest Alaska	Gold, Silver
Pebble	Northern Dynasty Minerals	Bristol Bay / Southwest Alaska	Copper, Gold, Molybdenum
Flat Gold	Doyon Limited, Tectonic Metals	Western Alaska	Gold
Estelle	Nova Minerals	Southwest Alaska	Antimony, Gold

The Graphite Creek deposit, for example, is the largest known high-grade graphite deposit in the United States. Along with graphite, which is key to lithium-ion batteries, large quantities of REEs have been indicated in the feasibility study. REEs are used to make small, but high-powered magnets found in precision-guidance systems, electric vehicles, and wind turbines. Despite their name, REEs are relatively abundant in the Earth's crust. They are considered "rare" because these elements are seldom found in high enough concentrations to be mined economically, making large scale deposits like Graphite Creek significant.²⁴⁸ With federal and state support, the Graphite Creek Project aims to begin production of graphite and REEs starting in 2030.²⁴⁹

Infrastructure projects are also accelerating sector growth. The Ambler Road Project, if constructed, would connect the Dalton Highway to a mineral-rich district containing copper, cobalt, zinc, and other critical minerals and potentially unlock multiple mines in the region. This would strengthen Interior Alaska's role as a logistics corridor for mining operations. Similarly, the proposed West Susitna Access Road in the Matsu valley opens access to mineral prospects in the region, including antimony at Estelle, and strengthens connections to Port MacKenzie and other Southcentral export

²⁴⁷ "Major Mines in Alaska," *Alaska Miners Association*, ([link](#)).

²⁴⁸ Ali Somarin, "What's So Rare About Rare Earth Elements?," *Analyzing Metals*, Thermo Fisher Scientific, July 8, 2013, ([link](#))

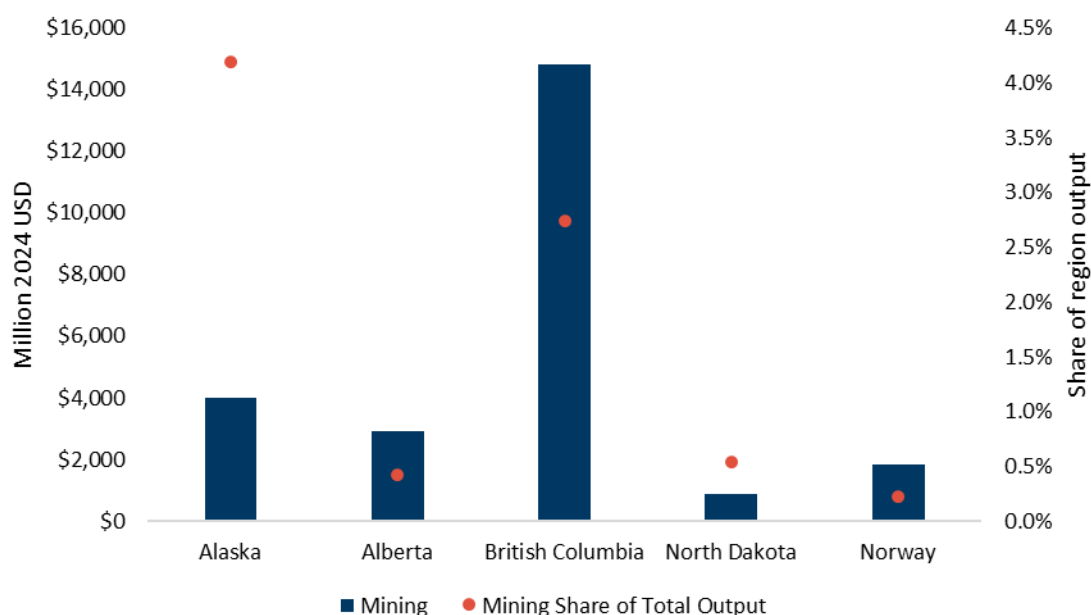
²⁴⁹ "Independent Testing Confirms Elevated Magnet and Heavy Rare Earth Presence at Graphite One's Alaska Graphite Deposit", *Graphite One*, December, 16, 2025, ([link](#))

facilities. Combined with Alaska's vast mineral deposits, critical mineral endowments, and increasing demand, these trends indicate that Alaska's mining sector is well positioned for growth.

Economy and Workforce

In 2022, non-oil and gas mining activity and production represented a \$4 billion industry in Alaska, accounting for about 4.2% of the state's total economic output. Comparing the shares of total output displayed in Figure 30, Alaska's mining industry is 50% more important to the state's economy compared to British Columbia's, which is home to the largest mining industry among the regions studied in terms of economic output.

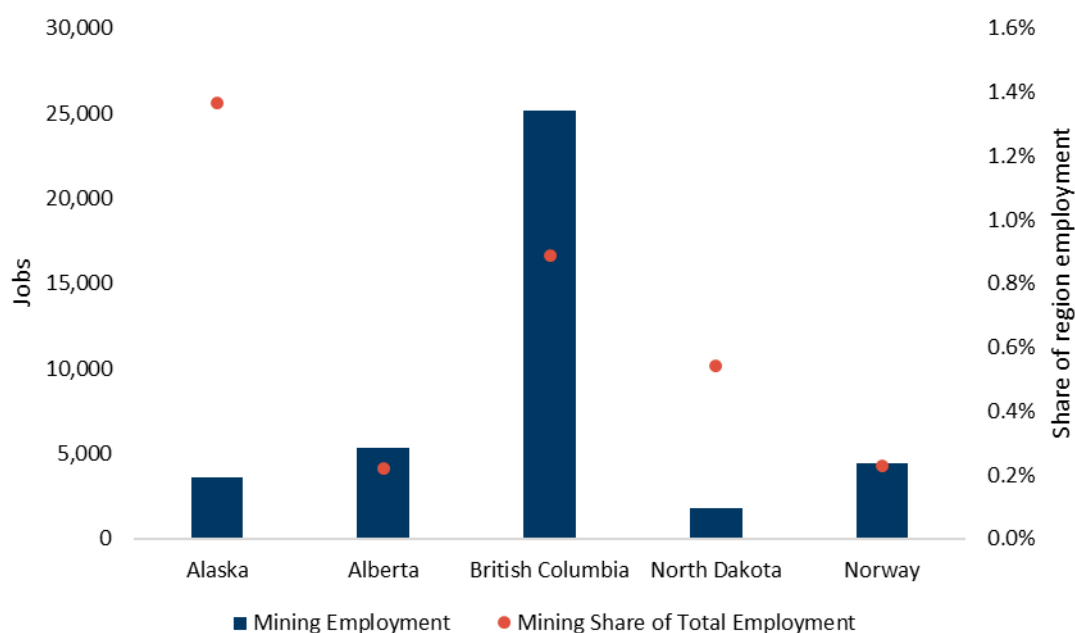
Figure 30 – Mining Output by Region (2022) ²⁵⁰



Examining the employment levels in each region's mining sector, illustrated by Figure 31, the same picture emerges about Alaska's strong competitive position in the mining sector. Although Alaska employs the second fewest number of workers in the peer group, the state also has a much smaller population than all other regions, except for North Dakota.

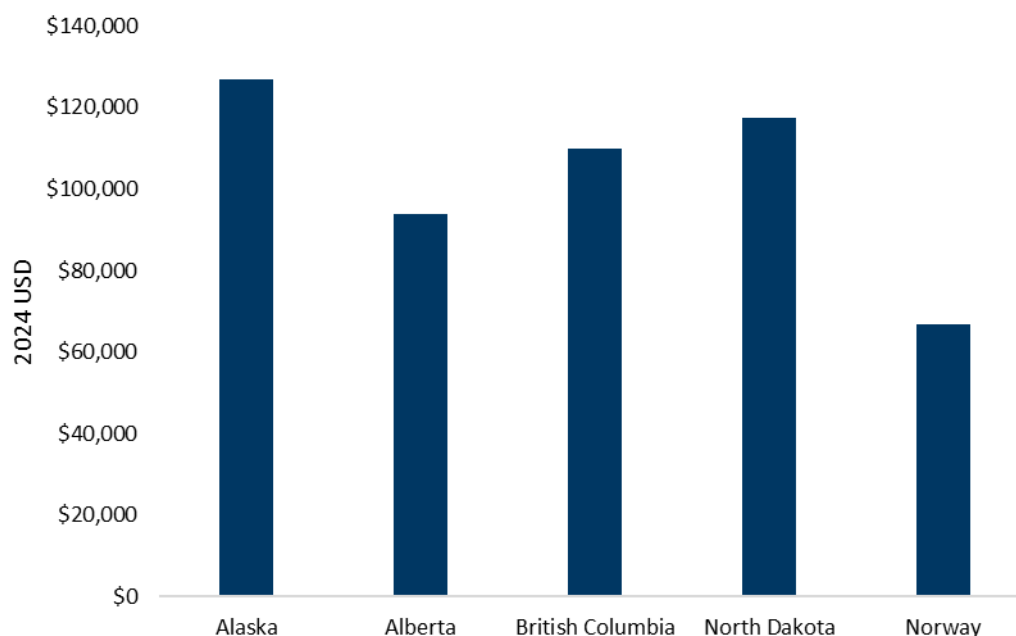
²⁵⁰ "2022 Annual Business Survey," *U.S. Census*, accessed November 19, 2025, ([link](#)); "Enterprises by detailed NACE Rev. 2 activity and special aggregates," *Eurostat*, updated August 12, 2025, ([link](#)); "Output, by sector and industry, provincial and territory," *Statistics Canada*, November 6, 2025, ([link](#)).

Figure 31 – Mining Employment by Region (2022) ²⁵¹



Alaska's mining sector offers competitive wages and salaries compared to other regions. As shown in Figure 32, British Columbia's annual average compensation is about \$109,000 compared to nearly \$127,000 in Alaska. As Alaska continues to develop its untapped mineral wealth, higher compensation in the mining industry could help attract talent to live and work in Alaska, as well as encourage younger Alaskans to choose mining careers.

²⁵¹ "2022 Annual Business Survey," *U.S. Census*, accessed November 19, 2025, ([link](#)); "Enterprises by detailed NACE Rev. 2 activity and special aggregates," *Eurostat*, updated August 12, 2025, ([link](#)); "Labour statistics consistent with the System of National Accounts," *Statistics Canada*, May 20, 2025, ([link](#)); "Employment, register-based," *Statistics Norway*, updated February 26, 2025, ([link](#)).

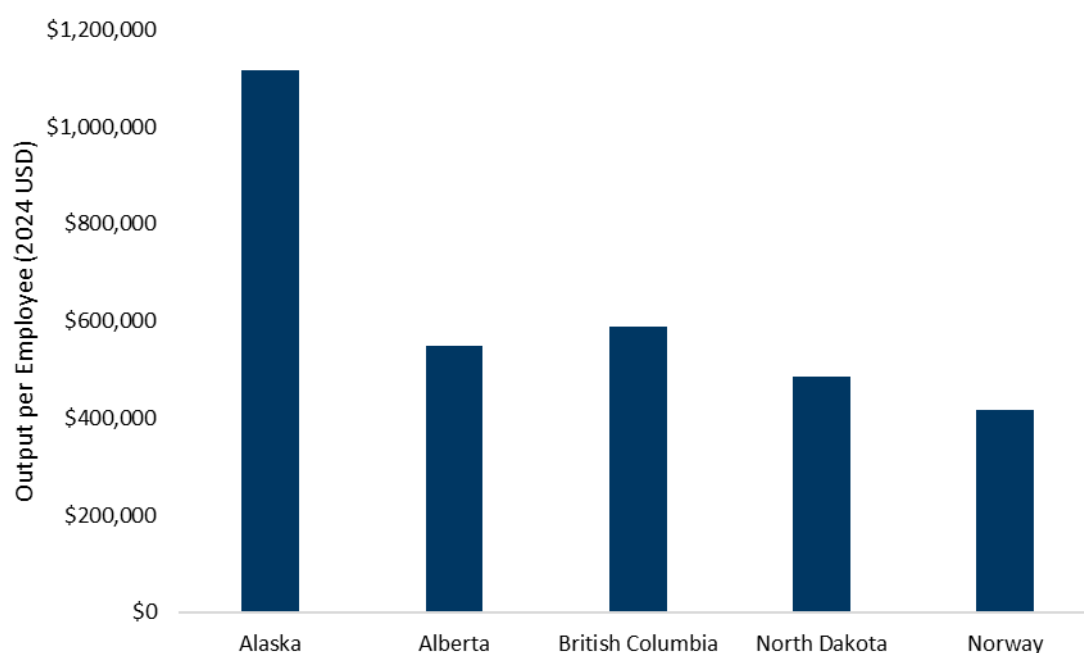
Figure 32 – Mining Average Annual Labor Costs per Employee, by Region (2022)²⁵²

Synthesizing employment and output data into a measurement of productivity, as shown in Figure 33, reveals that Alaska's mining sector is by far the most productive region, generating more than \$1 million per employee in 2022. The characteristics of each region's mining industry can help explain Alaska's outsized labor productivity. Zinc was the top mineral commodity produced in Alaska in 2024, whereas metallurgical coal, a relatively low-price mineral, was the top commodity produced in British Columbia.^{253,254}

²⁵² Ibid.

²⁵³ David Szumigala, "2024 Mining Industry Overview – Rocking the Arctic," *Alaska Department of Natural Resources*, ([link](#)).

²⁵⁴ "Production Estimates for Major Commodities Mined in BC," *Government of British Columbia*, updated January 23, 2026, ([link](#)).

Figure 33 – Mining Productivity, by Region (2022)²⁵⁵

Alaska's mining sector, like its oil and gas sector, relies on a mix of resident and nonresident workers. According to the AKDOLWD, remote work locations and unusual schedules are frequently cited as primary factors explaining the workforce gap in the mining sector, similar to the oil and gas sector. In 2024, 44.2% of all workers in the metal mining industry were non-residents, a 3.4 percentage point increase from 2023.²⁵⁶ The share of non-residents employed in the sector has increased from 33.5% in 2015.²⁵⁷

Addressing the resident/non-resident employment gap in the mining industry and oil and gas industry may require addressing housing availability and cost-of-living in the state. Better transportation options to remote mining developments and more well-developed social infrastructure in those regions could also encourage Alaskans to take on sustainable, year-round employment in challenging regions.

British Columbia's mining industry is facing growing demand for skilled labor. To help attract workers, British Columbia has promoted the sector's role in supporting the energy transition. Within the University of British Columbia's mining engineering department, one factor that is helping undergraduates strongly consider a career in mining is the industry's role in the green transition, specifically as the supplier of necessary components for electric vehicles and other key zero- or low-emissions technology.²⁵⁸ Alaska's value proposition to its future potential workforce

²⁵⁵ "2022 Annual Business Survey," *U.S. Census*, accessed November 19, 2025, ([link](#)); "Enterprises by detailed NACE Rev. 2 activity and special aggregates," *Eurostat*, updated August 12, 2025, ([link](#)); "Output, by sector and industry, provincial and territory," *Statistics Canada*, November 6, 2025, ([link](#)).

²⁵⁶ "Nonresidents working in Alaska," *Alaska Department of Labor and Workforce Development*, February 2026, ([link](#))

²⁵⁷ Ibid.

²⁵⁸ Derrick Penner, "B.C.'s booming mine industry is scrambling to recruit more workers," *Vancouver Sun*, February 16, 2026, ([link](#)).

could highlight other mission-driven reasons for pursuing a career in mining, such as securing a domestic supply chain for critical energy infrastructure and defense technology that supports U.S. national security.²⁵⁹

Infrastructure and Costs

Modern-day mining extends beyond geological resources, presenting a significant infrastructure challenge to developers. As easy access deposits are depleted, the industry is pushed into remote, hostile environments where the mine itself is often the smallest part of the capital expenditure (“CapEx”). Three critical components of supporting infrastructure—power, transportation, and water management—now determine project viability.

In remote areas, mining companies must effectively build small cities and utility grids from scratch to support operations, and energy costs are typically one of the largest operating expenses after labor for mining operations. If available, the cheapest option is connecting to the regional power grid. Gold mines in British Columbia, such as the Kerr-Sulphurets-Mitchell (“KSM”) Project, have a competitive advantage due to low industrial electricity rates resulting from abundant low-cost hydropower.^{260,261} However, if long-distance transmission lines are required to supply this electricity, a project can quickly become uneconomical. Due to state’s large footprint and the remote location of many mineral deposits, many developers in Alaska may choose to finance and build own their own generation. This approach requires developers to secure fuel delivery, either from natural gas pipelines or by diesel trucks, along with on-site fuel storage.

There has been a push for Alaskan mines to incorporate renewable energy sources (i.e., wind and solar) to reduce carbon emissions. Alaska has seen growing interest in alternative energy solutions such as advanced nuclear technologies for remote and energy-intensive facilities. In Alaska, the Department of the Air Force recently selected Eielson Air Force Base as the site of a microreactor pilot project intended to demonstrate resilient, on-site nuclear power generation in a remote environment.²⁶² Such systems remain in the planning and evaluation stage but could offer an alternative source of firm, on-site generation for future mining developments. To date, these goals have not seen notable progress.²⁶³

While Alaska carries an “Arctic Premium” on infrastructure costs, it holds a distinct competitive edge due to superior ore grades, massive underexplored potential, and a rapidly improving regulatory environment that favors “hard rock” critical minerals.²⁶⁴ In contrast, North Dakota’s

²⁵⁹ “Critical Minerals,” *MIT Center for Energy and Environmental Policy Research*, accessed February 25, 2026 ([link](#)).

²⁶⁰ “BC Hydro to Supply Hydropower for KSM Gold Mining Project,” *Renewable Energy World*, March 1, 2022. ([link](#))

²⁶¹ British Columbia Hydro and Power Authority (BC Hydro), “Electricity Rate Comparison Annual Report No. 16”, January 15, 2024, ([link](#))

²⁶² “DAF ignites energy innovation with microreactor pilot at Eielson AFB,” Pacific Air Forces, September 11, 2025. ([link](#))

²⁶³ Max Graham, “A key player in moving Interior Alaska off fossil fuels? Multibillion-dollar mining corporations,” *Alaska Beacon*, May 1, 2025, ([link](#)).

²⁶⁴ “The Role of Dual-Use Infrastructure in Securing U.S. Arctic Interests”, *Denali Commission and RANE*, May 2025. ([link](#))

infrastructure advantage in terms of longer construction seasons and more power grid accessibility is limited by its lack of geologic diversity in high-value metals.

Mine development and operations require massive pieces of capital equipment, often manufactured far from the site and delivered by cargo ships, rail, flatbed semi-trucks, or a combination thereof. Sufficient port, rail, and road infrastructure is required from the very start through the lifetime of the mine to deliver this equipment. Permanent “all-season” road construction in Alaska—and to some extent, Norway—comes at a premium relative to its peer regions further south because roads are built on permafrost. Ice in the soil can thaw and refreeze, causing additional wear and tear on the roads and requiring more frequent repairs or costly mitigation techniques during initial construction. Ice roads are a less expensive alternative in Alaska, but they offer a very limited seasonal window for use during the coldest months and are inherently riskier when transporting heavy equipment.

Water and wastewater treatment infrastructure is the third critical component. Nearly all mining and mineral refinement requires water as a fundamental input for breaking down ore deposits, creating slurries for transport, cooling machinery, suppressing dust, and conducting chemical processing. On-site wastewater treatment is also necessary to safely dispose of or recycle mining wastewater, which often contains traces of heavy metals like iron, zinc, copper, and mercury. Without proper treatment, contaminated water can seep into groundwater sources, causing negative environmental and health impacts.

Alaska utilizes water drastically differently than the rest of the U.S. Nearly 55% of the state's total water use occurs in the oil, gas, and mining sectors. By contrast, only about 1% of water usage across the rest of the U.S. is dedicated to these industries. This difference is primarily due to a lack of competition from agricultural irrigation in Alaska. For perspective, irrigation accounted for 47% of all groundwater and surface water use between 2010 and 2020 nationwide.²⁶⁵ British Columbia, on the other hand, faces stiff competition for water, as the majority of its supply is directed toward power generation, agriculture, and domestic use, leaving the mining sector to consume only a small fraction.²⁶⁶

Although water is generally available in Alaska, the mining industry faces unique challenges regarding water treatment and mitigating environmental impacts from acid mine drainage. The thawing and refreezing of permafrost soils increase containment risks for wastewater used in the mining process. These risks are compounded by the significant amount of precipitation Alaska receives each year. Furthermore, two major sectors of Alaska's economy—commercial fishing and tourism—depend heavily on pristine rivers and streams (especially for salmon habitats) and could potentially clash with mining operations over water rights and environmental standards.

²⁶⁵ “Irrigation & water use,” *U.S. Department of Agriculture*, updated January 27, 2026, ([link](#)).

²⁶⁶ Christine Bieber, “Analysis of licensed water use in British Columbia,” *Government of British Columbia*, July 2024, ([link](#)).

Public Policy

Despite ranking highly in mineral potential and investment attractiveness, Alaska has substantially longer mine development timelines compared to the rest of the world.²⁶⁷ As domestic resource production gains priority, regulatory frameworks are increasingly important to close the gap between geological opportunity and production. Notably, government policies governing mining infrastructure, development, production taxes, and land use royalties will directly influence whether deposits advance to production. Comparing Alaska's policy framework across these dimensions with peer regions provides insight into the unique advantages currently offered by the state, as well as potential areas of improvement.

Table 20 – Minerals Policy Incentives by Region ²⁶⁸

	Infrastructure 	Development 	Operations 
Alaska	<ul style="list-style-type: none"> ■ NEPA* ■ Energy Act of 2020* ■ Unleashing Alaska's Extraordinary Resource Potential* ■ FAST-41* ■ Large Mine Permitting Team 	<ul style="list-style-type: none"> ■ Defense Production Act* ■ IIJA USGS Earth MRI* ■ AIDEA Project Finance Programs ■ Alaska Exploration Incentives Act ■ Alaska Native Claims Settlement Act 	<ul style="list-style-type: none"> ■ STEP Program ■ Education Tax Credit ■ Mining License Tax
North Dakota	<ul style="list-style-type: none"> ■ NEPA* ■ Energy Act of 2020* ■ HB 1459: Critical Minerals ■ FAST-41* 	<ul style="list-style-type: none"> ■ Defense Production Act* ■ IIJA USGS Earth MRI* ■ 2023-2025 North Dakota Geological Survey Critical Mineral Drilling Program ■ Bank of North Dakota ■ Research and Experimental Expense Credit 	<ul style="list-style-type: none"> ■ Workforce Recruitment Credit ■ North Dakota New Jobs Training Program ■ Lignite Research Program
Alberta	<ul style="list-style-type: none"> ■ Accelerated Investment Incentive** ■ Critical Minerals Infrastructure Fund** ■ Mineral Resource Development Act 	<ul style="list-style-type: none"> ■ Development Expense Claims** ■ Accelerated Investment Incentive** ■ Exploration Expense Claims** ■ Critical Minerals Exploration Tax Credit** ■ Mineral Exploration Tax Credit** ■ Flow-Through Shares** 	<ul style="list-style-type: none"> ■ Deductible Mining Taxes and Royalties** ■ MITACS** ■ Alberta Innovates ■ Metallic and Industrial Minerals Royalty Regulation

²⁶⁷ Julio Mejía and Elmira Aliakbari, "Annual Survey of Mining Companies, 2024," *Fraser Institute*, July 29, 2025 ([link](#)); "Mine Development Times: The US in Perspective," *S&P Global*, June 2024, ([link](#)).

²⁶⁸ * = U.S. Federal Policy; ** = Canadian Federal Policy

British Columbia	<ul style="list-style-type: none"> ■ Accelerated Investment Incentive** ■ Metallic and Industrial Minerals Tenure Reform ■ B.C. Geological Survey ■ Critical Minerals Infrastructure Fund 	<ul style="list-style-type: none"> ■ Development Expense Claims** ■ Accelerated Investment Incentive** ■ Exploration Expense Claims** ■ Critical Minerals Exploration Tax Credit** ■ Mineral Exploration Tax Credit** ■ Flow-Through Shares** ■ B.C. Mining Flow-Through Shares ■ Mining Exploration Corporate Income Tax Credit 	<ul style="list-style-type: none"> ■ Deductible Mining Taxes and Royalties** ■ MITACS** ■ Minerals Tenure Act ■ B.C. Mining Tax ■ B.C. Employer Training Grant Program ■ Training Tax Credit for Apprentices
	<ul style="list-style-type: none"> ■ New Minerals Act ■ Deep Sea Mining Moratorium (until 2029) 	<ul style="list-style-type: none"> ■ Norwegian Geological Survey 	<ul style="list-style-type: none"> ■ Reduced Electricity Tax and Exemptions ■ SkatteFUNN

In the past year, the U.S. has signed numerous critical mineral frameworks and MOUs with countries seeking to build a resilient supply chain through strategic partnerships.²⁶⁹ Peers in Canada and Europe have engaged in similar agreements, demonstrating the global value of these minerals.²⁷⁰ As governments seek to protect their mineral-dependent industries from supply chain disruptions, the U.S. and other nations have begun prioritizing domestic mining and processing of these minerals.²⁷¹

Infrastructure commonly presents challenges for mineral development, especially where a lack of connecting infrastructure deters project capital and timelines. To finance these, a mix of federal, state, and private capital is often necessary. In Alaska, federal policies such as Executive Order 14153 and the OBBBA have expedited mineral resource development, including the government's \$35.6 million investment into mineral development at the Ambler Road Mining District.²⁷² The state-owned development corporation, AIDEA, has contributed significantly to major supporting infrastructure, financing the successful DeLong Mountain Transportation System for the Red Dog Mine and the proposed West Susitna Access Road.²⁷³ Similarly, Canadian peer regions benefit from the Critical Minerals Infrastructure Fund, which invests federal funds in major transportation projects that directly enable supply chains, such as British Columbia's Northwest Highway Corridor Improvements.²⁷⁴ Building and maintaining this infrastructure ensures that the development and subsequent production at the mines are economically viable.

²⁶⁹ "2026 Critical Minerals Ministerial," *U.S. Department of State*, February 4, 2026, ([link](#)).

²⁷⁰ "Canada's western, northern regions to develop a shared critical minerals strategy," *BC Gov News*, January 27, 2026, ([link](#)).

²⁷¹ "Global Critical Minerals Outlook 2025: Executive summary," *International Energy Agency*, 2025, ([link](#)).

²⁷² "Fact Sheet: President Donald J. Trump Approves Ambler Road Project to Unlock Alaska's Mineral Potential," *The White House*, October 6, 2025, ([link](#)).

²⁷³ Alaska Industrial Development and Export Authority ([link](#)).

²⁷⁴ "Canada and B.C. Invest in Infrastructure Upgrades to Support Critical Minerals Development in Northwest B.C. and Create Jobs Across the Province," *Government of Canada*, July 15, 2024, ([link](#)).

Given the U.S.'s comparatively long mine development time, federal and state initiatives have sought to accelerate permitting and expansion timelines. After allocating \$7.5 billion through the OBBBA to expand the National Defense Stockpile, the Defense Production Act ("DPA") has been invoked to expedite critical mineral development. In Alaska, this has provided \$37.5 million to fast-track feasibility studies of Graphite One's resources, as well as DoD funding of \$43.4 million to expedite antimony trisulfide production at the Estelle Project.²⁷⁵ Alaska has worked through the Large Mine Permitting Team to enable relatively quick permitting of mines on state lands, such as the Gil Mine.²⁷⁶ Peer regions have similarly prioritized these processes, with B.C. recently introducing fixed permitting timelines as part of the Mineral Claims Consultation Framework, along with \$3M investment to aid prospective and potential miners.²⁷⁷ Unlike B.C.'s timeline-based framework and North Dakota's defined permit review periods, many recent federal initiatives rely on project-specific designations, funding awards, or administrative priorities. Greater use of durable state level permitting standards, including defined review milestones and a codified interagency process, could improve predictability in the long term.

Alaska's ownership model under the Alaska Native Claims Settlement Act ("ANCSA") creates unique considerations for developers. Conflicts over development can arise over land rights and environmental concerns.²⁷⁸ The Pebble Mine Deposit, for example, has been a subject of ongoing controversy, representing the challenging balance of resource development and habitat protection. In 2023, the Environmental Protection Agency ("EPA") exercised its authority under 404(c) of the Clean Water Act to prohibit the discharge of mining waste in the Bristol Bay watershed, thereby restricting the proposed development.²⁷⁹ Similar conflicts have emerged in other areas, including the legal battles around landowner rights for the Keystone XL Pipeline in North Dakota.²⁸⁰

In Alaska, effective coordination between the stakeholders, including Alaska Native Corporations, private companies, and government agencies, can help streamline land management concerns. The Manh Choh Mine, the first operational mine over tribal land, brought together the Tetlin Native Tribe, private companies, and federal and state regulatory bodies.²⁸¹ Similarly, Red Dog and NANA Regional Corporation worked together for decades to ensure safe and effective resource development. The Aqqalak Pit expansion at the Red Dog Mine was recently expedited by the Federal Permitting Improvement Steering Council, a federal agency created to harmonize review processes.²⁸² This innovative partnership has been crucial to the continued operations of the mine,

²⁷⁵ "DOD Enters Agreement to Expand Capabilities for Domestic Graphite Mining and Processing for Large-capacity Batteries," *U.S. Department of Defense*, July 17, 2023, ([link](#)); "DOD Leverages Defense Production Act to Galvanize Critical Supply Chains," *U.S. Department of Defense*, December 4, 2024, ([link](#)).

²⁷⁶ "Large Mine Permitting," *Alaska Department of Natural Resources*, ([link](#)).

²⁷⁷ "Boosting mineral-exploration sector through new permit timelines," *BC Gov News*, January 26, 2026, ([link](#)).

²⁷⁸ Corri A. Feige, "State and DNR committed to safely developing Donlin Gold Project," *Alaska Department of Natural Resources*, January 15, 2019, ([link](#)).

²⁷⁹ EPA Final Determination Under Section 404(c) of the Clean Water Act for the Pebble Deposit Area," *U.S. Environmental Protection Agency*, January 31, 2023, ([link](#)).

²⁸⁰ "Rosebud Sioux and Fort Belknap file suit against Keystone XL," *Native American Rights Fund*, ([link](#)).

²⁸¹ "Manh Choh," *Kinross*, December 2023, ([link](#)).

²⁸² "Aqqalak Pit Exploration and Expansion," *Federal Permitting Improvement Steering Council*, ([link](#)).

involving close engagement with communities and regulatory bodies. Peer regions have made similar efforts to formalize Indigenous participation in regulatory processes. British Columbia's Mineral Tenure Act recently mandated consultation with First Nations before the establishment of a mineral claim regime.²⁸³ Notably, the re-opening of the Eskay Creek mine under the Declaration Act agreement exemplified the joint regulatory role of native tribes and the British Columbia government.²⁸⁴ Ultimately, proper and responsible resource development will necessitate a continual balance of environmental protection, Indigenous rights, and economic development.

Table 21 compares the production taxes, royalties, and incentives offered in peer regions, all of which structure mineral taxation differently. British Columbia's mineral tax system is the most comparable to Alaska's approach, while Alberta and Norway rely more on general corporate taxation combined with royalties or concession frameworks. North Dakota does not have specific mining production taxes for most minerals, though it maintains one for coal.

Table 21 – Mining Production Taxes and Policies by Region ²⁸⁵

Region	Production / License Tax	Primary Royalties, Rents, and Taxes	Incentives and Offsets
Alaska	<ul style="list-style-type: none"> 7% Alaska Mining License Tax ("AMLT") levied on Net Income (0 – 7%) 	<ul style="list-style-type: none"> 3% Net Income Royalty Landowner dependent 	<ul style="list-style-type: none"> 3.5-year AMLT exemption for new mines \$20M Exploration Incentive Credit
North Dakota	<ul style="list-style-type: none"> Coal: Flat \$0.375 per ton + \$0.020 per ton for the Lignite Research Fund 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A
Alberta	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> 1% pre-payout and 12% post payout ²⁸⁶ 	<ul style="list-style-type: none"> N/A
British Columbia	<ul style="list-style-type: none"> 2% Tax on Net Current Proceeds 13% tax on Net Revenue 	<ul style="list-style-type: none"> Mineral and lease term dependent 	<ul style="list-style-type: none"> Flow Through Shares

²⁸³ "Province Approves Eskay Creek mine, first Declaration Act Section 7 agreement," *Government of British Columbia*, ([link](#)); "Mineral Claims Consultation Framework – Information for First Nations," *Ministry of Mining and Critical Minerals*, January 6, 2025, ([link](#)).

²⁸⁴ "Adding three mining projects to Critical Minerals Office," *Ministry of Mining and Critical Minerals*, February 20, 2026, ([link](#)).

²⁸⁵ "Minerals royalty information," *Government of Alberta*, accessed February 19, 2026, ([link](#)); Brandon Spanos, "Mining Tax Overview," *Alaska Department of Revenue*, April 8, 2019, ([link](#)); House Bill No. 1459, *North Dakota Legislature*, ([link](#)).

²⁸⁶ Dependent on revenues.

Norway

■ General Corporate Tax

■ Landowner dependent

■ N/A

Alaska's mining taxes and royalties are not overly burdensome for producers and support local economies, returning profits to Alaska Native Corporations and their shareholders.²⁸⁷ The state levies a graduated tax structure through the Alaska Mining License Tax ("AMLT") based on net income. This graduated structure provides financial relief during earlier stages of development and new mines are exempt from the tax for the first 3.5 years upon production commencing.²⁸⁸ To encourage development, the Exploration Incentive Credit Program enables companies to deduct \$20 million from future tax or state royalty phases once the mine reaches production. Alaska imposes a 3% net royalty income on state lands, with other royalties dependent on land ownership. As shown in Table 21, British Columbia offers the most comparable structure, consistent with the region's rich resource profile. Similar to the AMLT, British Columbia's mineral tax system imposes a 2% tax on net proceeds during capital recovery phases and a 13% tax on net revenue following recovery of these development costs.

While competitive, Alaska's incentives are primarily realized after the mine advances into production. British Columbia, in contrast, places emphasis on lowering the cost of initial exploration capital, with a Mining Flow-Through Share Tax that provides about a 20% refundable income tax credit and higher credits for underexplored regions. This can be layered on top of federal Canadian incentives, such as Flow Through Shares, which enable companies to transfer exploration deductions to investors. For designated critical minerals, the Critical Mineral Exploration Tax Credits provide a 30% credit.²⁸⁹ When combined, these mechanisms can provide value even if the project does not ultimately reach production, effectively reducing the cost of discovery capital and the risks of early-stage exploration. To further incentivize development and attract investors, Alaska could consider more immediate incentives similar to these exploration stage incentives employed by Canadian peers.

The current U.S. policy landscape encourages near-term investment because the full cost of qualifying capital can be deducted in the first year of the investment rather than depreciating over multiple years. Recent federal policies have specifically incentivized mineral production and processing and encouraged investment.²⁹⁰ Notably, the IRA's Section 45X Advanced Manufacturing Production Tax Credit provides a 10% credit on costs related to producing minerals, a measure that was extended to include mineral processing costs.²⁹¹ Immediate investment is encouraged by 45X, since the value of the credit declines incrementally until termination in 2034.

The balancing and coordinating of these state and federal policies is supported by the Alaska Minerals Commission ("AMC"), an 11-member commission that serves in an advisory role for the

²⁸⁷ "Mining Taxation in Alaska," *Council of Alaska Producers*, ([link](#)).

²⁸⁸ Ibid.

²⁸⁹ "Tax incentives for mining and exploration," *Natural Resources Canada*, March 20, 2025, ([link](#)).

²⁹⁰ Cristina Enache, "One US Tax Policy OECD Countries Should Copy," *Tax Foundation*, July 23, 2025, ([link](#)).

²⁹¹ 26 U.S. Code § 45X - Advanced manufacturing production credit, *Legal Information Institute*, ([link](#)).

state's mining sector.²⁹² Each year, the AMC publishes an annual minerals report. This annual report provides an overview of current industry conditions and offers public policy recommendations to support responsible mine development in the state. Maintaining a quorum of experts to serve as AMC commissioners is vital to the publication of this report.

Ultimately, as global demand for critical minerals rises, Alaska's ability to compete for investment will depend on its ability to maintain a stable fiscal regime and leverage state and federal incentives to ensure expedited, responsible resource development.

²⁹² "Alaska Minerals Commission Annual Report 2026," *Department of Commerce, Community, and Economic Development*, January 2026, ([link](#))

Key Findings and Recommendations

Table 22 – Mining Key Findings

	Alaska	North Dakota	Alberta	British Columbia	Norway
Current Industry	Significant state revenue generated through the production of zinc, gold, lead, and silver, while operating under strict environmental permitting.	Major producer of mined coal, but no significant production of other metallic or industrial mined products.	Vast mineral wealth, but labor and capital resources are dominated by oil, gas, and coal extraction. Most mineral production is by-products of these operations.	A globally recognized hub for critical mineral exploration, particularly copper, molybdenum, and steelmaking coal.	Significant zinc smelting operation, but minimal metal production relative to oil and gas operations.
Growth Potential	Expand development of existing gold, silver, zinc, and lead operations, as well as supporting energy and infrastructure. Holds significant, undeveloped deposits of copper, as well as longer-horizon resources like cobalt, graphite, and rare earth elements.	Indicated rare earth element deposits—found in its vast lignite coal reserves used in a variety of high-tech applications.	Potential to refocus to critical mineral deposits, such as lithium, copper, nickel, and vanadium, and leverage existing infrastructure and expertise from the oil and gas sector.	West coast ports provide a gateway to a rapidly growing EV and high-tech manufacturing in Asia dependent on critical minerals.	Potential large deep-sea mineral deposits, but a deep-sea mining ban until 2029 should temper near-term growth in the industry.
Economy and Workforce	Greatest labor productivity among peer regions. Significant and rising share of non-resident workers. High-value zinc mining is more prevalent compared to low-value, high-bulk mining of metallurgical coal in B.C.	Lowest mining employment and second highest average annual labor costs.	Relatively low employment and economic output, which signals that mining may not be a key economic sector for Alberta.	Alaska's largest competitor in the mining sector. Highest economic output and employment among peer regions. Average annual incomes are lower than in Alaska.	Limited output and mining workforce. Norway has potential growth opportunities in the sector, but mining is currently not an economic engine for the country.
Infrastructure and Costs	Faces unique challenges for developing power, transportation, and water management infrastructure, all critical for mining operations.	Sufficient existing infrastructure, but far less competitive potential of mineral deposits.	Significant amounts of Canadian federal funding allocated through the Critical Minerals Infrastructure Fund projects.	Has advantageous electricity costs due to significant hydro-electric infrastructure but competes with other economic sectors for water rights.	Well-developed roads and oil and gas workforce, which could be leveraged for mining and offshore deep sea exploration post 2029 if deep sea mining ban is not extended.
Public Policy	Federal and state incentives, including a competitive tax regime, exploration credits, and exemptions for new mines. Supplement with early stage mechanisms and durable statutory reforms for permitting.	Limited mineral policies, except for coal. Centralized authority for permitting speed and strong access to financing through the Bank of North Dakota.	Incentives to reduce early-stage exploration risk for investors and provide early tax relief; critical mineral-specific designations.	Permitting efficiency reform and flow-through tax credits that promote new discoveries.	Deep-sea exploration incentives and policy stability through a neutral tax system.

Recommendation #1: Accelerate critical mineral exploration and mine development by leveraging federal funding and expediting permitting processes.

In addition to pursuing near-term opportunities to expand precious metal mines and develop its considerable copper deposits, Alaska should ensure coordinated federal-state alignment to reduce delays to permitting and project timelines and help incentivize early-stage exploration for REEs, graphite, cobalt, and germanium. The state can leverage existing federal support for critical mineral development and expedited permitting pathways, as these minerals have been nationally prioritized for their critical role in defense and high-tech applications, such as data centers, electricity infrastructure, and batteries.

Recommendation #2: Prioritize enabling infrastructure, particularly energy, transportation, and housing to support mining expansion, especially in remote locations

Access to reliable and competitively-priced energy remains a key factor for expanding natural resource production. As Alaska's mining industry expands to capitalize on the significant mineral and metals opportunities, operations must be supported by energy infrastructure and sufficient transportation infrastructure to move equipment and products onto Alaska's main truck, rail, and maritime networks. Alaska should continue to leverage the experience of AIDEA, as well as other project finance structures, to develop long-term plans for transmission expansion or on-site power solutions, access roads, and wastewater infrastructure.

Recommendation #3: Foster structured collaboration between Indigenous communities, government agencies, and stakeholders.

Successful partnerships between local tribes and developers can streamline regulatory approval processes while addressing environmental protection, community priorities, and economic development. Alaska can encourage engagement like peers in Canadian provinces to ensure alignment of Indigenous rights, responsible resource development, and economic growth. These collaborative frameworks can help address shared community needs associated with mining development, including housing, childcare, workforce accommodations, transportation, and other local infrastructure investments that would lower cost of living for residents and promote industry growth.

Recommendation #4: Strengthen mining workforce pipelines through further targeted education and investment in social infrastructure.

Workforce constraints remain a challenge for resource industries. Evidence from a British Columbia mining engineering program suggests that mission-driven language can help attract talent to the industry. For Alaska, this message could emphasize the appeal of supporting U.S. supply chains for critical minerals, which are essential components of key infrastructure projects, particularly in the energy and national defense sectors. Improving the connections between remote work sites and population centers, or offering better amenities surrounding work sites, could also improve Alaskan perceptions of careers in the minerals and natural resources sector.

Maritime Infrastructure

Introduction

Maritime activities in Alaska comprise a wide range of industries, from shipping cargo to ferrying passengers and tourists on cruise ships. Mariculture, particularly oyster and kelp farming, represents a growing source of economic activity in the state. Given the state's established salmon industry and broader fishing economy, much of the infrastructure and workforce is available to support expanded aquaculture practices. Notably, Kodiak communities have engaged in mariculture initiatives, including the Indigenous-led kelp farming at Spruce Island and the Sun'aq Tribe-backed processing facility.²⁹³ Although this report focuses on the state's ports and maritime cargo industry, the legacy fishing and emerging marine industries that are not discussed remain essential parts of Alaska's overall maritime sector.

Alaska's ports form the primary gateway between the state's abundant natural resources and the rest of the world. Continuing to invest in Alaska's maritime infrastructure should be a key priority for the state as it looks to further develop core dynamic sectors like Minerals and Natural Resources and expand into new dynamic sectors like IT Infrastructure. Supply chains rely on port and multimodal infrastructure that can convey goods to and from Alaska's coast on schedule and at low cost. Different industries require specialized infrastructure to handle specific goods. For example, mineral barges benefit from efficient rail and truck transfer stations whereas high-value, oversized data center equipment may be stored as break-bulk cargo rather than in standardized cargo containers.

Alaska's peers handle greater volumes of maritime cargo. As shown in Figure 34, British Columbia, California, and Norway all handled more than 170 million metric tons of cargo in 2023, compared to the 30 million metric tons handled by Alaskan ports. To put this into perspective, however, Alaska's total population of under 800,000 is nearly eight times smaller than the next smallest peer, Norway, at nearly 5.7 million residents, and over 53 times smaller than California's population. Additionally, out of Alaska's 30 million metric tons of inbound and outbound maritime cargo, which includes all forms of cargo such as containers, breakbulk, vehicle, and fuel cargo, over 23 million metric tons move in and out of one port – Valdez. Contrast this with a region like Norway, where the data includes 34 ports, four of which exceed 10 million metric tons of annual cargo handled.

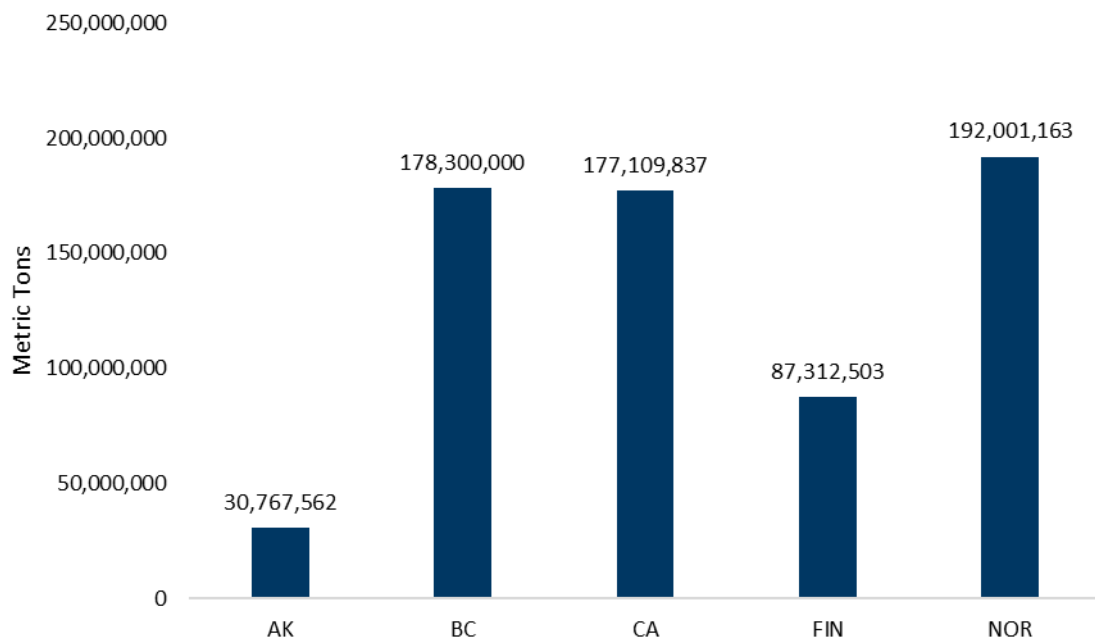
Ports in these regions operate in different environments than Alaska's, yet most ports perform a similar economic role. The primary functions of Alaska's ports are to import consumer goods and export Alaska's abundant natural resources. In fact, Alaska's largest exports include fish and crude oil while the top imports are refined fuels and building materials such as concrete, cement, sand, and gravel. Alaska's ports also serve a vital role in supplying the military and military personnel stationed in the state. In contrast, a region like

²⁹³ "Spruce Island Kelp Farm Successfully Outplants for First Harvest," *Kodiak Archipelago Leadership Institute*, January 10, 2025, ([link](#)).

California primarily imports products such as crude oil and consumer goods from overseas and from other domestic ports while exporting refined fuels and agricultural products. Alaska's ports play a more similar role to a region like Norway, where natural resources also represent the largest share of exports.

Examining the port infrastructure and workforce development plans of other regions presents an opportunity for Alaska to integrate new or alternative strategies into the state's current long-term plans for its transportation, freight, and port infrastructure sectors.²⁹⁴

Figure 34 – Maritime Cargo Throughput by Region (2023)²⁹⁵



Each peer region shares one or more characteristics with Alaska's maritime sector. All five main vessel types are represented in each region, as detailed in Figure 35. Norway and California, like Alaska, process large volumes of crude oil and oil derivatives transported by oil tankers. British Columbia is home to Canada's largest port, the Port of Vancouver, which handles one-third of Canada's trade outside of North America and is a hub for both imports and exports of diverse cargo types.²⁹⁶ Finland is the leading country in icebreaker construction and a leader in Arctic maritime operations. As geopolitical tensions in the Arctic rise, Finnish and Alaskan ports will become increasingly important hubs for commercial, research, and defense operations.²⁹⁷ Strategies developed by each region to

²⁹⁴ "Alaska Moves 2050: Statewide Freight Plan," *Alaska Department of Transportation & Public Facilities*, December 2022, ([link](#)).

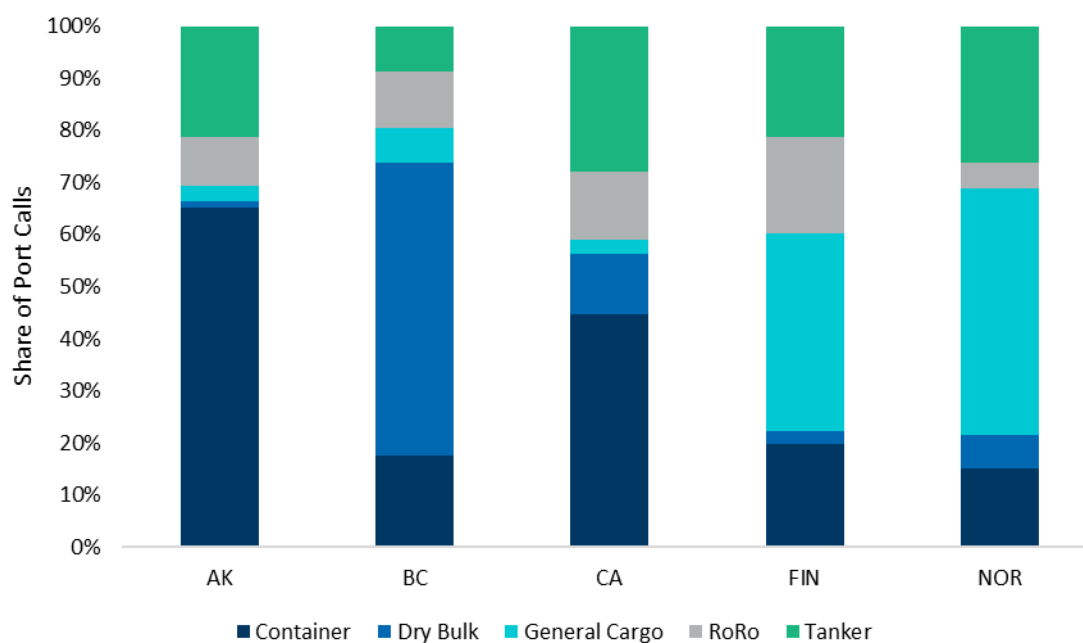
²⁹⁵ "Commodity (short tons) by port (2023)," *U.S. Department of Transportation*, ([link](#)); "Table M17: Cargo Tonnage Handled by Canadian Port Authorities (CPAs, 2014-2023)," *Government of Canada*, ([link](#)); "International sea transport by port and commodity group, 1970-2025," *Statistics Finland*, ([link](#)); "Maritime transport statistics," *Statistics Norway*, updated December 10, 2025, ([link](#)).

²⁹⁶ "5 Largest Ports in Canada: Key Trade Gateways Explained," *SHIP4WD*, November 21, 2025, ([link](#)).

²⁹⁷ Adrienne Murray, "'The finest in the world': Why the US is buying icebreakers from Finland," *BBC*, January 19, 2026, ([link](#)).

automate containerized port infrastructure and expand multimodal infrastructure are of particular interest in this section of the report.²⁹⁸

Figure 35 – Share of Port Calls by Region and Cargo Type (Average Annual, 2019-2025)²⁹⁹



²⁹⁸ Note that this report focuses on benchmarking state- or province-wide policies and incentives and does not attempt to evaluate every local labor waterfront law as it relates to automation.

²⁹⁹ "Ports," *Port Watch*, January 27th, 2026, ([link](#)). "RoRo" vessels carry goods that "roll on and roll off", such as automobiles and locomotives.

Peer Region Selection

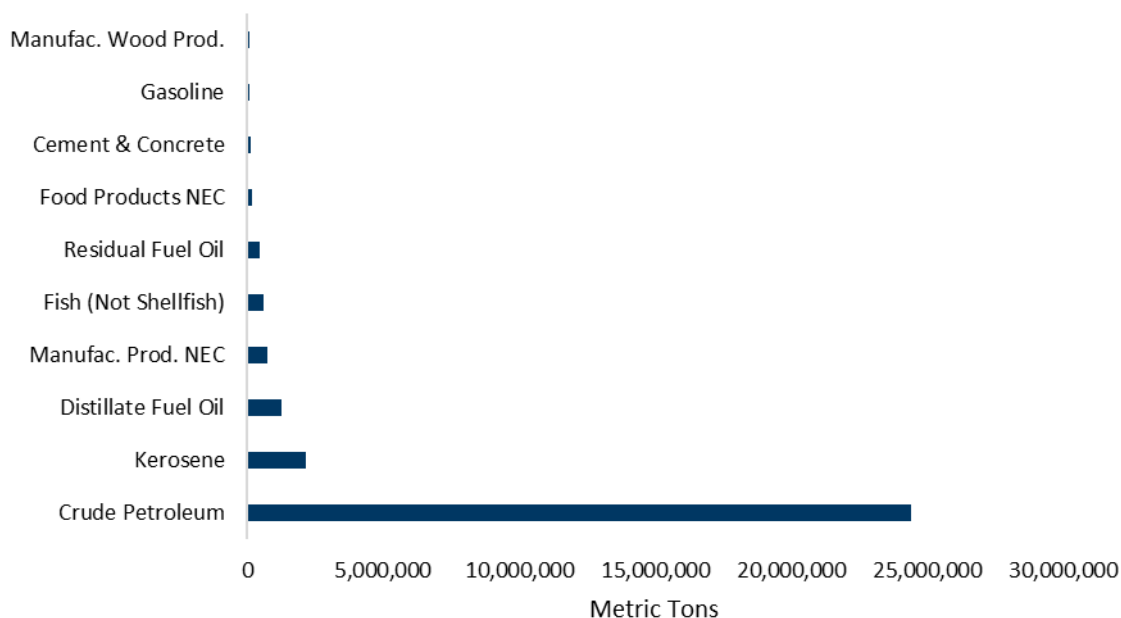
Table 23 – Maritime Infrastructure Peer Region Rationale

Region	Rationale
British Columbia	<ul style="list-style-type: none"> ■ The Port of Vancouver is systemically important to the Canadian economy, processing 30% of Canadian imports and nearly half of Canadian exports. ■ Low risk of climate-related hazards, including flooding and earthquakes, which impact port downtime.
California	<ul style="list-style-type: none"> ■ The Ports of Long Beach and Los Angeles process 22% of U.S. port imports, including many shipments from Asia. ■ Third-busiest port system measured by cargo tonnage and ship traffic. Offers intermodal connections to the U.S. rail and highway systems. ■ Greatest share of port calls made by tanker ships, which carry strategically valuable energy products.
Finland	<ul style="list-style-type: none"> ■ Second-highest number of major ports. The Port of Skoldvik processes 46% of Finnish exports and 33% of Finnish imports, primarily tanker vessels. ■ World-leading expertise in icebreaker design and manufacturing. Formed the ICE Pact along with the U.S. and Canada to collaborate on Arctic maritime development initiatives.
Norway	<ul style="list-style-type: none"> ■ National Transport Plan articulates strategic investments in 5 major ports and 32 “truck network” ports, which focus on both international and domestic maritime activity. ■ Norway’s oil and gas industry creates significant cargo traffic from tanker vessels, creating a need for resilient, high-capacity tanker port infrastructure.

Alaska's Maritime Infrastructure Industry

Alaska's ports handle millions of metric tons of cargo every year. Figure 36 shows that the top commodities moving through Alaskan ports in 2023 were petroleum — including both crude oil and refined products — seafood, and concrete.

Figure 36 – Alaska Top 10 Port Commodities (2023)³⁰⁰

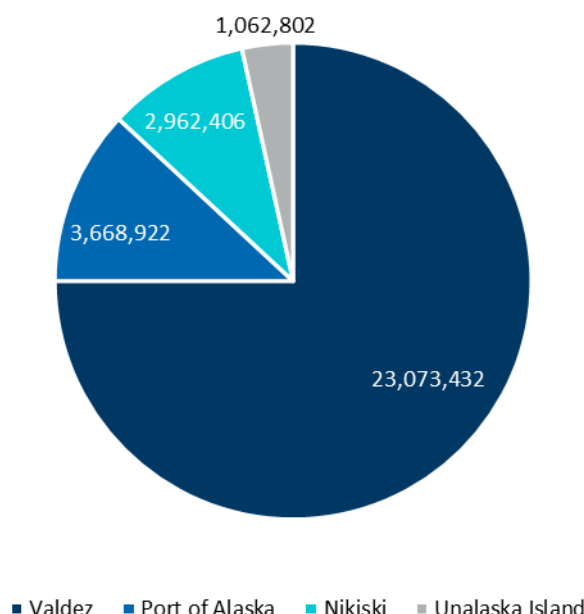


Almost all of Alaska's maritime crude oil shipments are processed through the Port of Valdez, located at the southern terminus of TAPS. As shown in Figure 37, the Port of Valdez is Alaska's busiest port in terms of annual tonnage, largely due to crude oil exports. The Don Young Port of Alaska in Anchorage, however, may be the most systemically important port for the state, handling about half of the cargo entering Alaska docks at the Port of Alaska. From Anchorage, shippers have direct connections to the Alaska Railroad, the Alaska Highway System, and ANC. Cargo can also move through the Alaska Marine Highway System and to domestic and international shipping networks through ports such as Kodiak and Unalaska.³⁰¹

³⁰⁰ Data covers the top 150 U.S. ports by tonnage. Alaska's ports in Valdez, Anchorage, Nikiski, and Unalaska Island are represented in the data. "Commodity (short tons) by port (2023)," *U.S. Department of Transportation*, ([link](#)).

³⁰¹ Don Young Port of Alaska, ([link](#)).

Figure 37 – Top Alaskan Ports by Tonnage (Metric Tons 2023)³⁰²



Upgrading and repairing port infrastructure is a fundamental necessity for Alaska's economy. Several port improvement projects are underway, most notably the Port of Alaska Modernization Program ("PAMP"), a \$2.7 billion multi-phase program intended to replace and modernize the gateway. Completed work includes the port's new petroleum and cement receiving terminals, a port administration building, and the first stage of the North Extension stabilization. Currently, construction is underway for an approximately \$2 billion terminal renovation for two new general purpose cargo terminals designed to modern seismic standards.³⁰³ Upgrading the Port of Alaska's terminals is intended to improve cargo throughput efficiency and strengthen the resilience and redundancy of Alaska's supply chain. Maximizing Alaska's economic growth requires broad investments in Alaska's transportation system to increase the volume of goods that can be transported in and out of Alaska.

Expanding transportation infrastructure reduces the likelihood of logistical bottlenecks that slow down cargo moving between Interior Alaska and the coast. About 60% of Alaska's territory is owned by the federal government, which means infrastructure projects often require approval from one or more federal regulatory agencies.³⁰⁴ The current federal administration's Alaska policy, exemplified by the Department of the Interior's decision to issue previously denied permits for the Ambler Access Road Project, provides a favorable

³⁰² "Commodity (short tons) by port (2023)," U.S. Department of Transportation, ([link](#)).

³⁰³ "Don Young Port of Alaska Comprehensive Plan of Finance, Second Revised Edition," Municipality of Anchorage and Don Young Port of Alaska, September 15, 2026, ([link](#)).

³⁰⁴ "State of Alaska," Alaska Department of Natural Resources, ([link](#)).

regulatory environment for current and future projects.³⁰⁵ Successive federal administrations that wish to accelerate the expansion of Alaska's maritime sector should maintain the current administration's pro-development permitting policies. A stable regulatory environment is a key factor that influences long-term infrastructure investment decisions.

The Alaska Department of Transportation and Public Facilities ("DOT&PF") publishes an annual report outlining the state's transportation needs and plans to address them. The Alaska Moves 2050 report, published in 2022, details several key priority issues for the state's port system, including decreased oil production in the North Slope, aging port infrastructure, limited sources of government funding for port infrastructure improvements, and a lack of redundancy.³⁰⁶

Maritime Infrastructure Competitive Analysis

Growth Potential

Minerals and natural resource exports, including crude oil and LNG, are likely to drive growth in Alaska's maritime sector. Although oil volumes from the North Slope have declined over the past several decades, Nuna and Pikka Phase 1, along with future Willow production, are expected to reverse that trend over the next years.³⁰⁷ Additionally, the prospect of a natural gas pipeline between the North Slope and the Port of Nikiski signals increased future demand for maritime transportation.

Arctic traffic from commercial and defense activity will become increasingly important as the Arctic

recedes and geopolitical tensions persist. Gradual sea ice loss has opened maritime corridors and created opportunities for offshore natural resource extraction, although environmental hazards continue to make Arctic operations difficult.³⁰⁸ Despite these difficulties, a scenario analysis conducted by the U.S. Committee on the Marine Transportation System ("CMTS") in 2019 found in their Most Plausible Scenario that U.S. Arctic traffic more than triples by 2030, as shown in Figure 38.³⁰⁹

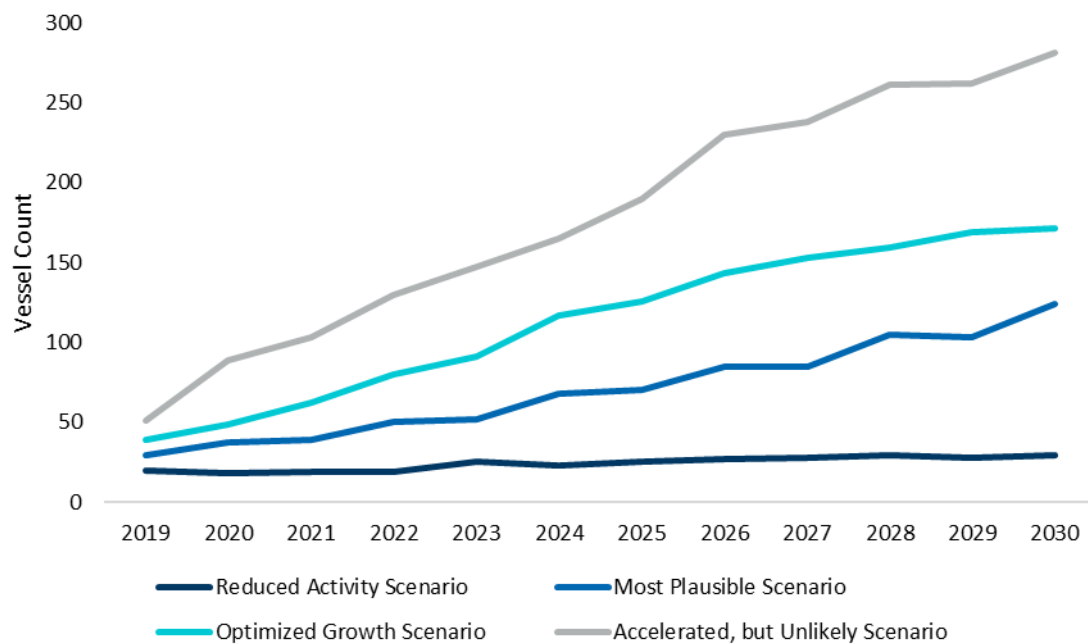
³⁰⁵ "Interior Takes Bold Steps to Expand Energy, Local Control and Land Access in Alaska," *U.S. Department of the Interior*, October 23, 2025, ([link](#)).

³⁰⁶ "Alaska Moves 2050: Statewide Freight Plan." *Alaska Department of Transportation & Public Facilities*. December 2022. ([link](#))

³⁰⁷ "EIA forecasts Alaska crude oil production to grow 13% in 2026," *U.S. Energy Information Administration*, November 19, 2025, ([link](#)).

³⁰⁸ "A Ten-Year Projection of Maritime Activity in the U.S. Arctic Region, 2020-2030," *U.S. Committee on the Marine Transportation System*. September 2019, ([link](#)).

³⁰⁹ Ibid.

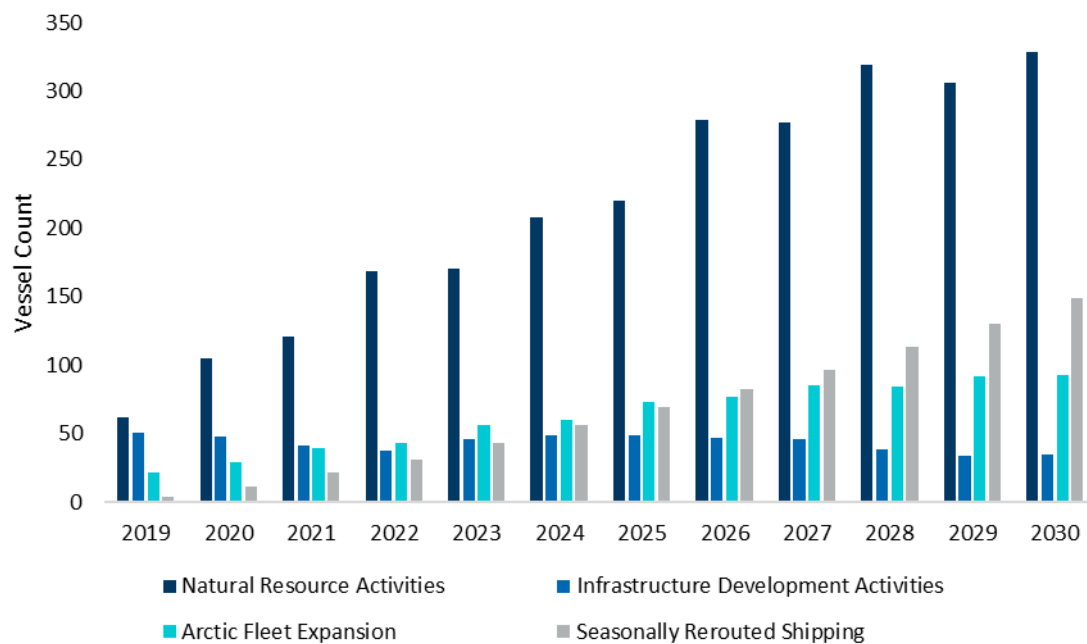
Figure 38 – Additional Arctic Vessel Count Forecast (2019 - 2030)³¹⁰


CMTS' Most Plausible Scenario assumes that some of the project risks associated with Arctic operations are mitigated, making greater economic activity in the region feasible. Risks include less certain weather forecasts, outdated nautical charts, and a lack of safe harbors for vessels caught in inclement weather conditions. Four activity categories were modeled: natural resource development, domestic infrastructure, Arctic fleet expansion, and seasonally rerouted shipping. Of these four categories, Figure 39 indicates that natural resource development represents the largest source of projected vessel growth. Several drivers included in the natural resource development category are particularly relevant to Alaska, including Oil and Gas activity in the ANWR, LNG Production on the North Slope, and mineral exports associated with the Graphite One Project near Nome. Some drivers in the analysis have decreased in relevance since 2019, such as the Liberty Hilcorp Development Project and the Eni Beaufort Sea Exploration Project.^{311,312} Overall, the results of the CMTS study indicate significant economic opportunities for Alaska's maritime industries.

³¹⁰ Ibid.

³¹¹ "Arctic Win: Interior Department Denies Lease Extension for 'Liberty' Offshore Drilling Project in Alaska," *Center for Biological Diversity*, January 7, 2025, ([link](#)).

³¹² Kay Cashman, "Nikaitchuq North axed," *Petroleum News*, July 17, 2022, ([link](#)).

Figure 39 – Most Plausible Scenario Arctic Vessel Count Forecast by Driver (2019 - 2030)³¹³

The current federal administration considers the Arctic maritime sector to be a commercial and national security priority, as demonstrated by their recent investments in Arctic security and maritime operations. In 2026, the U.S. Coast Guard selected Kodiak and Seward as homeports for future Arctic Security Cutters.³¹⁴ More recently, they awarded a \$315 million contract to modernize waterfront infrastructure at Base Kodiak.³¹⁵ These historic investments in icebreaking capacity and supporting infrastructure are expected to increase maritime activity, strengthen Alaska's position in Arctic operations, generate additional demand for Alaskan ports, and drive economic growth.

America's Maritime Action Plan recommends that federal agencies collaborate on initiatives such as increasing polar icebreaking capabilities, improving the performance of the U.S. Global Positioning System, and modernizing Alaska's port energy infrastructure, in particular, the physical security infrastructure for the proposed Alaska LNG project.³¹⁶ The report also recommends creating Maritime Prosperity Zones ("MPZs") in Alaska that would be modeled after the Opportunity Zones developed as part of the 2017 Tax Cuts and Jobs Act. Opportunity Zones were designed to incentivize capital investment in specific geographic areas through capital gains tax deferrals and exemptions.³¹⁷ Implementing these

³¹³ Ibid.

³¹⁴ "U.S. Coast Guard advances Arctic security with Kodiak and Seward homeports," *U.S. Coast Guard*, June 11, 2026, ([link](#)).

³¹⁵ "Coast Guard awards \$315 million contract to modernize fuel pier, utilities at Base Kodiak," *U.S. Coast Guard*, September 23, 2026, ([link](#)).

³¹⁶ "America's Maritime Action Plan," *The White House*, February 2026, ([link](#)).

³¹⁷ "What are Opportunity Zones and how do they work?" *Tax Policy Center*, ([link](#)).

federal policy initiatives could lead to considerable public and private investment in the region, including greater public investment in Alaska's maritime infrastructure.

Growth in the maritime industries of peer regions is driven by diverse factors. Finland, in collaboration with the U.S. and Canada, will remain a primary manufacturer of icebreakers for the expanding Arctic maritime industry.³¹⁸ British Columbia is expanding its shipbuilding industry in line with the Canadian National Shipbuilding Strategy's focus on constructing new ships for the Royal Navy, the Canadian Coast Guard, and Transport Canada.^{319,320} Ship maintenance and repair is another pillar of British Columbia's growth. Norwegian maritime activity benefits from demand for vessels from offshore wind and oil and gas services but faces uncertainty given geopolitical tensions between the EU, the U.S., and China that have the potential to disrupt global trade flows. Norway is particularly invested in its trading relationship with EU member countries, as defined by the European Economic Area ("EEA") Agreement.³²¹ Finally, California's maritime industry, influenced by trade dynamics between Asia and the U.S., continues to hold a positive outlook, with the Port of Los Angeles announcing at its 2026 State of the Port event that the port plans to invest in additional cargo and cruise passenger capacity.³²²

Economy and Workforce

The maritime sector encompasses a range of industries, including cargo handling, shipbuilding, ship repair, and water transportation. Across Alaska's peer regions, economic data was available for water transportation and shipbuilding industries.

Alaska's maritime sector is the leader in terms of regional employment share, as shown in Figure 40. Maritime employment represents 0.7% of total employment in Alaska, which is nearly double British Columbia's 0.4% maritime share of total employment. Maritime transportation of passengers and cargo is prevalent throughout all regions. The Alaska Marine Highway System transports more than 250,000 passengers annually, almost as many as Norway's Hurtigruten coastal service, which ferries more than 300,000 passengers per year. In terms of cruise tourism, however, Alaska eclipses Norway, transporting 1.2 million cruise ship passengers in 2018 compared to only 200,000 cruise ship passengers in Norway.³²³

³¹⁸ "ICE Pact Joint Statement of Intent," *U.S. Department of Homeland Security*, ([link](#)).

³¹⁹ "B.C. Maritime Industries Strategy," *Government of British Columbia*, ([link](#)).

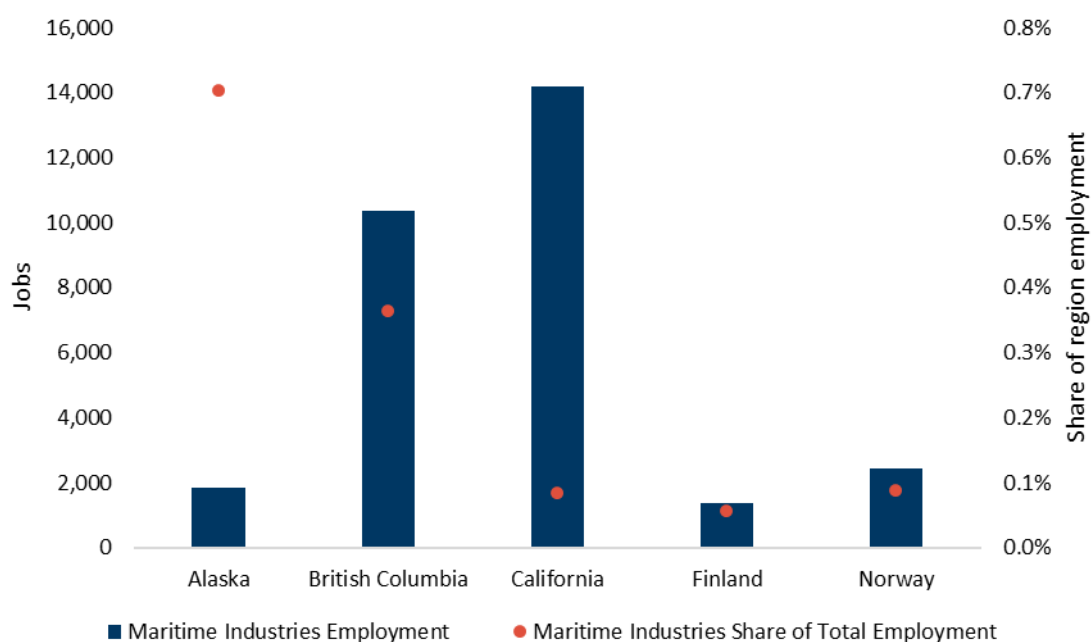
³²⁰ "About the National Shipbuilding Strategy," *Government of Canada*, ([link](#)).

³²¹ "Maritime Outlook 2025," *Norwegian Shipowners' Association*, April 2025, ([link](#)).

³²² "2026 State of the Port of Los Angeles: Building Bigger, Smarter, Sustainably," *The Port of Los Angeles*, January 22, 2026, ([link](#)).

³²³ "Blue Maritime Transportation," *AlaskaNOR*, June 7, 2023, ([link](#)).

Figure 40 – Maritime Employment (2022)³²⁴

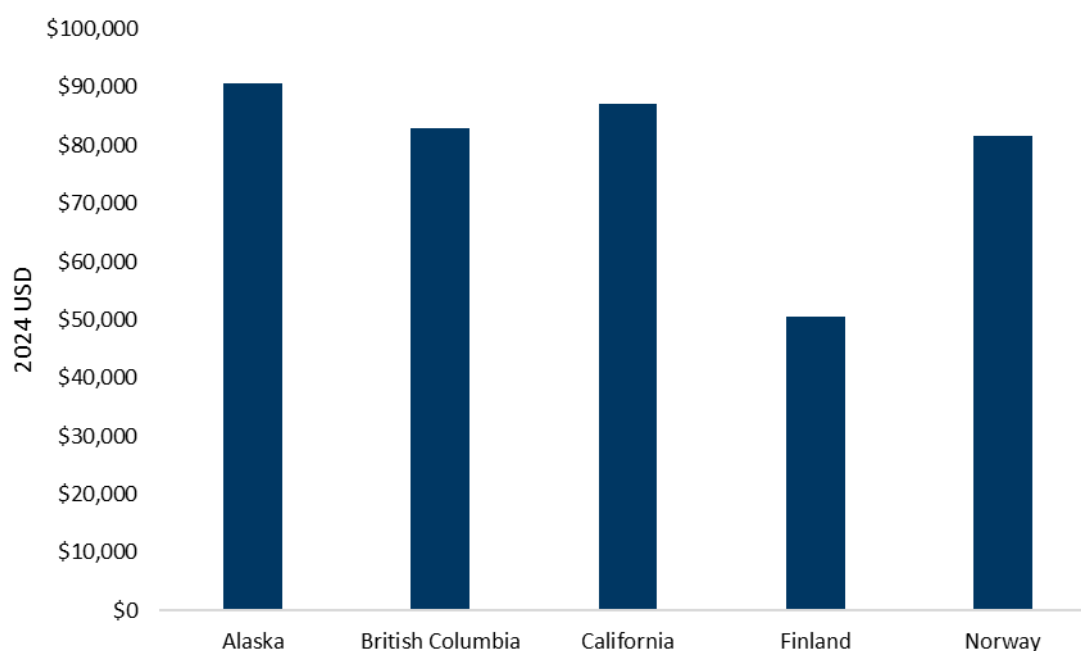


Compared to the jobs in its peer regions, Alaska's maritime jobs are competitive, as shown in Figure 41, with an average annual compensation greater than \$90,000. California's average annual maritime salary of \$87,000 is only slightly lower than Alaska's. Alaska's competitive salaries could help attract workers into the maritime industry from other, lower-paying sectors. Average salaries in the Nordic regions are lower, especially in Finland, but in these regions labor costs and salaries do not fully account for the costs and benefits of the social welfare state for employees.³²⁵

³²⁴ "2022 Annual Business Survey," *U.S. Census*, accessed November 19, 2025, ([link](#)); "Enterprises by detailed NACE Rev. 2 activity and special aggregates," *Eurostat*, updated August 12, 2025, ([link](#)); "Labour statistics consistent with the System of National Accounts," *Statistics Canada*, May 20, 2025, ([link](#)); "Employment, register-based," *Statistics Norway*, updated February 26, 2025, ([link](#)).

³²⁵ "Organization of the Nordic social policies," *Nordic Health and Welfare Statistics*, December 19, 2023, ([link](#)).

Figure 41 – Average Annual Maritime Labor Costs per Employee, by Region (2022)³²⁶



Expanding Alaska's maritime industries and associated infrastructure will generate thousands of jobs. To fill these jobs with qualified candidates, Alaska will need to reverse the trend in outmigration among its working-age population. According to a demographer at the Alaska Department of Labor and Workforce Development ("DOLWD"), the population of Alaskans aged 20-65 fell 6.5% from 2013 to 2021, compared to an average 2% increase in that population across the country.³²⁷ As a result, 80% of Alaskan employers report that they have significant difficulty recruiting new employees and 60% cannot find qualified workers.³²⁸

State government and higher education institutions collaborate to bolster Alaska's maritime workforce through comprehensive training and certification programs. The Alaska Maritime Education Consortium ("AMEC"), a partnership between the University of Alaska ("UA") and the state-run Alaska Maritime Training Center ("AMTC"), is dedicated to training the next generation of Alaska's maritime workforce. For example, AMTC developed a Vessel Repair and Maintenance Program in conjunction with industry leaders and offers one of the nation's only training centers for maritime polar operations and navigation.³²⁹ Alaska's maritime workforce development ecosystem is further supported by the state's Alaska Vocational Technical Center ("AVTEC"), which offers maritime training programs in areas

³²⁶ "2022 Annual Business Survey," *U.S. Census*, accessed November 19, 2025, ([link](#)); "Labour statistics consistent with the System of National Accounts (SNA), by job category and industry," *Statistics Canada*, released May 20, 2025, ([link](#)); "Enterprises by detailed NACE Rev. 2 activity and special aggregates," *Eurostat*, updated August 12, 2025, ([link](#)).

³²⁷ "Appendix 2: Alaska's Workforce Future Plan Document," *Alaska Safety Alliance*, March 2025, ([link](#)).

³²⁸ "Appendix 1: Alaska's Workforce Future Plan Document," *Alaska Safety Alliance*, March 2025, ([link](#)).

³²⁹ "Action Agenda 2020-2025," *Alaska Maritime Education Consortium*, September 2020, ([link](#)).

including marine transportation, vessel engineering, and maritime safety.³³⁰ Despite these programs, major maritime employers like the Alaska Marine Highway System have struggled to attract and retain crewmembers with necessary certifications as recently as 2023.³³¹ Building on existing Alaska workforce development policies using elements of strategies implemented in other regions may help Alaska better address the needs of employers and workers alike.

Norway's education system is closely integrated with employers. The country's "2+2" vocational and educational program combines two years of specialized classroom instruction with two years of formal apprenticeships, culminating in a trade certification. Norway's government subsidizes the apprenticeship program through grants to participating employers and a combination of grants and low-interest loans for students.³³² Norway's model consistently outperforms the EU-27 countries. In 2018, the employment rate of VET graduates aged 20-34 in Norway was 91.7% compared to 80.6% in the EU-27; in 2022, this relationship had not changed: 90.7% of Norway's VET graduates were employed compared to 81.9% in the EU-27.³³³ Norway also offers a grant program for employing seafarers, which subsidizes shipowners who register their vessels in Norway for employing Norwegian seafarers.³³⁴ Integrating classroom-based training with employment could improve recruitment and retention.

Maritime workforce recruitment and retention is a key issue for all of Alaska's peer regions. British Columbia has worked to address this problem as part of its "Look West" strategy, which supports the province's goal to secure large Canadian defense-oriented maritime projects, in particular vessel construction contracts, with a \$241 million investment in the province's skilled trades apprenticeship programs.^{335,336} This investment builds on top of programs like the StrongerBC \$3,500 grant for short-term skill development.³³⁷ California's workforce development strategy, which sets a goal of 500,000 apprenticeships by 2029, also focuses on training programs, with a \$25 million investment in broad apprenticeship programs through the state's Employment Training Panel, primarily in the construction industry, and a \$500,000 investment in Contra Costa County for marine skills training through the Workforce Accelerator Fund.^{338,339} Along with funding, California places

³³⁰ "AVTEC – Alaska's Institute of Technology," AVTEC, accessed October 2026, ([link](#)).

³³¹ Angela Denning, "Lack of crew continues to cripple Alaska's marine highways," *CoastAlaska*, July 18, 2023, ([link](#)).

³³² "Vocational education and training in Europe," CEDEFOP, November 2023, ([link](#)).

³³³ Ibid.

³³⁴ "2025 Maritime Outlook," *Norwegian Shipowners' Association*, April 2025, ([link](#)).

³³⁵ "Province invests in trades training to power B.C.'s economic future," *Government of British Columbia*, November 14, 2025, ([link](#)).

³³⁶ "Diversifying markets and growing targeted sectors," *Government of British Columbia*, December 16, 2025, ([link](#)).

³³⁷ "StrongerBC Future Skills Grant," *WorkBC*, ([link](#)).

³³⁸ "California strengthens its pipeline for good-paying jobs, providing \$25 million to train more than 22,000 workers through apprenticeship programs," *Office of Governor Gavin Newsom*, October 20, 2025, ([link](#)).

³³⁹ "Marine Skills Training Program," *Contra Cost County Workforce Development Board*, ([link](#)).

emphasis on expanding the state's skilled trades workforce to include individuals from diverse backgrounds.

Finland's maritime industry, like Alaska's, is pursuing growth opportunities but struggling to recruit young Finns into the region's key shipbuilding industry.³⁴⁰ In a recent report, the government noted that despite the availability of highly-educated labor, supplementary training and reskilling programs funded by recruitment subsidies or wage-subsidized apprenticeships may be necessary to attract young workers into the maritime industry. Accompanying skilled labor programs, the government is also developing a long-term plan to address labor supply issues in the highly specialized fields of naval architecture and research. Alaska policymakers and industry stakeholders should continue to follow the ongoing developments in Finland's workforce development efforts and observe how elements of these initiatives, as well as Norway's, may be adapted to serve Alaska's interests.

In addition to comprehensive training and certification programs, workers need access to robust social infrastructure, including childcare and housing. The Alaskan government has taken steps to improve the access, affordability, and quality of both resources. In 2023, the governor formed a Childcare Task Force to conduct a data-driven study of the state's childcare system. The task force's 2024 report summarizes 33 recommendations for improving the state's childcare system, including licensure reform to expand the criteria for eligible providers.³⁴¹ Separately, Alaska's FY26 budget allocated more funding for the Alaska Housing Financing Corporation ("AHFC"), which operates programs such as a new-home rebate and a rental housing development grant for rural communities seeking professional workers.³⁴² Building on these efforts will strengthen Alaska's ability to support existing communities, particularly in rural areas of the state, and attract new talent.

Infrastructure and Costs

Maintaining robust, resilient infrastructure is the most important issue facing Alaska's maritime industries. Businesses depend on Alaska's road and rail networks to ensure that cargo can be moved to and from key ports on time and at low cost. Ports must also offer adequate terminal capacity and process cargo efficiently.

Alaska's maritime sector benefits from investment in every segment of Alaska's transportation system. Table 24 summarizes the findings of the DOT&PF's Alaska Moves 2050 Plan, specifically the challenges and opportunities present in relevant transportation systems. Many of these challenges and opportunities involve collaboration between the DOT&PF and stakeholders in the private sector to secure federal funding for infrastructure

³⁴⁰ "Minister Marttinen: Need for skilled labour in marine industry grows – employment services and continuing education must be harnessed to meet demand," *Government of Finland*, February 11, 2026, ([link](#)).

³⁴¹ "Governor's Task Force on Child Care 2024 Report #1," *Denali Daniels + Associates*, September 30, 2024, ([link](#)).

³⁴² James Brooks, "With bills and budget boost, Alaska lawmakers use state-run corporation to tackle housing shortage," *Alaska Beacon*, June 7, 2024, ([link](#)).

upgrades through grant programs. Others focus on state-level solutions, such as designating roadway segments as industrial-use highways or reforming the structure of weigh stations funding such that trucks can receive 24-hour service and avoid delays.

Table 24 – Summary of Challenges and Opportunities in Alaska's Freight Transportation System³⁴³

Transportation System	Challenges	Opportunities
Truck	<ul style="list-style-type: none"> ■ Increased truck traffic from mineral extraction sites deteriorates roadways. ■ Bottlenecks create delays and raise costs. ■ Weight restrictions limit truck capacity 	<ul style="list-style-type: none"> ■ Designating additional industrial-use highways creates an opportunity for higher weight limits on those routes. ■ Reform the weigh station funding mechanism.
Rail	<ul style="list-style-type: none"> ■ Aging bridges and infrastructure. ■ Increased frequency of service-halting rockslides, floods, and other environmental hazards. 	<ul style="list-style-type: none"> ■ Joint DOT&PF-ARRC efforts to secure federal infrastructure funding. ■ Upgrade intermodal port facilities. ■ Develop an updated State Rail Plan.
Maritime	<ul style="list-style-type: none"> ■ Aging infrastructure. ■ Low redundancy. ■ Limited port-specific federal funding programs. 	<ul style="list-style-type: none"> ■ Secure additional U.S. Maritime Administration ("MARAD") funding. ■ Collaborate with the private sector on infrastructure projects. ■ Collect better port performance data.

Project delivery timelines and costs are not only influenced by funding availability, but also by the structure and competitiveness of the bidding and procurement process. In Alaska, maritime and broader transportation investments are administered through a combination of state and federal entities, including the Alaska DOT&PF and federal agencies, operating within established procurement frameworks.³⁴⁴ These frameworks are designed to support

³⁴³ "Alaska Moves 2050: Statewide Freight Plan," Alaska Department of Transportation & Public Facilities, December 2022, ([link](#)).

³⁴⁴ "Contract Award Status, Construction Bidding," Alaska Department of Transportation & Public Facilities, ([link](#))

local participation, with a state law granting preference to bids made by Alaskan firms. Project funding must also be deployed in a timely manner. In 2025, contractors raised concerns about delayed infrastructure planning, attributing this to slow advertising for the more than \$1.6 billion available federal funding for construction projects.³⁴⁵ Identifying and remediating bottlenecks in the state procurement process is an important objective for the state as it looks to accelerate infrastructure development. Delays in project delivery can be particularly important for freight corridors that are necessary to preserve reliable transportation links. For example, continued investment in the maintenance and repair of Dalton Highway is important to support freight movement, resource development activity on the North Slope, and the broader multimodal transportation network that connects Alaska's interior regions to its ports. Ongoing efforts to improve coordination and execution, such as the DOT&PF's recent reorganization of its Infrastructure Development department into a more centralized, statewide organization, may help streamline Alaska's procurement environment.³⁴⁶

Infrastructure projects to address the needs identified above are either planned or underway. Table 25 contains a non-exhaustive list of these projects. The largest of these projects, the Port of Alaska Modernization Program ("PAMP"), is a long-term, multi-phase project that has already constructed new petroleum and cement terminals and has started constructing new cargo terminals.³⁴⁷ These improved facilities will be more resilient to seismic events and harsh marine conditions, support larger vessels, and optimize the port's handling of key cargo, especially petroleum and containerized cargo.

Other port infrastructure projects are focused on expanding Alaska's port capacity at smaller cargo hubs like the Port of Seward and the Port of Valdez. Seward's dock and railroad corridor expansion will increase the ports' cargo handling efficiency and improve ship-to-rail transfers, with 80% of the \$25 million project supported by a Port Infrastructure Development Program ("PIDP") grant from the U.S. Department of Transportation's Maritime Administration.³⁴⁸ In the Arctic, the U.S. Army Corps of Engineers ("USACE") has awarded a \$400 million contract for the first phase of Port of Nome Modification project, which will extend existing infrastructure in preparation for the development of a deep-water port.³⁴⁹ Developing a deep-water port in the Arctic will serve important research and national security needs for the U.S.

³⁴⁵ Alaska Contractors Upset at Slow Rollout of Bidding for Federal DOT Projects," Equipment World, February 12, 2025, ([link](#)).

³⁴⁶ "New Ways of Working: A Function-Based Model Protecting Service Delivery, Accountability, and Asset Stewardship," *Alaska Department of Transportation & Public Facilities*, February 3, 2026, ([link](#)).

³⁴⁷ "Don Young Port of Alaska Comprehensive Plan of Finance," *Don Young Port of Alaska*, November 2025, ([link](#)).

³⁴⁸ "Seward Freight Dock Expansion and Corridor Improvements," *Alaska Railroad*, May 23, 2024, ([link](#)).

³⁴⁹ "USACE awards construction contract for portion of Port of Nome Modification project," *U.S. Army Corps of Engineers*, August 15, 2025, ([link](#)).

Table 25 – Planned Alaska Port Infrastructure Projects^{350, 351, 352, 353}

Project Name	Year Announced	Description
Seward Freight Dock and Corridor Improvements Project	2024	Expand the Seward Freight Dock by 280 feet and improve truck-to-rail intermodal efficiency.
Port of Skagway Ore Dock Redevelopment	2021	Modernize ore export and waterfront infrastructure to support port and mining operations.
Nome Deep Draft Port Expansion	2019	Modify Nome Harbor to be an Arctic deep-draft port.
Port of Alaska Modernization Program	2012	Multi-phase modernization project to upgrade petroleum terminals, cement, and cargo docks.

Major multimodal infrastructure projects throughout the state will deliver increased traffic through Alaska's ports. Last year, the federal government approved an essential access road for the Ambler Mining District, which promises significant deposits of critical minerals.³⁵⁴

Alaska's ports have long-standing experience moving mineral cargo, and AIDEA, which proposed the Ambler Mining project, owns and operates the DeLong Mountain Transportation System, which conveys minerals from the Red Dog Mine to export barges.³⁵⁵

Another significant potential development for Alaska's maritime industries is the proposed Alaska LNG project, which could eventually export up to 20 million metric tons of LNG per year through the Port of Nikiski.³⁵⁶ The project is being advanced in phases, with Phase One focused on a natural gas pipeline to serve in-state gas demand, while Phase Two covers the liquefaction and export facilities. Although the project has yet to reach a final investment

³⁵⁰ Joe Allgood, "The Don Young Port of Alaska prepares for a historic overhaul to cargo terminal," *2KTUU*, April 23, 2025, ([link](#)).

³⁵¹ "Seward Marine Terminal Expansion Planning," *Alaska Railroad*, May 2017, ([link](#)).

³⁵² "Port of Nome Modification Feasibility Study," *US Army Corps of Engineers*, December 2019, ([link](#)).

³⁵³ "Skagway Port Master Plan," *Municipality of Skagway and Anchor*, June 2021, ([link](#)).

³⁵⁴ "Fact Sheet: President Donald J. Trump Approves Ambler Road Project to Unlock Alaska's Mineral Potential," *The White House*, October 6, 2025, ([link](#)).

³⁵⁵ "Alaska's Mining Industry," *Resource Development Council*, ([link](#)).

³⁵⁶ "President's Report," *Alaska Gasline Development Corporation Board of Directors Meeting*, September 3, 2026, ([link](#)).

decision, its development could create substantial additional demand for LNG tanker traffic and generate additional maritime activity at the Port of Nikiski.

Other proposed projects could support LNG imports while North Slope pipeline and export infrastructure remain under development. These include plans to build a new LNG import facility that would enable the delivery of imports to meet in-state demand in the interim period before North Slope gas is available and the conversion of the idle Kenai LNG export terminal into an import facility, positioning the project to meet regional energy demand ahead of future large-scale exports.³⁵⁷

Table 26 – Planned Alaska Multimodal Infrastructure Projects³⁵⁸

Project Name	Type	Description
Ambler Mining District and Access	Access road	211-mile road connecting the Ambler Mining District to the Dalton Highway.
Alaska LNG Project	Natural gas pipeline and LNG facility	800-mile natural gas pipeline from the North Slope to a liquefaction plant in Nikiski.
West Susitna Access	Access road	General access road to natural resources west of the Susitna River.
Port MacKenzie Rail Extension	Railroad extension	35-mile rail line in the Susitna River Valley connecting a deepwater port to Interior Alaska.

Alaska's peer regions offer examples of port infrastructure projects that respond to the same challenges and opportunities faced by the state. Table 27 lists major projects in each region that exemplify certain infrastructure improvements that could benefit Alaska's transportation system. British Columbia and California's ports have streamlined infrastructure connections with rail and truck networks. Finland's technological adaptations to Arctic conditions may help drive further investments in Alaska's prominent Southeast and developing Arctic ports. Finally, Norway's integration of its ports with its mineral and natural resource extraction industries has created valuable synergies between port infrastructure development and private investment.

³⁵⁷ Terri Marshall, "LNG In, LNG Out: The Race to Import and/or Export Alaska Natural Gas," *Alaska Business*, May 5, 2025, ([link](#)).

³⁵⁸ "Transportation and Freight Technical Memorandum," *Alaska Department of Transportation & Public Facilities*, August 2022, ([link](#)).

Table 27 – Major Infrastructure Projects by Peer Region^{359,360}

Region	Project	Type	Description
British Columbia	Centerm Expansion and South Shore Access Project	Upgraded container terminal and road/rail infrastructure	Increased throughput by 60% while expanding the terminal's footprint by only 15%.
California	Port of Los Angeles Pier 400 On-Dock Rail Expansion	On-dock rail expansion	Added 31,000 feet of rail track as well as five new storage tracks.
Finland	Winter Maintenance Plan	N/A	Weatherization and maintenance strategies.
Norway	On-Shore Power and Charging Stations	Electrification	Reduce emissions from port activity

British Columbia's Port of Vancouver completed its Centerm Expansion and South Shore Access project in 2023. The Centerm Expansion was able to increase cargo throughput by 60% through marine infill and a reconfiguration of the container terminal yard, which resulted in an only 15% larger footprint.³⁶¹ The South Shore Access project made several key improvements to the port's multimodal infrastructure: an overpass that eliminated rail crossings, an additional highway connection, a reconfigured rail yard, and reduced truck traffic through downtown Vancouver.³⁶² Modeling Alaska's future intermodal expansions off of the reconfigurations implemented by these projects could streamline intermodal freight transfers and reduce drayage bottlenecks by eliminating some of the Port of Alaska's at-grade crossings.³⁶³

Alaska does not necessarily need to undertake large-scale projects like the Centerm Expansion to meaningfully improve port operations. The \$73 million Pier 400 On-Dock Rail Expansion at the Port of Los Angeles is expected to eliminate 1,200 truck trips per day by 2040.³⁶⁴ Elongating track lengths and adding storage tracks gives ports and railroad

³⁵⁹ "Centerm Expansion Project and South Shore Access Project," *Port of Vancouver*, ([link](#)).

³⁶⁰ "Port of Los Angeles Completes \$73 Million On-Dock Rail Expansion Project on Pier 400," *The Port of Los Angeles*, July 10, 2024, ([link](#)).

³⁶¹ "Centerm Expansion Project," *Port of Vancouver*, ([link](#)).

³⁶² "Centerm Expansion Project and South Shore Access Project," *Port of Vancouver*, ([link](#)).

³⁶³ "Reconnaissance Engineering Study," *Alaska Department of Transportation & Public Facilities*, December 2022, ([link](#)).

³⁶⁴ "Port of Los Angeles Completes \$73 Million On-Dock Rail Expansion Project on Pier 400," *The Port of Los Angeles*, July 10th, 2024. ([link](#))

operators greater flexibility while handling intermodal cargo transfers between vessels and railcars. Longer tracks and multiple storage tracks can reduce turnaround times by limiting the need to move railcars during loading and unloading and increase the volume of cargo that can be handled.³⁶⁵ Similar enabling infrastructure could support future freight growth in Alaska. A recent report from AIDEA on port infrastructure development to enable future mineral export growth identified Port MacKenzie as the best location for development, owing to extensive available industrial land, deep-water access, and proximity to existing rail infrastructure.³⁶⁶ Realizing the benefits of similar port-side rail investments would likely require complementary investments in Alaska's rail network, including locomotives, railcars, and intermodal freight equipment to ensure sufficient freight capacity.

Finland's relevance to Alaska lies more in winter weather maintenance than specific infrastructure projects. Mobile winter weather monitoring technology that measures surface temperature and roadway friction could supplement Alaska's extensive Road Weather Information System ("RWIS") and more effectively guide direct snow removal operations.³⁶⁷ DOT&PF has already piloted AI-enhanced tools to monitor roadway conditions, which promise savings on maintenance costs.³⁶⁸

Norway's Port of Oslo has set an emissions reduction target for 2030 and aims to become a zero-emissions port in the long-term.³⁶⁹ To achieve that goal, the port has installed shore power and charging stations, most notably ones for cruise ships.³⁷⁰ Zero-emissions investments may not be the primary priority for Alaska's port infrastructure, but the Port of Seward is currently developing a shore power infrastructure project financed through the EPA Clean Ports Program.³⁷¹ This effort builds on earlier shore power initiatives in Alaska, including Franklin Street Dock in Juneau and ongoing berth electrification plans.³⁷²

Table 28 – Peer Region Infrastructure Funding Models³⁷³

Region	Project	Funding Model
British Columbia	Centerm Expansion and South Shore Access Project	Supported by DP World and federal funding through the National Trade Corridors Fund.

³⁶⁵ "Whittier Terminal Master Plan (Final)," *Alaska Railroad Corporation*, August 29, 2025, ([link](#)).

³⁶⁶ "Alaska Mineral Production, Transportation, and Port Capacity Study," *Alaska Industrial Development and Export Authority*, January 2026, ([link](#)).

³⁶⁷ "Surface condition and friction measurements," *Teconer*, ([link](#)).

³⁶⁸ "Alaska DOT launching weekly inspections thanks to automated crowd-sourced imagery and AI analysis from Blynscy," *Blynscy*, ([link](#)).

³⁶⁹ "About Port of Oslo," Port of Oslo, ([link](#)).

³⁷⁰ "Shore power and charging stations," *Port of Oslo*, September 20, 2023, ([link](#)).

³⁷¹ "Port of Seward Vessel Shore Power Implementation," *Seward Shore Power*, ([link](#)).

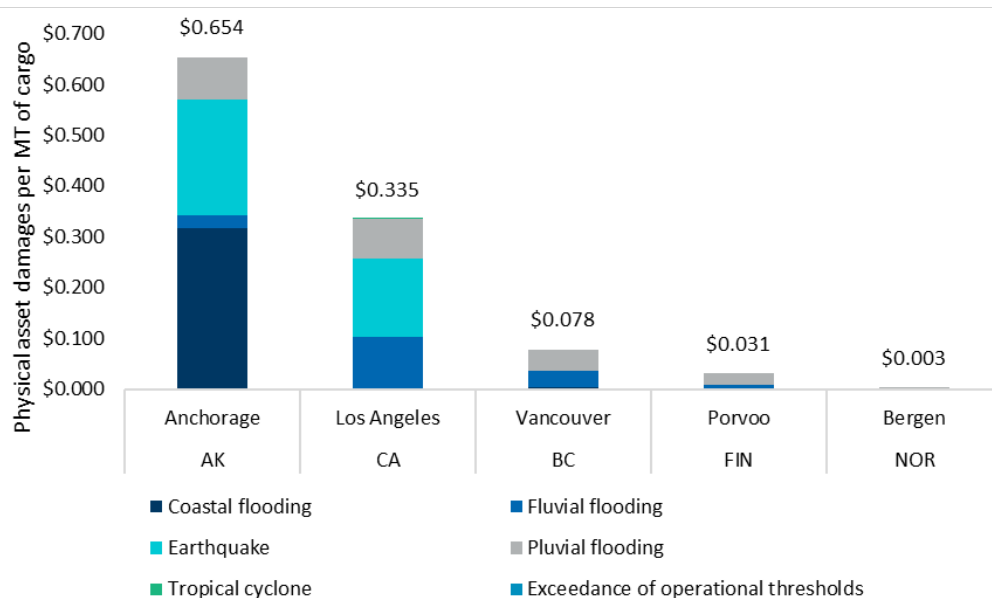
³⁷² "Shore Power in Alaska: Powering Innovation" ([link](#)).

³⁷³ "17 shore power projects get \$13.6M from Enova," *Offshore Energy*, March 13th, 2024, ([link](#)).

California	Port of Los Angeles Pier 400 On-Dock Rail Expansion	30% of project costs were financed with grants from the California Trade Corridor Enhancement Program
Finland	Winter Maintenance Plan	N/A
Norway	On-Shore Power and Charging Stations	Up to 50% of project costs may receive grants from the Norwegian government's Enova Fund.

The DOT&PF's Alaska Moves 2050 report cites redundancy as a key challenge for Alaska's ports.³⁷⁴ If a natural disaster were to take the Port of Alaska offline for a significant period of time, traffic could potentially be diverted to alternate ports, such as Ports of Seward and Valdez. While the Port of Seward also maintains a connection to the Alaska Railroad, it is not connected to a local airport with as much cargo capacity as ANC. Furthermore, the only road connecting Seward to Anchorage is already the busiest truck freight corridor in the state.³⁷⁵ Ensuring that the Port of Alaska can survive potential flooding and earthquakes is a significant consideration for its infrastructure plans. One component of the modernization project, a new loading platform engineered to withstand a 1000-year seismic event, was informed by the port's experience with a 2018 earthquake.³⁷⁶

Figure 42 – Physical Asset Damages from Weather Events, Major Ports³⁷⁷



³⁷⁴ "Alaska Moves 2050: Statewide Freight Plan," *Alaska Department of Transportation & Public Facilities*, December 2022, ([link](#)).

³⁷⁵ Ibid.

³⁷⁶ "Port of Alaska Modernization," *GeoEngineers*, ([link](#)).

³⁷⁷ "Climate scenarios climate risk," *Port Watch*, November 11, 2023, ([link](#)); "2021-2023 Port of Vancouver Cargo Statistics," *Port of Vancouver*, ([link](#)); "Annual Port Tonnage by Commodity Group," *Statistics Norway*,

Public Policy

Policymakers in all regions, at both the regional and federal level, implement policies to influence economic activity in the maritime sector. Port infrastructure policies target specific investments in expanding terminal capacity or modernizing cargo handling processes. Broader infrastructure development policies support multimodal connections to ports. Other policies affect the cost of maritime transportation in each region through taxes and fees.

Table 29 – Maritime Policy Incentives by Region³⁷⁸

	Infrastructure 	Development 	Operations 
Alaska	<ul style="list-style-type: none"> Clean Ports Program* USACE IJJA Funding* Port Infrastructure Development Program* AK SHIP Port of Alaska Modernization Program HB 65 Bonds 	<ul style="list-style-type: none"> Unleashing Alaska's Extraordinary Resource Potential* PROTECT Program* RAISE/BUILD Grants* Capital Construction Fund 	<ul style="list-style-type: none"> Jones Act* Passenger Vessel Services Act* FEMA Port Security Grant* Alaska Terminal Tariff Alaska Maritime Workforce Development Plan
California	<ul style="list-style-type: none"> Clean Ports Program* USACE IJJA Funding* Port Infrastructure Development Program* Containerized Ports Interoperability Grant Program 	<ul style="list-style-type: none"> PROTECT Program* RAISE/BUILD Grants* Port and Freight Infrastructure Program Clean Transportation Program 	<ul style="list-style-type: none"> Jones Act* Passenger Vessel Services Act* At Berth Regulation
British Columbia	<ul style="list-style-type: none"> B.C. Maritime Industries Infrastructure Modernization and Expansion Grant Program 	<ul style="list-style-type: none"> National Trade Corridors Fund** Trade Diversification Corridors Fund** 	<ul style="list-style-type: none"> Coasting Trade Act** Strategic Partnership Initiatives** StrongerBC: Future Skills Grant B.C. Employer Training Grant Program
Finland	<ul style="list-style-type: none"> Connecting Europe Facility*** 	<ul style="list-style-type: none"> Connecting Europe Facility*** 	<ul style="list-style-type: none"> Finnish Tonnage Tax Act on Fairway Dues Finnish Maritime Code Labor Cost Reimbursement

September 17, 2025, ([link](#)); "2023 Port Tonnage by Commodity," U.S. Department of Transportation, ([link](#)); "Annual International Port Tonnage by Commodity Group," Statistics Finland, ([link](#)).

³⁷⁸ * = U.S. Federal Policy; ** = Canadian Federal Policy; *** = European Union Policy

Norway	<ul style="list-style-type: none"> Norwegian Coastal Administration Grants 	<ul style="list-style-type: none"> Enova Clean Energy Fund 	<ul style="list-style-type: none"> Norwegian Tonnage Tax NOx Tax and Fund Environmental Ship Index Grant for Employment of Seafarers

Infrastructure projects are typically financed with a combination of local, regional, and federal funding. In general, most of the funding for Alaska's infrastructure comes from federal programs. Alaska's ports were awarded \$450 million in funding through PIDP created by the Infrastructure Investment and Jobs Act ("IIJA"). Other federal programs, specifically the Better Utilizing Investments to Leverage Development ("BUILD") program — formerly the Rebuilding American Infrastructure with Sustainability and Equity ("RAISE") program — have awarded additional funds to Alaskan port infrastructure projects. The Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation Program ("PROTECT") program was expected to award Alaska \$93 million in formula funding for climate resilience projects.^{379,380} Formula funding is predetermined in legislative text and does not require a competitive grant application. According to data from the Urban Institute, Alaska received \$152,614 per capita in PIDP awards, compared to \$2,389 per capita in California.³⁸¹ DOT&PF has noted potential alternative transportation funding sources, including toll roads, collaboration with industry participants, broad-based taxation, and increasing the gasoline tax.³⁸²

In 2025, the OBBBA authorized billions of dollars in funding for port infrastructure and Arctic maritime operations throughout coastal communities, such as those in Alaska. The funding is described in Table 30.

Table 30 – OBBBA Maritime and Arctic Funding^{383,384,385}

Program	Description	Amount
Coastal Infrastructure	Funding for the improvement of USCG infrastructure found in communities like Sitka, Seward, and St. Paul	<ul style="list-style-type: none"> \$4.379 billion

³⁷⁹ "2025 Alaska Infrastructure Report Card," *Alaska Section of the American Society of Civil Engineers*, ([link](#)).

³⁸⁰ "Appendix F – Infrastructure Investment & Jobs Act (IIJA) Funding Summary," *Department of Transportation & Public Facilities*, ([link](#)).

³⁸¹ "Are Federal Infrastructure Dollars Meeting Your Community's Needs?" *Urban Institute*, ([link](#)).

³⁸² "Appendix G – Financial Assessment," *Department of Transportation & Public Facilities*, June 2022, ([link](#)).

³⁸³ "U.S. Coast Guard commissions USCGC Storis, bolstering Arctic presence and advancing Force Design 2028," *United States Coast Guard News*, August 11, 2025, ([link](#)).

³⁸⁴ "Dear Alaskan Letter," *Office of Senator Sullivan*, July 28, 2025, ([link](#)).

³⁸⁵ "The One Big Beautiful Bill," *Office of Senator Sullivan*, August 5, 2025, ([link](#)).

Icebreaker Fleet	Icebreaker funding	<ul style="list-style-type: none"> ■ \$4.3 billion for Polar Security Cutters ■ \$3.5 billion for Arctic Security Cutters ■ \$816 million for light and medium domestic icebreaking cutters
<i>Storis</i> Homeporting	Specific allocation of funding for homeporting the icebreaker <i>Storis</i> in Juneau	<ul style="list-style-type: none"> ■ \$300 million

Federal and supra-national programs support infrastructure development in non-U.S. regions. Canada's National Transportation Corridors Fund helped finance the Port of Vancouver's Centerm Expansion Project. Through its membership in the European Union, Finland received 39 million euros from the Connecting Europe Facility Transport program to develop an intermodal logistics route between Tallinn, Estonia, and Helsinki, Finland.³⁸⁶

Regional programs are more prevalent in some peer regions. California, for example, awarded \$1 billion, mostly to Los Angeles and Long Beach, as part of the state's Port and Freight Infrastructure Program.³⁸⁷ The state also designed a \$27 million Containerized Ports Interoperability Program to invest in innovative logistics software for intermodal cargo operations.³⁸⁸ Norway's coastal administration agency recently awarded \$15 million to support port improvement projects, including about \$2 million spread across a tanker jetty improvement project and terminal facilities in the Port of Oslo.³⁸⁹ British Columbia's Maritime Industries Infrastructure Modernization and Expansion Grant Program invested \$25 million in the province's maritime industries, primarily in the shipbuilding and repair industry rather than the cargo industry.³⁹⁰

United States maritime commerce between U.S. ports is governed in part by the Merchant Marine Act of 1920, commonly known as the Jones Act, while the Passenger Vessel Services Act imposes requirements on passenger transportation. The law is often cited as serving national security and economic objectives. Under the Jones Act, vessels delivering cargo between two U.S. ports must generally be constructed in the United States, owned by a U.S. company, and crewed by U.S. citizens.

³⁸⁶ "An efficient maritime link between Helsinki and Tallinn," *European Commission*, August 2024, ([link](#)).

³⁸⁷ "Port and Freight Infrastructure Program (PFIP) 2025 Annual Report," *California Department of Transportation*, December 2025, ([link](#)).

³⁸⁸ "California Containerized Ports Interoperability Grant Program," *California Governor's Office of Business and Economic Development*, July 2024, ([link](#)).

³⁸⁹ Rafael Sanches, "Norwegian Coastal Administration awards grant funding to Port of Oslo," *BAIRD Maritime*, June 30, 2025, ([link](#)).

³⁹⁰ "B.C. Maritime Industries Infrastructure Modernization and Expansion Grant Program," *Association of British Columbia Marine Industries*, ([link](#)).

Key Findings and Recommendations

Table 31 – Maritime Key Findings

	Alaska	British Columbia	California	Finland	Norway
Current Industry	Port of Alaska handles half of all imports while other ports serve as key export facilities for Alaska's minerals and natural resources.	Home to key West Coast ports which process 30% of Canadian imports and nearly half of Canadian exports.	Third-busiest system among evaluated regions, measured by cargo tonnage, with significant intermodal connections to the U.S. rail and truck freight networks.	World leader in icebreaker construction and Arctic maritime operations.	Substantial maritime transportation network for passengers and cargo, comprised of 5 major ports and 32 trunk network ports.
Growth Potential	Traditional oil, LNG, and mineral exports are expected to increase, along with new maritime activity in the Arctic region.	The shipbuilding, maintenance, and repair industry is a key focus for British Columbia.	California's twin ports of Los Angeles and Long Beach continue to expand port capacity and improve intermodal efficiency.	Demand for icebreaker construction is strong, with the U.S. signing an agreement to procure two new icebreakers for the USCG.	Demand for offshore wind, oil, and gas vessels is complicated by geopolitical tensions and uncertain international trade dynamics.
Economy and Workforce	Alaska offers competitive salaries in the maritime industry but faces obstacles with recruitment and retention common to all regions.	241 million CAD investment in the skilled trades, on top of existing workforce development programs, as part of the "Look West" strategy.	Advancing a goal of 500,000 apprenticeships by 2029 through training programs funded by the state's Employment Training Panel and the Workforce Accelerator Fund	Facing challenges with youth recruitment into the skilled trades and highly specialized engineering roles necessary to meet growing demand in the sector.	Strong workforce development program that combines upper-level instruction with subsidized apprenticeships.
Infrastructure and Costs	Ongoing projects to renovate port infrastructure and some multimodal projects to drive new cargo traffic.	Substantial investments in expanding maritime cargo capacity and improving intermodal efficiency.	Like British Columbia, California's major port facilities have completed valuable expansion projects.	Employs innovative cold-climate technology throughout the transportation network in response to harsh Arctic conditions.	Recent emphasis on reducing the emissions intensity of port infrastructure and facilities, particularly with shore power projects.
Public Policy	DOT&PF has recommended reforms to infrastructure funding, including greater partnership with the private sector and broad tax reform.	Transportation infrastructure is financed through a combination of regional and federal programs.	Large state grant programs supplement federal grants for infrastructure development.	European Union funding supports Finland's maritime infrastructure development.	Norway's Coastal Administration regularly finances infrastructure improvement projects through national transportation plans.

Recommendation #1: Identify alternative sources of funding and improve delivery mechanisms.

Alaska relies to a large extent on formula and competitive federal grants and port authority surcharges to fund infrastructure programs. DOT&PF has recommended reforms to infrastructure development which include raising the gasoline tax, instituting limited toll roads on major routes, and partnering with industry stakeholders on small port infrastructure projects. Improving the effectiveness of Alaska's procurement and bidding process, including coordination between federal and state agencies, will help ensure that the available capital is deployed in a timely manner.

Recommendation #2: Advocate for additional federal infrastructure program funding.

The IJA awarded more than \$400 million for key infrastructure and resilience projects throughout the state. More recently, the OBBBA authorized more than \$12 billion for coastal infrastructure development and icebreaker fleet funding, a portion of which will support Alaskan businesses and communities. Identifying additional federal funding through maritime-specific agencies like MARAD and other DOT programs would support Alaska's long-term infrastructure development goals alongside alternative funding sources, as noted above.

Recommendation #3: Streamline multimodal operations.

Alaska's peer regions are making significant investments in intermodal port capacity, including major reconfigurations of rail yards to expand storage capacity and reduce at-grade crossings. Although the Alaska Railroad Corporation is the only railroad operating in Alaska, compared to the competing railroads at Californian and British Columbian ports, Alaska should continue soliciting engineering studies to determine whether operational efficiencies can be achieved throughout the state's transportation system without requiring major expansions, like the Seward Freight Dock Expansion.

Recommendation #4: Embed redundancies into the state's port system.

Alaskan residents rely on the Port of Alaska for about half of their imported goods. Due to the state's harsh climate and the risk of earthquakes, ensuring that the state's expansive network of ports can absorb rerouted flows from the Port of Alaska in the event of major weather events is critical for Alaska's economic security. Current major infrastructure projects address port resilience; for example, the Port of Alaska's upgraded platforms and piles have been engineered to withstand 1000-year seismic events. Redundancy should be an additional priority for future infrastructure projects.

Recommendation #5: Integrate apprenticeships into Alaska's workforce development model.

Peer regions like British Columbia and California have adopted similar strategies to Alaska that focus on expanding training and certification programs as part of larger economic development strategies. Alaska could adopt more innovative strategies based on lessons from its Nordic peers, Norway and Finland, whose maritime industries face similar youth recruitment and retention issues but address them by including apprenticeship programs within upper-level secondary programs as a formal educational track and offering subsidies to employers who take on apprentices.

Conclusion

This report evaluated Alaska's competitiveness across three dynamic sectors. These sectors represent both legacy economic drivers for the state and emerging opportunities in next-generation industries. FTI Consulting's competitiveness assessment benchmarked Alaska's dynamic sectors against select peer regions, revealing distinct competitive advantages in each sector as well as areas for improvement.

The report also highlights significant drivers of economic growth for Alaska, including:

- Asian–U.S. air freight traffic growth
- Demand for low-earth orbit satellite launch capacity and increased missile defense investments
- Revitalized oil production and a potential revolution in Alaska's natural gas and LNG economy
- New mining projects and immense potential for critical mineral production
- Elevation of Alaska's northern ports into strategic Arctic assets

The report also discusses strategic priorities for the state to consider. Across all three dynamic sectors, infrastructure emerged as the most important area for development. Transportation infrastructure networks are necessary precursors to rapid economic development. Infrastructure development, however, may be prolonged by permitting obstacles at the state and, more often, the federal level. Identifying ways to streamline Alaska's permitting system and collaborating with the federal government on federal permitting should be key public policy priorities for the state.

Even without significant changes, Alaska's legacy air freight, minerals and natural resources, and maritime infrastructure are poised for lasting economic growth. Alaska can also unlock its full economic potential in emerging industries, such as space launch and critical minerals, through targeted infrastructure investments, workforce development, and sound public policy.