2022

# DRAFT Alaska Statewide Comprehensive Economic Development Strategy, 2022-2027

# Table of Contents



# List of Figures

# List of Tables

# Introduction

The Alaska Statewide Comprehensive Economic Development Strategy (CEDS) is a five-year economic development plan for Alaska, active from 2022-2027. Driven by the need to improve the resilience of the state's economy and intentionally lay a foundation for future growth, this plan follows the U.S. Economic Development Administration's Comprehensive Economic Development Strategy (CEDS) guidelines. It takes the place of the prior Statewide CEDS, which was in effect from 2017 to 2022.

Developed between January and July of 2022, the present Statewide CEDS reflects different, but still challenging, economic circumstances than the prior CEDS written in 2016 and 2017. At that time, Alaska faced a recession due to low oil prices, causing employment loss, outmigration, and reduced state government revenues. As of mid-2022, the state economy is recovering from the COVID-19 pandemic and reeling from macroeconomic headwinds in the form of inflation, supply chain challenges, and labor scarcity.

The State of Alaska Department of Commerce, Community, and Economic Development (DCCED) oversaw the development of the 2022-2027 Alaska Statewide CEDS, in partnership with the Alaska Development Team in the Governor's Office. The University of Alaska Center for Economic Development, under contract with DCCED, performed the background research, public process, and drafting of the document. A Strategy Committee, made up of state leaders from business, government, and the nonprofit sector, provided strategic guidance throughout the process.

**Vision**

*The Alaska Statewide Comprehensive Economic Development Strategy provides an equitable and unified approach to a competitive business environment, expanded job opportunities in the state's Economic Engines and Emerging Industries, and an enduring economic structure where all Alaskans adapt, grow, and thrive.*

**Mission**

*To create a shared approach to Alaska's future prosperity that is locally based, regionally driven, and state connected.*

## How to use this CEDS

The Alaska Statewide CEDS is the product of a six-month process reflecting extensive analysis of the state economy, the input of hundreds of Alaskans, and the involvement of dozens of business, government, education, and nonprofit leaders. Although led by state government, it is designed to be used broadly by anyone working to strengthen the Alaska economy.

**Inspire**

The goals and strategies laid out in this CEDS are rooted in extensive evaluation of the state's economic situation and have been vetted through a public process and guided by a vision of being locally based, regionally driven, and state connected. By presenting an analysis of Alaska's economic challenges,

opportunities, and strategic directions, this CEDS may inspire civic leaders in the state to act in thoughtful ways that promote opportunity and support a cohesive strategy.

**Invest**

This strategy will be used to attract greater investment in Alaska from public and private sources. Federal agencies often require a CEDS or other broadly recognized strategic plan to be in place as a prerequisite for certain types of grant funding. Grants can then be utilized to leverage investment from the private sector to produce jobs and sustained economic growth.

**Collaborate**

Many (but not all) regions of Alaska already have robust CEDS plans in place. A primary reason for the development of the Statewide CEDS is to connect local and regional strategies from the "bottom up" and encourage collaboration between them. Most of the state's industries span more than one region, as do its foundational gaps like affordable housing. In these cases, collaborative statewide strategies may be required to make progress.

## Goals

The following six goals emerged from the process of analyzing Alaska's current economic situation, and systematically gathering feedback and input from stakeholders around the state. Each goal can be thought of as a broad "bucket," further broken down into objectives and actions that are SMART: specific, measurable, achievable, relevant, and time-bound.

1. **Strengthen Economic Engines**. Economic Engines is the term used throughout this CEDS to describe Alaska's major basic sectors, which bring money into the state by selling goods or services outside of it. They include oil and gas, mining, seafood, tourism, defense, air cargo, and forestry.
2. **Cultivate and Grow Emerging Sectors**. Emerging Sectors are those small or nascent industries with high growth potential based on Alaska's competitive advantages. They include mariculture, aerospace, and agriculture, among others, which have the potential to diversify the state economy and ultimately become Economic Engines.
3. **Support a Strong Business Climate and Entrepreneurial Ecosystem**. Industries large and small depend on a climate that makes a state a good place to start and run a business. This goal is concerned with these factors, including access to capital and training for entrepreneurs.
4. **Build and Update Economic Foundations**. Economic Foundations are the assets and elements like infrastructure, housing, quality of life, and cost of living that must be in place for any commercial activity to take place. These factors are not specific to one industry, but broadly support all economic activity.
5. **Develop Alaska's Workforce and Human Capital**. Economies exist for the good of the people and depend upon a workforce that is prepared and well-trained. This goal strives to improve the readiness of the workforce to permit the greatest possible opportunity to make a good living, and meet the needs of an expanding economy.
6. **Build a Resilient Economy**. Resilience relates to the ability of an economy to avoid or withstand negative events like natural disasters or recessions. It includes proactive and responsive measures to reduce harm to workers, employers, and communities.

## Strategy Committee

### State/Local Government and Education

**Alan Weitzner**, Executive Director,
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**Barbara Nickels**, Program Director,
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**Bill Popp**, President & CEO,
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**Brittany Smart**, Special Assistant to the Mayor,
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**Fritz Westlake**,
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**Kristin Carpenter**, Executive Director,
Prince William Sound Economic Development District

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**Shirley Marquardt**, Executive Director,
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## Business, Industry, and Nonprofit Associations

**Alec Mesdag**, Vice President,
Alaska Electric Light & Power

**Alicia Amberg**, Executive Director,
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**Amy Seitz**, Executive Director,
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**Ana Hoffman**, Co-Chair,
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**Chris Rose**, Executive Director,
Renewable Energy Alaska Project (REAP)

**Christine O'Connor**, Executive Director,
Alaska Telecom Association

**Dan McCue**, President,
Alaska Credit Union League

**David Karp**, Senior Vice President,
Saltchuk Family of Companies

**Deantha Skibinski**, Executive Director,
Alaska Miners Association

**Hallie Bissett**, Executive Director,
Alaska Native Village Corporation Association

**Hans Vogel**, President/CEO,
Triverus/Trijet

**Isaac Vanderburg**, CEO,
Launch Alaska

**Joe Michel**, Executive Director,
Alaska Trucking Association

**Julie Decker**, Executive Director,
Alaska Fisheries Development Foundation,
Alaska Mariculture Alliance

**Kara Moriarty**, CEO,
Alaska Oil and Gas Association

**Kati Capozzi**, CEO,
Alaska Chamber of Commerce

**Laurie Wolf**, President & CEO,
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Resource Development Council

**Mike Huston**, Chief Lending Officer, Northrim Bank,
Alaska Bankers Association

**Rebecca Logan**, CEO,
Alaska Support Industry Alliance

**Scott Habberstad**, Board Chair,
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**Tanya Kaquatosh**, Senior Vice President,
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**Tessa Axelson**, Executive Director,
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**Tracy Welch**, Executive Director,
United Fishermen of Alaska

## Elected Officials

**Calvin Schrage**, State Representative,
District 25

**Dan Ortiz**, State Representative,
District 36

**Jesse Kiehl**, State Senator,
District Q

**Robert Myers**, State Senator,
District B

# I. Economic Situation Analysis

## Where Does the Money Come From?

A relatively small number of base industries—sectors that bring money into the state from outside—drive Alaska's economy. Economist Scott Goldsmith famously used the metaphor of a three-legged stool to describe Alaska's economic base: oil and gas, federal spending, and everything else. (This latter category includes tourism, fisheries, and mining.) In 2008, the three "legs" each generated about a third of all the jobs in Alaska, as they brought money into the state which circulated through the other industries. Though these proportions have likely shifted since 2008, the same set of basic industries continue to fuel the state economy.

A simple way to think about the economy of any state or region is to consider three flows of money. First, money flows into the state when goods or services produced there are sold outside. Second, money circulates internally as organizations and households purchase the goods and services they need locally. Third, money leaves the state when goods or services must be purchased from outside. Strengthening the industries bringing new money to the state while minimizing "leakages" therefore results in economic growth and greater employment.

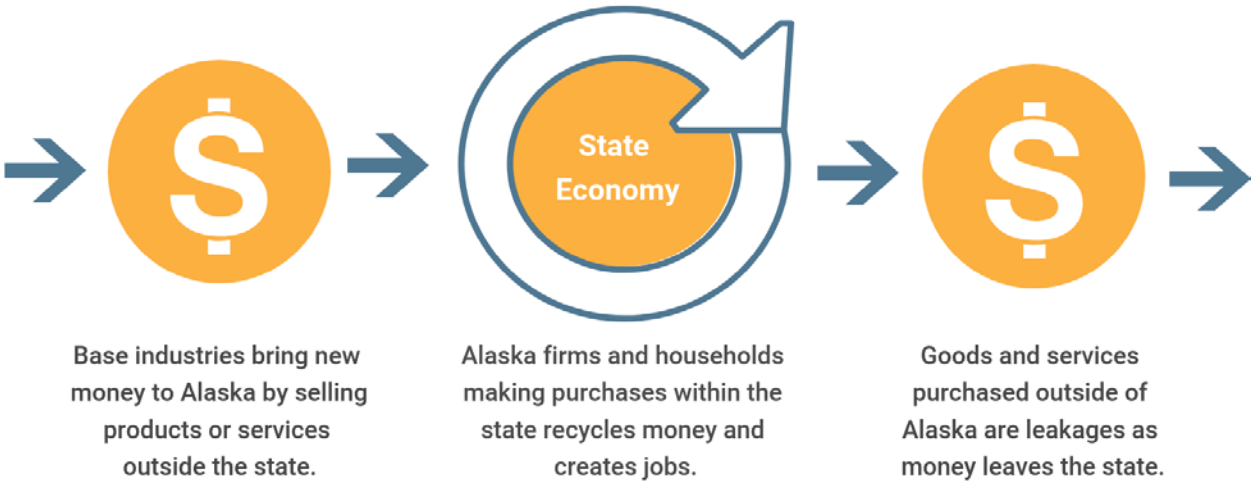



*Figure 1: Simplified model of Alaska's economy showing how basic industries create jobs.*

**Alaska's established Economic Engines**

| Base Industry | Broader Impacts |
|---|---|
| Oil and gas | State government tax revenue, including the Permanent fund. Supports employment in production, construction, engineering, and support services. |
| Federal government (including defense) | Federal personnel and contracting activities of military and civilian agencies. Transfer payments (like Social Security), health insurance, grants to nonprofits and governments, infrastructure spending, land management. |
| Seafood | Processing and harvesting jobs, state and local revenues, marine trades like vessel repair. |
| Tourism | Accommodation, food service, transportation, tours, state and local tax revenues. |
| Mining | Construction, engineering, support services, state and local revenue. |
| Air cargo | State revenue, refined fuel sales, logistics and warehousing employment. |
| Forestry | Timber harvesting and milling, contractual services. |

*Table 1: Alaska's established Economic Engines.*

In addition to the above industries, other types of activities also bring new money to Alaska. These include investments held by Alaskans, remote workers, and some small firms with out-of-state customers.

**Other sources of new money to Alaska**

| Source | Examples |
|---|---|
| Investments | Income-producing investments owned by Alaskans generate wealth that is spent locally. Examples include in-state financial institutions and investment funds with outside holdings, the Alaska Permanent Fund, and the holdings of individual households. |
| Remote workers | Alaska residents working remotely for an employer based out of state. Income is spent locally. |
| Small exporting firms | Alaska-based firms in various industries, such as manufacturing and engineering, that serve customers in other states or abroad. |

*Table 2: Other sources of new money to Alaska.*

## Import Substitution: Plugging the Leaks

In addition to growing and sustaining the basic sectors, economic development practices that reduce leakages can also result in economic growth. As a state without a large manufacturing or agricultural base, Alaska heavily depends on imported goods. This is not inherently a bad thing economically, but the opportunity to replace imported goods with those produced in-state will usually create local jobs. Some examples of this include natural gas fields in Cook Inlet and near Utqiaġvik, which meet energy needs locally while creating high-paying jobs for Alaskans. Without these sources, these communities would likely need to purchase imported LNG or refined fuel produced out-of-state, creating jobs elsewhere.

Alaska's small agricultural sector is another example. Vegetables and meat produced in Alaska create income for farmers who continue to circulate money locally when they hire labor and purchase supplies. Other import substitution opportunities include the in-state use of timber and energy resources, value-added food product manufacturing, and production of construction materials.

## Recent Economic Trends

- Prior to the pandemic, Alaska suffered a recession linked to low oil prices from 2015-2018.
- COVID-19 caused a loss of roughly 40,000 jobs during the pandemic low point.
- Alaska's economy has underperformed that of the U.S. as a whole since 2015.

Alaska's recent economic performance has brought to light certain vulnerabilities. Since 2015, two downturns have defined the state economy, leaving an economy in 2021 with 30,000 fewer jobs than in 2015.[1]

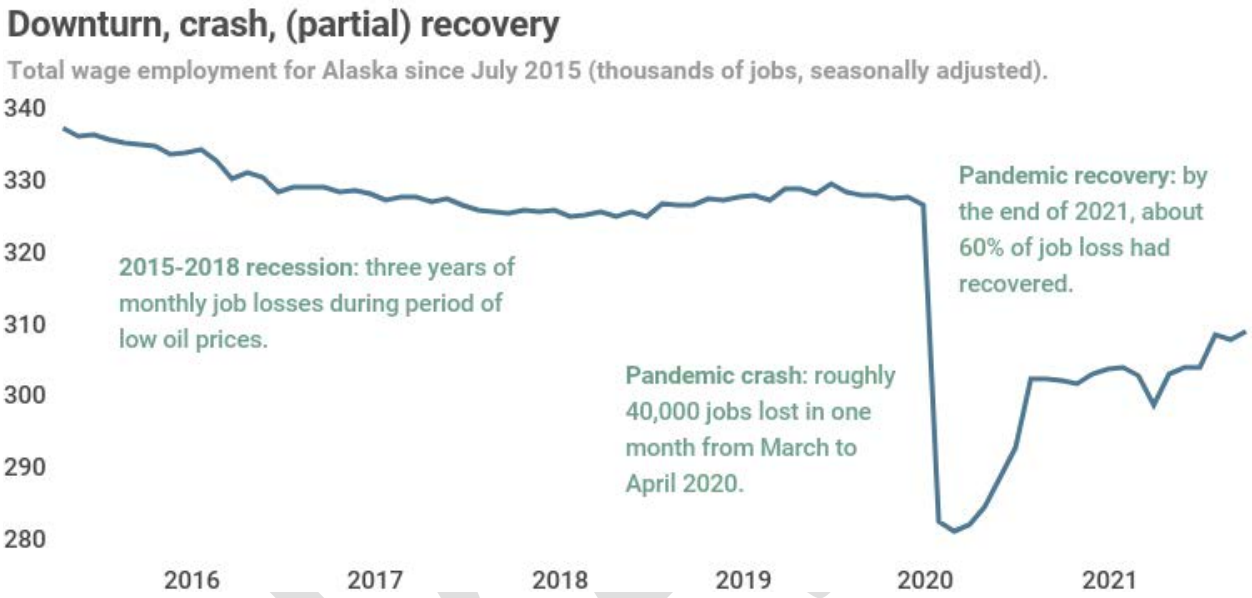



*Figure 2: Total wage employment for Alaska since July 2015 (thousands of jobs, seasonally adjusted). Source: Bureau of Labor Statistics (BLS).*

Like nearly all regions in the world, the COVID-19 pandemic caused a sharp decrease in employment in Alaska in early 2020. However, prior to the pandemic Alaska's economy had been in a recession from 2015 to 2018, followed by sluggish growth in 2018 and 2019. By contrast, the U.S. economy as a whole saw strong employment growth from 2015 to 2019. In February 2020, just prior to the COVID-19 recession, U.S. employment was 7.4% higher than in July 2015, while Alaska employment was still almost 3% lower (see graph below).[2]

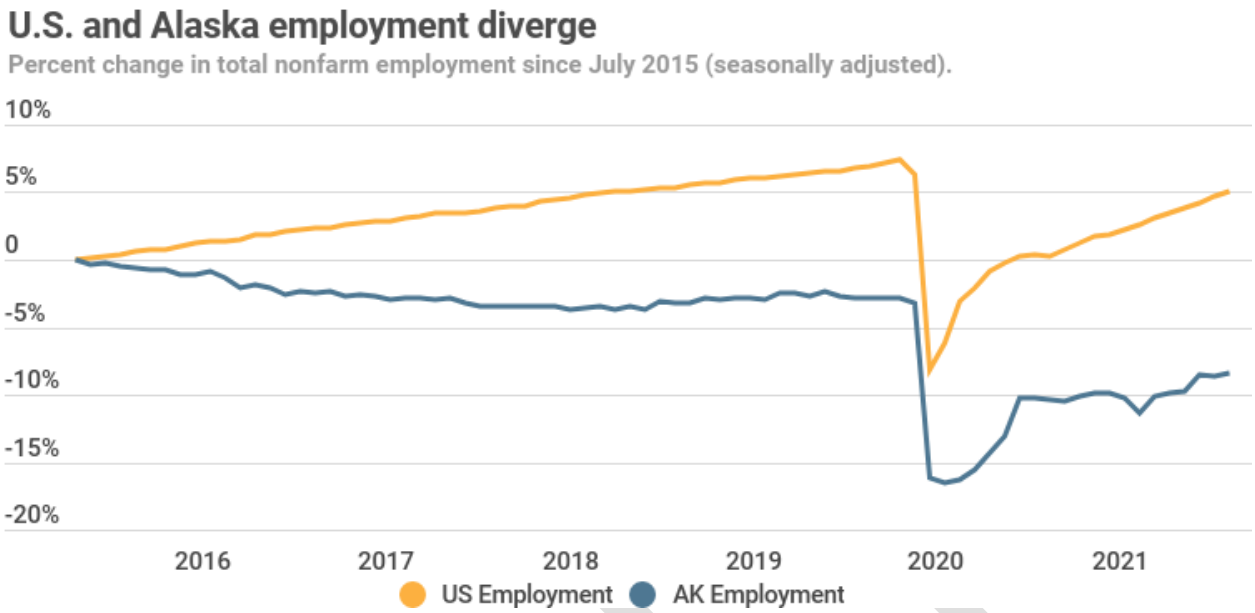



*Figure 3: Percent change in total nonfarm employment since July 2015 (seasonally adjusted). Source: BLS.*

Employment then fell sharply in April 2020, when the state lost nearly 40,000 jobs in one month—greater than one job in 10. Recovery from that low point has been slower in Alaska than nationally. By December 2021, the US had recovered almost 98% of its pre-pandemic employment, versus only 94% for Alaska.[3] For 2022, (Department of Labor and Workforce Development) DOLWD forecasts employment growth of 3.2%, which would leave employment below pre-pandemic levels.[4]

## Industry Performance During Two Downturns

From an industry sector standpoint, it is instructive to look at two recent time periods: 2015 to 2019, encompassing the state recession, and 2019 to 2021, a period that includes the COVID-19 pandemic. During the 2015 to 2019 timespan, oil and gas shed the greatest number of jobs, followed by government, retail, professional services, and construction. Most of these losses are tied to the relatively low price of oil during those years. This rippled through the economy as the oil and gas companies reduced employment and contractual spending, and state government oil revenues slumped. While most sectors lost jobs between 2015 and 2019, health care and accommodation and food services saw notable gains—the latter tied closely to tourism.[5]

The COVID-19 pandemic disrupted all industries to some degree, but the greatest losses from 2019-2021 were in accommodation and food service, transportation and warehousing, and oil and gas. The pandemic itself caused a sharp reduction in spending on travel, many types of services, and activities that require congregating indoors, like dining. The state's tourism industry, bars and restaurants, and non-grocery retailers were hit especially hard.

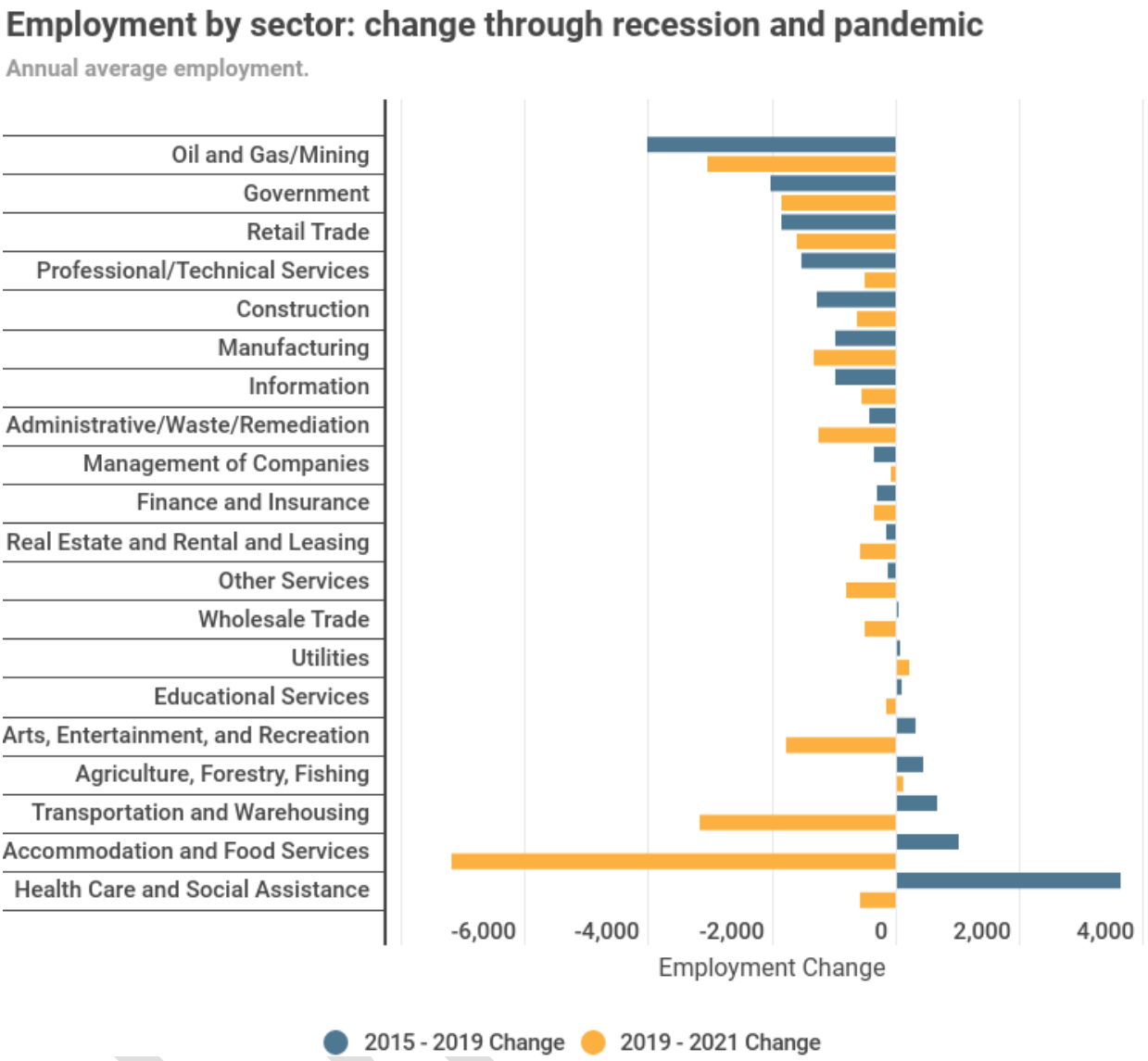



*Figure 4: Annual average employment.*
*Source: Quarterly Census of Employment and Wages (QCEW), BLS.*

# II. Goals and Objectives

## Narrative Summary

### Goal 1. Strengthen Alaska's Economic Engines

For several decades, a handful of key industries have created the vast majority of employment opportunities, either directly or indirectly, by bringing "new" money to Alaska. These are oil and gas, federal spending (including defense), tourism, mining, timber, air cargo, and seafood. Large and small firms alike participate in these sectors, including Alaska Native Corporations.

**1.1. Ensure a stable and predictable regulatory, permitting, and tax structure for the development of natural resources**. Alaska is blessed with an abundance of natural resources as well as a track record of responsible development that preserves natural environments and improves the wellbeing of residents. A key priority for the state is that federal permitting and regulatory processes be efficient, timely, and well-coordinated when multiple agency involvement is required.

**1.2. Develop Alaska's North Slope natural gas and heavy oil for in-state and export markets.** Alaska's North Slope fields contain 35 trillion cubic feet of proven natural gas reserves, and a further 12 to 18 billion barrels of heavy oil-in-place. Despite energy-hungry domestic and international markets, these remain undeveloped resources.

**1.3. Improve access to facilitate the development of stranded resources and enable export to domestic and international markets**. Rich natural resource deposits are often found in remote areas far from existing transportation infrastructure. Through entities like the Alaska Industrial Development and Export Authority (AIDEA), public capital can leverage private investment to help grow economic opportunity.

**1.4. Expand exploration for, and production of, critical minerals in Alaska**. As of 2022, the U.S. Geological Survey has designated 50 minerals to be "critical minerals," which are vitally important to national interests. Several of these minerals, including rare earth elements, are known to exist in Alaska and could be developed to increase national resilience as well as economic growth in the state.

**1.5: Develop alternative, low-emission uses for existing natural resources**. As the global economy embraces the use of low- or zero-carbon fuel sources, hydrocarbons like oil and gas can continue to play a role. Potential use of Alaska natural gas for "blue" hydrogen production is one promising example.

**1.6. Attract new public and private investment in Alaska's defense sector**. The military has historically been a major driver of economic growth in Alaska and remains so today. The state's strategic position in the Arctic should be leveraged to strengthen and grow this Economic Engine, in part by establishing an Office of Military Commerce.

**1.7. Revitalize Alaska's forest products industry**. Alaska's forestry sector once provided thousands of jobs but is currently a fraction of its former self. A new model for forest products in the state should include a smooth transition to new growth timber harvest and other uses of forest resources that benefit local communities and the state economy.

**1.8. Leverage the state's international air cargo hub to grow new business opportunities**. Ted Stevens Anchorage International Airport is one of the world's busiest air cargo hubs. Industrial development at

the airport, as well as adjacent development at the Fairbanks International Airport, could produce thousands of high-paying jobs.

**1.9. Maximize the value of Alaska's seafood industry, and opportunities for resident employment**. The state's seafood industry is one of its largest employers, and a mainstay for coastal communities. Increasing the value of seafood products and easing barriers to entry are key priorities.

**1.10. Grow and develop Alaska as a world-class visitor destination.** Pandemic disruptions aside, visitation to Alaska has steadily grown for well over a decade, creating tens of thousands of jobs for Alaskans. The next five years should see further growth and expansion of visitor offerings.

## Goal 2. Cultivate and Grow Emerging Sectors

Emerging Sectors are economic activities with high potential to generate employment and income for Alaskans by earning out-of-state revenues or substituting imported goods or services. These are clusters or pre-clusters grounded in an understanding of Alaska's comparative advantages, in which the state's geography and embedded knowledge position firms to compete on a global scale.

**2.1. Accelerate the growth of mariculture production for shellfish, kelp, and aquatic plants.** Despite the growth potential of the mariculture industry in Alaska, work remains to support the continued growth of the industry. Stimulating activities could include conducting Research and Development (R&D) on potential products, developing the supply chain of hatcheries and processors, marketing, building financing programs, and designing efficiencies in regulatory and permitting processes.

**2.2. Develop an in-state aerospace sector based on space launches, unmanned aircraft, and aviation technology.** The aerospace sector is highly dependent on developed infrastructure to carry out business: launch sites, runways, and more are all important to a developed industry. Developing launch-specific infrastructure for rocket launches, tapping into Federal Aviation Administration (FAA) programs, and ensuring a qualified workforce to meet labor demand may all boost an already budding industry.

**2.3. Grow Alaska's agricultural output and value to increase food security, substitute for imported food, and develop export products.** The majority of Alaska's foods are imported. Activities which grow the share of food produced in-state increase the state's resiliency; furthermore, development of new agricultural products provides opportunities for export. Investment in cold storage and processing and agricultural support services would help to grow the industry. Policy revisions to cottage food laws provide another avenue to enable growth.

**2.4. Expand the maritime industrial sector to perform more boat and ship building and repair work in-state.** Investment in workforce and infrastructure are two critical components to enabling economic activity in the maritime industrial sector. Assessing workforce and infrastructure gaps, attracting private investment, constructing infrastructure such as haul outs, and utilizing creative financing options may boost the sector. In addition, focus should be placed on maximizing use of existing assets, like the Ketchikan Shipyard.

**2.5. Expand the capacity of Alaska's manufacturers to substitute imported products as well as expand to markets outside the state.** Just like with many spaces in the entrepreneurship ecosystem, training and technical assistance are important support services for growing the manufacturing capacity in the state. This includes assistance in product development, marketing, manufacturing techniques, and exporting.

**2.6. Position Alaska as a key processing location for critical minerals.** In addition to the presence of critical mineral ores, Alaska can develop processing and refining capacity, including for ores mined outside of the state. This would retain more economic impacts within the state than mining alone.

**2.7. Develop Alaska as a global center of clean, sustainable energy innovation to attract and grow innovative firms.** With extreme conditions and high cost of power juxtaposed against world-class energy resources, Alaska serves as a testbed for innovative clean, sustainable energy solutions. Alaska's participation in global-scale clean energy innovations (e.g. hydrogen hub and carbon capture, utilization, and storage hub) along with planning and policy revisions could enable rapid progress toward this goal. Deploying next generation energy solutions as legacy systems reach the end-of-life and utilizing partners to deploy pilot and demonstration projects also provides opportunities to build a reputation in the energy innovation space.

## Goal 3. A Strong Business Climate and Entrepreneurial Ecosystem

A thriving business community rests on a supportive environment that makes Alaska a good place to start and run a business. This section addresses the needs of small "main street" businesses as well as tech-savvy startups with aspirations of scalable growth. Alaska's economy needs both types to maintain the circulation of money in-state, and to spur the creation of new Economic Engines.

**3.1. Utilize the assets of the University of Alaska System to grow knowledge-economy firms in Alaska.** Universities are centers for knowledge transfer and can be utilized as a tool to stimulate entrepreneurial activity. Marketing and commercializing university intellectual property, developing instruction and internship opportunities around entrepreneurship, and aligning R&D with the state's Economic Engines and Emerging Sectors are all ways in which the university could encourage entrepreneurial growth.

**3.2. Ensure the availability of advising, training, and technical assistance services to small businesses.** A suite of organizations across Alaska support small businesses and startups. Ensuring continued funding and support for organizations secures continued provision of the services those organizations offer. Building awareness of workforce programs, like the DOLWD small business programs, is one example of ways to ensure alignment, mutual referrals, and coordination between business assistance providers.

**3.3. Increase the number of investable startup companies based in Alaska.** A healthy startup ecosystem has a dynamic mix of companies. High growth, investable startups are an important part of generating new economic value and diversification. Encouraging the development of these startups in Alaska is important.

**3.4. Ensure adequate access to capital for Alaska's small businesses and entrepreneurs.** To meet the financial needs of the diverse mix of businesses and business owners across Alaska a variety of tools are necessary. Implementing new loan and grant programs, increasing utilizations of the State's loan programs, growing access to microloans, expanding Alaska's angel investor community, and developing crowdfunding participation may improve access to capital.

**3.5. Enhance the digital competencies of Alaska's businesses and entrepreneurs.** In an increasingly digital world, the importance of digital competency is only growing. E-commerce trainings and cybersecurity technical assistance are two strategies which could improve business competency.

**3.6. Continue to support programs for rural business enterprises, minority, women-owned, and disadvantaged businesses.** Programs already exist to serve these populations across the state. Rural

business plan competitions and cohort-based business trainings throughout the state should be expanded and continued.

**3.7. Reduce the regulatory burden on small businesses and entrepreneurs.** State and local governments should formally evaluate various regulations to locate areas for simplification or streamlining to allow for easier compliance for small and young firms.

**3.8. Ensure a supportive business environment for startup companies.** Pursuing federal funding for entrepreneurial support organizations to provide local and online resources to entrepreneurs helps grow a network of resources. In addition, state and local governments can evaluate the use of procurement preferences for startup businesses.

**3.9. Promote Alaska's advantages as a place to do business.** The State of Alaska has a suite of brands and platforms at its disposal to market Alaska and Alaskan businesses. Programs like Made in Alaska, Alaska Grown, Silver Hand, and Travel Alaska build the Alaskan business brand. In addition, the state government can highlight the successes of Alaska startup companies on its communication channels.

## Goal 4. Build and Update Economic Foundations.

All economies require basic foundational assets in order to function and grow. These foundations include infrastructure, housing, recreational amenities, energy and other factors influencing living costs and quality of life. When these foundations are strong, they help to attract and retain human capital, and support the wellbeing of communities.

**4.1. Ensure access to broadband in all Alaska communities that meets an acceptable standard for speed, reliability, and affordability**. High costs and difficult geography have left Alaska lagging in terms of broadband access, quality, and costs, especially in rural areas. However, multiple federal funding programs promise to all but eliminate Alaska's digital gap in the next five years, bringing numerous ancillary economic benefits.

**4.2. Ensure the continuation of the Alaska Marine Highway System as a commercial artery for the communities of coastal Alaska.** The Marine Highway sustains coastal communities in the Southeast, Gulf Coast, and Southwest parts of the state. Maintaining and upgrading the system are important investments.

**4.3. Preserve the Bypass Mail Program, which has a significant beneficial impact for Rural Alaska families and businesses.** The federal Bypass Mail Program reduces the cost to transport food and basic necessities to Rural Alaska and must be maintained.

**4.4. Increase the supply of housing for urban and rural communities throughout Alaska**. High housing costs and low inventory likely contribute to labor shortages and outmigration rates that stunt economic growth. Community leaders around the state must find ways to reduce barriers to construction and incentivize home building.

**4.5. Upgrade and, where needed, expand port, harbor, and waterfront infrastructure**. Both coastal and inland communities in Alaska depend on efficient and well-functioning waterfront infrastructure to receive goods. Ports, harbors, and waterfronts must be updated, modernized, and, if appropriate, expanded to meet economic needs.

**4.6. Improve transportation infrastructure throughout Alaska to enable lower cost of living, provide better access to health care, support intercommunity commerce, and allow greater opportunities for educational interaction.** This includes airports, roads, rail, and marine linkages, which allow for the movement of people and goods reliably and affordably.

**4.7. Reduce the cost of energy for industrial and residential use through any realistic means throughout the state.** Alaska has some of the highest power costs and energy consumption in the U.S. Reducing these costs through efficiency improvements, transmission line upgrades, and low-cost power production would produce dividends for livability and industrial expansion alike.

**4.8. Strategically invest in recreational and quality of life amenities in Alaska communities.** Economically healthy communities are places where people want to live, work, and raise families. Recreational assets like trails and community spaces offer economic returns by attracting resident workers and visitors.

## Goal 5. Develop Alaska's Workforce and Human Capital

A healthy economy requires addressing workforce availability, education and training pathways, and other factors related to career skills and workforce readiness. A robust network that includes the University of Alaska—the most comprehensive provider of workforce training in the state—as well as tribal colleges, school districts, public and private training centers, and apprenticeship programs serve Alaska well. At the same time, human capital in the state faces serious constraints related to aging, outmigration, and limited childcare availability.

**5.1. Align and coordinate statewide workforce development efforts, and strengthen collaboration**. With such a wide variety of public, private, tribal, and nonprofit entities involved in workforce development, alignment of efforts is a constant challenge. Building up a "hub" entity will allow for greater efficiency in meeting the needs of workers and employers alike.

**5.2. Maximize the educational opportunities of Alaskans to prepare them for successful careers**. Like elsewhere, Alaska's economy is hungry for skilled workers. This means not only attainment of bachelor's or advanced degrees, but associate degrees, occupational certificates, apprenticeships, and foundational education (e.g. STEM) in K-12 programs. Supporting and growing educational opportunities in partnership with school districts, universities, state and local government, and the private sector will promote the further development of an Alaskan skilled workforce.

**5.3. Attract working-age individuals and families to Alaska to fill jobs we cannot fill from our existing workforce, and retain our existing workforce in-state**. Years of outmigration have squeezed Alaska's already-small labor pool. Strategic efforts to attract, as well as retain, workers could help to reverse this negative trend. This includes dedicated marketing programs and investments in quality of life in communities.

**5.4. Develop and expand opportunities for remote work in Alaska**. The rise of remote work presents an opportunity to attract telecommuters to choose Alaska as a place to live and contribute to the economic vitality of the state. Teleworking also offers opportunities for current residents to remain in place while pursuing career growth and high-paying employment.

**5.5. Expand the availability of quality, licensed childcare to enable greater workforce participation by parents of young children**. Limited childcare capacity and the presence of childcare "deserts" in Alaska

prevent many parents from working full-time. Strategies to increase the number of licensed providers would help ease the labor shortage.

**5.6. Implement the Alaska Workforce Innovation and Opportunity Act (WIOA) Combined Plan**. The WIOA Combined Plan guides the use of WIOA federal funds by the DOLWD. This CEDS supports its goals to: 1.) Build clear routes to careers and/or employment for all Alaskans, 2.) Support job opportunities, training opportunities, and career progression opportunities for all Alaskans, and 3.) Develop multiple pathways for statewide economic stability and job growth.

**5.7. Prepare Alaskans for job opportunities to be created by federally-funded infrastructure projects**. The Infrastructure Investment and Jobs Act will create thousands of jobs in Alaska, providing work opportunities but also straining the state's small labor pool. Quickly meeting the training needs of infrastructure workers will be essential to maximizing the economic benefit of the federal monies.

**5.8. Develop or update and implement workforce development plans centered around the needs of Alaska's Growth Engines, Emerging Sectors, and supporting industries**. Many current and proposed economic development efforts in Alaska center around key industry sectors that form Alaska's economic base. These efforts cannot succeed fully without addressing the workforce needs of these sectors.

**5.9. Prepare the Alaska workforce for job opportunities in low- and no-emissions energy technologies, such as electric vehicles, renewable energy systems, and other technologies**. As the energy transition toward renewables and electrification progresses, workforce development needs will also evolve. Dedicated efforts must be made to build training capacity in these areas, including funds available through the Infrastructure Investment and Jobs Act.

**5.10. Streamline and simplify regulatory processes to attract high value workforce**. In addition to continuing to improve and automate necessary regulatory processes, Alaska must continue to coordinate with other states on uniform qualification criteria to better enable the transition of high value workforce participants into the state.

## Goal 6. Build a Resilient Economy

Resiliency refers to the ability of an economy to avoid, withstand, or mitigate the effects of negative external events such as natural disasters, commodity price instability, or downturns. Recent years in Alaska have witnessed oil price swings, fisheries disasters, floods, earthquakes, severe storms, food supply chain interruptions, power outages, coastal erosion, cyber attacks, and the COVID-19 pandemic. The CEDS includes both proactive and responsive measures to plan for and reduce negative impacts.

**6.1. Develop a resiliency framework specifying roles, responsibilities, and resources to be utilized for economic recovery in the event of an external shock and to address persistent economic deficiencies.** The COVID-19 pandemic generated many opportunities for lessons learned around responding to economic shocks. Cooperation, pre-established organizational structures and systems, and program deployment promote business continuity and preparedness. In addition, ensuring that resiliency is part of the decision-making process for siting new commercial and industrial development implements a preventative measure in the planning process.

**6.2. Leverage Economic Engines and Emerging Sectors to promote the resiliency to supply chain disruptions, natural disasters, and external shocks.** Developing Alaska's in-state capacity to supply its own goods and services is one step toward addressing this. Examples include increasing local agriculture

production for food security, developing in-state timber resources for construction lumber and biomass energy, growing the manufacturing sector to provide self-sufficiency from imported products, and maturing in-state applications for mariculture products.

**6.3. Build new, and upgrade existing, infrastructure capable of withstanding resiliency shocks such as natural disasters.** This focuses on upgrading key transportation infrastructure and energy infrastructure. Energy reliability and transmission and broadband fiber redundancy projects, where feasible, ensure continued service. Diversifying energy sources and infrastructure also helps with continuity during power and communication interruptions including future deployment of micronuclear technology.

**6.4. Increase economic opportunity and self-sufficiency in Rural Alaska while preserving balance with subsistence lifestyle.** Economic diversity builds resilience. In Rural Alaska, depending on the community, promoting cultural tourism, assisting artists in marketing and selling crafts, providing e-commerce trainings, and supporting industrial and natural resource development may help residents diversify local economies.

# Goals and Objectives Detailed Matrix

## Goal 1: Strengthen Alaska's Economic Engines

For several decades, a handful of key industries have contributed the vast majority of employment opportunities, either directly or indirectly. These are oil and gas, federal spending (including defense), tourism, mining, timber, air cargo, and seafood. Large and small firms alike participate in these sectors, including Alaska Native Corporations.

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.1: Ensure a stable and predictable **regulatory, permitting, and tax structure** for the development of natural resources. | Coordinated, efficient, timely permitting needed at the federal level (strengthen "One Federal Decision" provisions across agencies). | x | x | x | x | x | x | Resource development projects advancing through a timely and predictable permitting process. | Governor's Office | Congressional delegation, industry associations |
| | Achieve federal recognition that Alaska is materially different from the contiguous 48 states, thus the provisions and guarantees under ANILCA. | x | x | x | x | x | | Increased natural resource development on federal lands. | Governor's Office | Congressional delegation, industry associations |
| | Develop strong messaging about responsible, socially beneficial natural resource development in Alaska for national audiences, including the importance of critical minerals to low emissions technologies and national security. | x | x | x | | | | Reduced obstacles to natural resource development. | Department of Commerce, Community, and Economic Development (DCCED) | Governor's Office, industry associations |
| 1.2: Develop Alaska's North Slope **natural gas and heavy oil** for in-state and export markets. | Attract private co-investment to build a natural gas pipeline and liquefaction facilities for export to the Lower 48 and abroad. | x | x | x | x | x | | Development of a natural gas line and export infrastructure. | Alaska Gasline Development Corporation (AGDC) | Governor's Office |
| | Where economically feasible, build infrastructure to supply natural gas to Alaska communities to reduce greenhouse gas emissions and energy costs. | x | x | x | x | x | x | Reduced energy costs and new industry revenues. | | AGDC, gas utilities, local governments |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| | Support research, pilot testing, development, and production of North Slope heavy oil using existing infrastructure. | x | x | x | x | x | | Extended lifespan for oil fields. | Alaska Development Team | Oil and gas producers, University of Alaska (UA), Department of Natural Resources |
| 1.3: Improve access to facilitate the **development of stranded resources** and enable export to domestic and international markets. | Complete the Ambler Mining District Industrial Access Project. | x | x | x | x | x | | Job opportunities and revenues for state and local government. | Alaska Industrial Development and Export Authority (AIDEA) | Northwest Arctic Borough, tribal governments, Doyon, Inc., NANA, Inc., village corporations, Ambler Metals |
| | Complete the West Susitna Access Project. | x | x | x | x | x | | Job opportunities and revenues for state and local government. | AIDEA | Natural resource developers, Mat-Su Borough, Alaska Department of Transportation and Public Facilities (DOT) |
| | Assess common infrastructure needs for industrial developments to access markets. | x | x | x | | | | Greater feasibility for industrial development. | AIDEA | Natural resource developers, local governments, DOT |
| | Support mutually beneficial land swaps between local governments, federal government, native corporations, and state government to encourage development and reduce conflict between surface and subsurface ownership. | x | x | x | x | x | | Increased possibilities for development. | | Local governments, tribal government, Alaska Native Corporations |
| 1.4: Expand exploration for, and production of, **critical minerals** in Alaska. | Work closely with federal agencies tasked with critical mineral surveys under IIJA. | x | x | x | x | x | | Increased possibilities for development. | | DCCED, AIDEA, Department of Natural Resources |
| | Attract private investment for critical mineral development in Alaska. | x | x | x | x | x | x | New investment in mineral development. | DCCED | AIDEA, Governor's Office, Alaska Regional Development Organizations (ARDORs), Economic Development Organizations (EDOs) |
| | Mining is a FAST-41 eligible sector. Facilitate access to program for strategic mine development. | X | x | x | x | x | | Streamlined permitting process. | | Governor's Office |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.5: Develop alternative, low emission uses for existing **natural resources**. | Pursue public and private investment to utilize North Slope natural gas to produce hydrogen fuel. | X | x | x | x | x | | Increased possibilities for development. | | Governor's Office, AGDC |
| | Continue R&D in the utilization of natural gas to produce hydrogen for world markets. | X | x | x | x | x | | Increased possibilities for development. | University of Alaska Fairbanks (UAF) | Governor's Office, AGDC |
| | Explore alternative uses for coal, such as gasification and hydrogen production. | X | x | x | x | x | | Increased possibilities for development. | | UA, mining companies |
| | Pursue carbon capture and sequestration to make existing resources cleaner. | X | x | x | x | x | | Increased possibilities for development. | | |
| | Develop and implement Hydrogen Roadmap for Alaska. | X | x | x | x | x | | Increased possibilities for development. | UAF | Governor's Office, AGDC, University of Alaska Center for Economic Development (UA CED), Alaska Center for Energy and Power |
| 1.6: Attract new public and private investment in Alaska's **defense sector**. | Establish an Office of Military Commerce to work with the defense sector. | x | x | x | | | | New federal and private investment. | Alaska Development Team | Department of Military and Veterans Affairs (DMVA), DCCED |
| | Advocate for the full implementation of the Department of Defense's Arctic Strategies for the U.S. Army, Air Force, and Navy, as well as the U.S. Coast Guard and Space Force. | x | x | x | x | x | | New federal and private investment. | Alaska Development Team | DMVA, Fairbanks North Star Borough (FNSB), Fairbanks Economic Development Corporation (FEDC), local governments, DCCED, Congressional delegation |
| | Secure the homeporting of icebreakers and Coast Guard cutters at Alaska ports. | x | x | x | x | x | | New federal and private investment. | | DMVA, local governments, DCCED, Congressional delegation |
| | Support basing decisions for 5th generation aircraft capabilities in Alaska. | x | x | x | x | x | x | New federal and private investment. | Alaska Development Team | DMVA, FNSB, FEDC, local governments, DCCED, Congressional delegation |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| | Identify remaining barriers to employment for military spouses by simplifying occupational licensing portability between states. | x | x | | | | | New federal and private investment. | Alaska Development Team and Division of Corporations, Business, and Professional Licensing (CBPL) | DMVA, FNSB, FEDC, local governments, DCCED, Congressional delegation, military installations |
| | Implement quality of life improvements for communities hosting defense installations, such as recreational trails and affordable housing. | x | x | x | x | x | x | New federal and private investment. | | DMVA, FNSB, FEDC, Anchorage Economic Development Corporation (AEDC), local governments, DCCED, Congressional delegation, military installations |
| | Work to develop/expand programs that help military service members enter Alaska's workforce at the end of their term of service (ex: Helmets to Hardhats). | x | x | x | x | x | x | Workforce expansion. | | DOLWD, UA, ARDORs, EDOs |
| | Support further opportunities for military defense/missile testing, unmanned aerial systems development, Arctic-wide information and communication systems, launch/access to space, cold climate military capability enhancement, and rapid deployment from the Arctic via road, rail, air, and sea. | x | x | x | x | X | | Technology-led economic growth. | Alaska Development Team | UA, military installations, Congressional delegation, defense firms, local governments |
| | Ensure Alaskan critical infrastructure and resources, such as North Slope Oil Fields and the Trans Alaska Pipeline System, are defended/ protected. | x | x | x | x | x | x | Avoidance of economic loss. | | Military installations, DMVA, local governments |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.7: Revitalize Alaska's **forest products** industry. | Bridge the transition from old growth to new growth harvest in the Tongass National Forest by offering consistent timber sales from state lands. (Goal of 25 million board-feet/year.) | x | x | x | x | x | x | Employment opportunities in timber. | Alaska Division of Forestry | Alaska Forest Association, Alaska Development Team, DCCED |
| | Implement the Spruce Root Sustainable Forest Products Industry Cluster initiative, to identify forest resources, establish processing infrastructure, and undertake R&D for sustainable harvesting and processing. | x | x | x | x | | | Sustainable employment opportunities. | Spruce Root/Sustainable Southeast Partnership | Southeast Conference, Division of Forestry, National Forest Service (NFS), DCCED |
| | Support access to other resources and uses in National Forests, such as hydroelectric development. | x | x | x | x | x | | Increased possibilities for development. | | Southeast Conference, Division of Forestry, NFS, DCCED, Alaska Development Team |
| | Encourage utilization of local timber to meet in-state lumber and biomass needs, including from beetle-killed spruce. | x | x | x | x | x | | Employment opportunities in timber. | | Division of Forestry, ARDORS, EDOs, DCCED, Alaska Development Team |
| 1.8: Leverage the state's international **air cargo hub** to grow new business opportunities. | Implement Anchorage Pacific Air-to-Sea Service (ANC PASS) as an intermodal freight route, connecting Ted Stevens Anchorage International Airport (TSAIA) to backhaul shipping through the Port of Alaska. | x | x | x | | | | Employment opportunities in logistics. | AEDC | Alaska Development Team, Ted Stevens Anchorage International Airport, Port of Alaska, logistics companies |
| | Attract maintenance, repair, overhaul (MRO) providers to TSAIA to service aircraft. | x | x | x | x | x | | Employment opportunities in aviation. | | AEDC, Alaska Development Team, Ted Stevens Anchorage International Airport, Port of Alaska, air carriers |
| | Expand cargo storage, cold storage, and sorting facilities. | x | x | x | x | x | | Employment opportunities in logistics. | | AEDC, Alaska Development Team, Ted Stevens Anchorage International Airport, Port of Alaska, air carriers |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| | Support international air cargo opportunities at Fairbanks International Airport. | x | x | x | x | x | | Employment opportunities in logistics. | | Alaska Development Team, Fairbanks International Airport, FNSB, FEDC |
| 1.9: Maximize the value of Alaska's **seafood industry**, and opportunities for resident employment. | Increase the commercial utilization of seafood by-products for new and existing markets | x | x | x | x | x | | Increased value added in-state. | | Alaska Fisheries Development Foundation, UAF Sea Grant, Alaska Blue Economy Center, ARDORs, EDOs, seafood processors |
| | Continue DCCED loan programs for the purchase of permits, vessels, and equipment as a "last resort" capital source. Increase the loan cap on DCCED vessel loans. | x | x | x | x | x | x | Increased participation in commercial fisheries. | DCCED | State Legislature, Governor's Office, United Fishermen of Alaska |
| | Assist small fisheries in rural areas in accessing buyers and markets. | x | x | x | x | x | x | Increased income for commercial fishers. | | UAF Sea Grant, DCCED, tribal governments, local governments |
| | Explore new product and species development with changing ocean conditions. | x | x | x | x | x | x | Increased income for commercial fishers. | | Alaska Department of Fish and Game (ADF&G), UAF Sea Grant, Alaska Fisheries Development Foundation |
| | Sustain seafood marketing efforts through the Alaska Seafood Marketing Institute (ASMI), including a shift to more domestic marketing efforts. | x | x | x | x | x | x | Increased income for commercial fishers. | Alaska Seafood Marketing Institute (ASMI) | DCCED |
| | Partner with travel industry to serve Alaska seafood at tourism venues (e.g., cruise ships, lodges, etc.) | x | x | x | x | x | | Increased income for commercial fishers. | ASMI | DCCED, Alaska Development Team, Seafood processors |
| | Advocate for greater issuance of H-2B guest worker visas by federal authorities. | x | x | | | | | Increased income for commercial fishers and processors. | | Seafood industry associations, seafood processors, Congressional delegation |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.10: Grow and develop Alaska as a world-class **visitor destination**. | Develop a Statewide Alaska Tourism Strategic Plan bringing together diverse stakeholders to engage in conversations and research which will result in a roadmap describing how Alaska's tourism industry can gain a competitive advantage as the sector recovers from COVID-19. | x | x | | | | | Sustainable growth for tourism industry. | | Alaska Travel Industry Association (ATIA), DCCED, convention and visitor bureaus, tourism businesses, local governments, tribal governments |
| | Invest in programs like Adventure Green Alaska, the state's only voluntary "green" certification program for the tourism sector. | x | x | x | x | x | x | Sustainable growth for tourism industry. | ATIA | DCCED, Alaska Development team, tourism businesses |
| | Expand railroad passenger facilities in rail-connected communities receiving cruise ships. | x | x | x | x | x | | Increased visitor spending. | Alaska Railroad | DCCED, Alaska Development Team, ARDORs, local governments |
| | Invest in a sustainable Alaska Marine Highway System (AMHS) as value-added transportation itinerary for travelers. | x | x | x | x | x | | Sustainable growth for tourism industry. | | AMHS, ATIA, DCCED, State Legislature, Governor's Office |
| | Develop new attractions and assets for visitors: visitor centers for State lands (e.g., South Denali Visitor Center Complex) | x | x | x | x | x | | Sustainable growth for tourism industry. | Alaska Division of Parks and Outdoor Recreation | State Legislature, Governor's Office |
| | Develop new attractions and assets for visitors: invest in one or more "long trails," including marine trails | x | x | x | x | x | | Increased visitor spending. | | State and federal land management agencies, local governments, tribal governments, Alaska Trails, outdoor advocacy nonprofits |
| | Develop new attractions and assets for visitors: invest in wayfinding and communication to support outdoor recreation-interested visitors | x | x | x | x | x | | Sustainable growth for tourism industry. | | State and federal land management agencies, local governments, tribal governments, Alaska Trails, outdoor advocacy nonprofits |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| | Develop new attractions and assets for visitors: streamline permitting processes across federal, state, and local agencies to improve ease of building new outdoor recreation assets or improving existing (building trails, boat launches, etc.) | x | x | x | x | x | | Sustainable growth for tourism industry. | Governor's Office | Congressional delegation, local governments |
| | Develop new attractions and assets for visitors: Cultural centers and cultural attractions | x | x | x | x | x | | Sustainable growth for tourism industry. | Alaska Native Heritage Center | Tribal governments, local governments, state and federal land management agencies |
| | Develop new attractions and assets for visitors: programs supporting small businesses and entrepreneurs to foster new tour products. | x | x | x | x | x | | Increased entrepreneurship in tourism. | | Alaska Small Business Development Center (SBDC), DCCED, ATIA |
| | Continue sustained funding for Alaska's statewide destination marketing brand and program: Travel Alaska through the ATIA. | x | x | x | x | x | x | Sustainable growth for tourism industry. | DCCED/ATIA | Governor's Office, State Legislature |
| | Attract new passenger service to develop "stopover" tourism similar to Iceland, with expedited customs and immigration processing. | x | x | x | x | x | | Sustainable growth for tourism industry. | Alaska Development Team | Ted Stevens Anchorage International Airport, Fairbanks International Airport, DCCED |
| | Advocate for greater issuance of J-1 guest worker visas by federal authorities. | x | x | | | | | Expansion capacity for tourism businesses. | | ATIA, convention and visitor bureaus, tourism businesses, Congressional delegation |
| | Continue to expand opportunities in winter and shoulder-season tourism. | x | x | x | x | x | x | Sustainable growth for tourism industry. | | ATIA, DCCED, convention and visitor bureaus, tourism businesses, local governments, tribal governments |
| | Expand opportunities in Alaska Native cultural tourism. | x | x | x | x | x | x | Sustainable growth for tourism industry. | Alaska Native Heritage Center | ATIA, DCCED, convention and visitor bureaus, tourism businesses, local governments, tribal governments |

*Table 3: Goal 1 Objective Matrix*

## Goal 2: Cultivate and Grow Emerging Sectors

Emerging Sectors are economic activities with high potential to generate employment and income for Alaskans by earning out-of-state revenues or substituting imported goods or services. These are clusters or pre-clusters grounded in an understanding of Alaska's comparative advantages, in which the state's geography and embedded knowledge position firms to compete on a global scale.

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| 2.1: Accelerate the growth of **mariculture** production for shellfish, kelp, and aquatic plants. | Conduct R&D to develop new products from shellfish, kelp, and aquatic plants grown in Alaska (e.g., food, feed/fertilizer, bioplastics, nutraceuticals). | x | x | x | | | | Commercialization of products and development of new businesses in the mariculture supply chain. | University of Alaska (UA), University of Alaska Fairbanks (UAF) Sea Grant | |
| | Implement the Alaska Mariculture Cluster initiative led by Southeast Conference. | x | x | x | x | x | | Expansion of aquatic farms with reduced operational barriers and barriers to entry for new farms. | Southeast Conference | Prince William Sound Economic Development District (PWSEDD), Kenai Peninsula Economic Development District (KPEDD), Southwest Alaska Municipal Conference (SWAMC), State of Alaska (SoA), Central Council of the Tlingit and Haida Indian Tribes of Alaska, Alaska Mariculture Alliance, Alaska Fisheries Development Foundation, UA, Alaska Blue Economy Center, Alaska Longline Fishermen's Association |
| | Perform concierge services to assist aquatic farms with regulations, permits, and access to capital. | x | x | x | x | | | Increased number of aquatic farms permitted and reduced time from application to permit granted. | Alaska Development Team | Alaska Department of Fish and Game (ADF&G), Alaska Mariculture Alliance, Alaska Fisheries Development Foundation |
| | Simplify the permitting process for aquatic farms and establish timeframes for approval. | x | x | | | | | Increased number of aquatic farms permitted and reduced time from application to permit granted. | ADF&G | Alaska Mariculture Alliance, Alaska Fisheries Development Foundation |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| | Assess the potential for new financial programs to support mariculture firms through Alaska Industrial Development and Export Authority (AIDEA) an Alaska Department of Commerce, Community, and Economic Development (DCCED). | x | x | x | | | | Expanded financing options for aquatic farm startups and better access to working capital. | Alaska Development Team | AIDEA, DCCED, Alaska Mariculture Alliance, Alaska Fisheries Development Foundation |
| | Develop hatcheries, processing facilities, and marketing assistance for mariculture products and producers. | x | x | x | x | x | x | Increased aquatic farm sales and revenue. | Alaska Mariculture Alliance | Alaska Fisheries Development Foundation |
| | Evaluate potential of kelp farms for carbon capture. | x | x | x | x | | | Developing framework for kelp farmers to participate in carbon capture and sequestration market. | UA | UAF Sea Grant, Alaska Mariculture Alliance |
| 2.2: Develop an in-state **aerospace sector** based on space launches, unmanned aircraft, and aviation technology. | Develop launch-specific infrastructure to support additional rocket launches from Alaska, such as low earth orbit launches. | x | x | x | x | x | x | Increased launches from Pacific Space Port. | Alaska Aerospace Corporation | DCCED, Alaska Development Team, UA Geophysical Institute |
| | Work with the FAA to pilot a NextGen National Airspace System integration project. | x | x | x | x | | | | | Federal Aviation Administration |
| | Grow aerospace instructional programming at the University of Alaska Fairbanks (UAF) and University of Alaska Anchorage. | x | x | x | x | x | | Expansion of aerospace workforce with pathways from training programs to local jobs. | UA | |
| 2.3: Grow Alaska's **agricultural output** and value to increase food security, substitute for imported food, and develop export products. | Increase production and export of Alaska grown products, such as cut flowers including peonies. | x | x | x | x | x | x | Increased peony farms revenues and sales. | Alaska Peony Growers Association | Alaska Peony Cooperative, Alaska Grown, Certified American Grown, Western United States Agriculture Trade Association, Association of Specialty Cut Flower Growers, Society of American Florists, Alaska Division of Agriculture |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| | Increase the share of food grown in-state for local consumption to increase food security. | x | x | x | x | x | x | Growth in farm sales and acreage of farmland. | Alaska Farm Bureau | Alaska Division of Agriculture, US Division of Agriculture (USDA), Alaska Farmland Trust, Alaska Farmers Market Association, UA Cooperative Extension Service |
| | Expand state support for local agriculture operations (i.e., testing and certification to allow products to be sold to the public). | x | x | x | x | | | Growth in local farm products sold in state. | Alaska Division of Agriculture | USDA, UA Cooperative Extension Service |
| | Develop cold storage and processing facilities in local communities for use by farmers. | x | x | x | x | x | x | Expanded availability of local agriculture products in communities. | | |
| | Increase threshold for cottage food laws from $25,000 per year to $50,000. | x | x | | | | | Expansion of small-scale food product producers. | Alaska Division of Environmental Health | |
| | Increase procurement of Alaska-sourced food to state agencies, nursing homes, hospitals, schools, prisons, etc. | x | x | x | x | x | | Increased revenue opportunities for local food products. | DCCED | Alaska Grown Program |
| | Invest in the University of Alaska's Cooperative Extension Service as a resource for agriculture and natural resources. | x | x | x | x | x | x | Expand support services for local food producers, reducing barriers to entry and risk. | SoA | UA |
| | Partner with travel industry to serve Alaska-grown agricultural products at tourism venues (e.g., cruise ships and lodges). | x | x | x | x | x | x | Increased revenue opportunities for local food products. | DCCED | Alaska Grown Program, Alaska Travel Industry Association (ATIA) |
| 2.4: Expand the **maritime industrial sector** to perform more boat and ship building and repair work in-state. | Assess infrastructure and workforce gaps constraining the ability of in-state providers to service more vessels. | x | | | | | | Identify workforce gaps to better design and implement training programs. | University of Alaska | DCCED, Alaska Department of Labor and Workforce Development (DOLWD), SWAMC, Southeast Conference, KPEDD, PWSEDD |
| | Attract private investment to Alaska's shipyards and marine industrial sites. | x | x | x | x | x | x | Update of infrastructure and expanded maritime services. | | |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| | Construct waterfront infrastructure such as haul outs and sheltered work areas to enable year-round maintenance on marine vessels. | x | x | x | x | x | x | Expansion of year-round business opportunities for maritime businesses. | | |
| | Utilize AIDEA's AK SHIP financing program to increase in-state opportunities for marine industrial businesses. | x | x | x | x | x | x | Growing access to infrastructure financing and working capital for businesses and communities. | AIDEA | Vigor Alaska |
| | Evaluate Ketchikan Shipyard for highest and best use and return on investment. | x | x | x | | | | Identify and act on business opportunities for shipyard. | AIDEA | Vigor Alaska |
| 2.5: Expand the capacity of Alaska's **manufacturers** to substitute imported products as well as expand to markets outside the state. | Provide training and technical assistance to manufacturers through the Alaska Manufacturing Extension Partnership (MEP). | x | x | x | x | x | x | Grow ecosystem of manufacturer and assistance providers, serving a growing number of Alaska manufacturers. | MEP | UA, University of Alaska Anchorage (UAA) Business Enterprise Institute (BEI), National Institute of Standards and Technology, Northrim Bank |
| | Assist entrepreneurs, start-ups, and existing businesses in assessing and creating a broad range of products suitable in Alaska for manufacturing, marketing, and exporting. | x | x | x | x | x | x | Grow ecosystem of manufacturer and assistance providers, serving a growing number of Alaska manufacturers. | MEP | UA, UAA BEI |
| | Develop new value-added food products such as shelf-stable barley flour. | x | x | x | x | x | x | Develop new products for consumption in state and export. | MEP | Alaska Farm Bureau, Alaska Division of Agriculture |
| | Identify barriers and opportunities in trade agreements. | x | x | x | | | | Grow the value of Alaska exports. | State of Alaska | |
| 2.6: Position Alaska as a key processing location for **critical minerals**. | Establish a processing facility for rare earth oxides and other critical mineral ores utilizing in-state and allied feedstock. | x | x | x | x | x | x | Provide a platform for domestic processing and grow the opportunities for Alaska critical mineral mining. | Alaska Development Team | AIDEA, Ucore Rare Metals |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| 2.7: Develop Alaska as a global center of clean, sustainable **energy innovation** to attract and grow innovative firms. | Adopt a clean energy portfolio standard that targets 80% clean energy while simultaneously reducing energy costs for users in the Railbelt by 2040. | x | | | | | | Lower cost of energy across Alaska while incentivizing the growth of the energy innovation sector in Alaska. | Governor's Office | Renewable Energy Alaska Project (REAP) |
| | Deploy next generation renewable energy solutions throughout rural Alaska as legacy systems reach end of useful life. | x | x | x | x | x | x | Lower cost of energy across Alaska while incentivizing the growth of the energy innovation sector in Alaska. | Alaska Energy Authority (AEA) | Alaska Center for Energy and Power (ACEP), Launch Alaska, Alaska Power Association |
| | Execute pilot and demonstration projects for energy technology through entities such as AEA, Launch Alaska, and the National Laboratories. | x | x | x | x | x | x | Lower cost of energy across Alaska while incentivizing the growth of the energy innovation sector in Alaska. | AEA | ACEP, Launch Alaska |
| | Deploy clean energy sources such as geothermal, tidal, and microreactors. | x | x | x | x | x | x | Lower cost of energy across Alaska while incentivizing the growth of the energy innovation sector in Alaska. | AEA | ACEP, Launch Alaska |
| | Conduct and implement a statewide strategic plan for energy development. | x | x | | | | | Lower the cost of energy across Alaska and revitalize Alaska's energy infrastructure. | AEA | ACEP, Launch Alaska, REAP, Alaska Power Association |
| | Conduct a study on state level energy incentives programs across the U.S. with a goal of expanding energy incentive programs in Alaska. | x | x | | | | | Lower the cost of energy across Alaska and revitalize Alaska's energy infrastructure. | AEA | State of Alaska, Launch Alaska |
| | Support the establishment of an Alaska Hydrogen Hub and an Alaska Carbon Capture, Utilization and Storage (CCUS) Hub. | x | x | x | x | x | | New commercial opportunities in Alaska. | Alaska Development Team | AEA, Governor's Office, Congressional delegation |

*Table 4: Goal 2 Objective Matrix*

## Goal 3: A Strong Business Climate and Entrepreneurial Ecosystem

A thriving business community requires a supportive environment that makes Alaska a good place to start and run a business. This section addresses the needs of small "main street" businesses as well as tech-savvy startups with aspirations of scalable growth. Alaska's economy needs both types to maintain the circulation of money in-state, and to spur the creation of new Economic Engines.

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| 3.1: Utilize the assets of the **University of Alaska** System to grow knowledge-economy firms in Alaska. | Market and commercialize intellectual property generated from university research. | x | x | x | | | | Grow university IP and increase commercialization activity. | University of Alaska (UA) | University of Alaska Anchorage (UAA) Business Enterprise Institute (BEI), University of Alaska Fairbanks (UAF) Center for Innovation, Commercialization, and Entrepreneurship (Center ICE), UA intellectual property offices, University of Alaska Center for Economic Development (UA CED) |
| | Provide credit and non-credit instruction and internship opportunities allowing students to explore entrepreneurship. | x | x | x | x | x | x | Robust internship opportunities available to students and expansion of entrepreneurship programs available at university. | UA | UA CED, UAF Center ICE, UA Business Schools/Colleges |
| | Align university research with the R&D needs of Economic Engines and Emerging Sectors, especially in energy, Arctic technologies, resource development, ocean sciences, health technologies, biosciences, and aerospace. | X | x | x | x | x | x | Grow university IP and increase commercialization activity. | UA | UAA BEI, UAF Center ICE, UA intellectual property offices, Alaska Blue Economy Center, UAF ACUASI |
| 3.2: Ensure the availability of **advising, training, and technical assistance** services to small businesses. | Maintain state, federal, and private sector investment in the Alaska Small Business Development Center (SBDC), Procurement Technical Assistance Center (PTAC), Manufacturing Extension Partnership (MEP), and other programs of the UAA BEI. | X | x | x | x | x | x | Continued operation of business and startup support programing. | UAA BEI | UAA BEI, SBDC, PTAC, MEP, UA CED, U.S. Economic Development Administration, U.S. Small Business Administration (SBA) |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| | Support Community Development Financial Institutions (CDFIs) and similar entities providing credit and training to small businesses. | x | x | x | x | x | x | Growth in investment in historically underserved entrepreneurship populations. | | CDFIs, Spruce Root, Alaska Growth Capital, Anchorage Community Land Trust, SBA, SBDC |
| | Spread awareness of the Department of Labor and Workforce Development's (DOLWD) workforce programs for small businesses. | x | x | x | x | x | x | Increased usage of DOLWD's programs and services. | DOLWD | SBDC, UAA BEI, Alaska Regional Development Organizations (ARDORs), Economic Development Organizations (EDOs) |
| | Ensure alignment, mutual referrals, and coordination between business assistance providers. | x | x | x | x | x | | Continued support and expansion of the entrepreneurship ecosystem. | | Entrepreneurial Support Organizations (ESOs), ARDORs, EDOs, Department of Commerce, Community, and Economic Development (DCCED), Alaska Development Team, local governments |
| 3.3: Increase the number of investible **startup companies** based in Alaska. | Grow the capacity of new and existing startup accelerator programs to serve more entrepreneurs. | x | x | x | x | x | | Increase in the number of startups and businesses served annually. | | UA CED, 49th State Angel Fund (49SAF), Fairbanks Economic Development Corporation (FEDC) ARDORs, EDOs, UAF Center ICE |
| | Expand the technical assistance offerings available to high potential, high-growth startups. | X | x | x | x | x | | Increase the number of investable, high growth startups. | | ARDORs, EDOs, SBDC, UAF Center ICE |
| | Create more opportunities for catalytic events such as sprints or Startup Weekends which encourage shared entrepreneurial learning and networking. | X | x | x | x | x | | Grow the number of startups and strength connections across industries and the entrepreneurship ecosystem. | | UA CED, UAA BEI, UAF Center ICE |
| | Develop a research and development tax credit (credit against income) to incentivize the formation of new companies and valuable intellectual property. | x | x | x | | | | Increase the use of intellectual property and commercialization. | | Governor's Office, State Legislature |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| 3.4: Ensure adequate **access to capital** for Alaska's small businesses and entrepreneurs. | Implement the Alaska SBDC's tribal and small business financing programs funded by the U.S. Treasury's State Small Business Credit Initiative (SSBCI). | x | x | x | | | | Increase funding opportunities for small businesses. | SBDC | UAA BEI, DCCED, ARDORs, EDOs, Alaska Development Team |
| | Increase utilization of DCCED business loan programs and the Alaska Industrial Development and Export Authority (AIDEA) Loan Participation program. | x | x | x | x | x | | Increase funding opportunities for small businesses. | DCCED/AIDEA | SBDC, ARDORs, EDOs, commercial lenders |
| | Increase the availability of microloans, especially in underserved areas. | x | x | x | x | x | | Increase funding opportunities for rural businesses, Native-owned businesses, and other minority-owned businesses. | | CDFIs, SBDC, DCCED, ARDORs, EDOs, commercial lenders |
| | Increase the use of Alaska's Intrastate Crowdfunding for innovative businesses. | x | x | x | x | x | x | Grow the number of businesses utilizing crowdfunding in Alaska. | DCCED | 49th State Angel Fund (49SAF), CDFIs, SBDC, Juneau Economic Development Corporation (JEDC), FEDC, UAF Center ICE, ARDORs |
| | Create Entrepreneurial Capital Catalyst Grants to invest in starting and restarting high growth-potential businesses underserved by the capital marketplace. | x | x | x | x | | | Build program and expand financing opportunities for potentially non-traditional businesses. | | 49SAF, CDFIs, SBDC, JEDC, FEDC, UAF Center Ice, UA CED |
| | Increase participation in Alaska's angel investor community to meet the capital needs of high growth-potential startups. | x | x | x | x | x | x | Develop robust participation in the Alaska angel investor community. | | 49SAF, SBDC, JEDC, FEDC, UAF Center ICE, Alaska Investor Network |
| | Centralize navigation of financing programs for entrepreneurs and businesses. | x | x | x | | | | Ease access to financing programs for entrepreneurs seeking funding. | | CDFIs, UA CED, SBDC, SBA, commercial lenders |
| 3.5: Enhance the **digital competencies** of Alaska's businesses and entrepreneurs. | Provide e-commerce trainings and resources for all communities, especially those newly connected to broadband utilizing Digital Equity Act funding. | x | x | x | x | x | | Increase technical capacity of small businesses in Alaska. | | ACLT, Spruce Root, ARDORs, EDDs, ESOs, BEI, UA CED, UAF Center ICE |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| | Provide cybersecurity technical assistance to businesses, especially those contracting with the federal government. | X | x | x | x | x | | Increase technical capacity of small businesses in Alaska. | | SBDC, PTAC, MEP, UA CED |
| 3.6: Continue to support programs for **rural business enterprises, minority, women-owned, and disadvantaged businesses**. | Continue and expand rural business plan competitions and cohort-based business trainings throughout the state. | x | x | x | x | x | | Grow the number of rural, women-owned, minority-owned, and disadvantaged businesses in Alaska. | | ESOs, ARDORS, EDOs, ACLT, Spruce Root, BEI, SBDC, UA CED |
| 3.7: Reduce the **regulatory burden** on small businesses and entrepreneurs. | Formally evaluate state regulations to locate areas for simplification or streamlining. | x | x | x | x | | | Lower startup and operation costs and ease operational burdens. | | DCCED, Alaska Development Team, ARDORs, EDOs |
| 3.8: Ensure a **supportive business environment** for startup companies: | Pursue federal funding for entrepreneurial support organizations that provide local and online resources to entrepreneurs. | x | x | x | x | x | x | Grow business and entrepreneurship support services. | | UA CED, UAA BEI, UAF Center ICE |
| | Evaluate the use of procurement preferences for startup businesses in state and local government procurement. | x | x | x | | | | Grow state and local government investment in the goods and services provided by local businesses. | | DCCED, Alaska Development Team, ARDORs, EDOs, local governments |
| 3.9: Promote Alaska's advantages as a **place to do business**. | Support programs like Made in Alaska, Alaska Grown, Silver Hand, and Travel Alaska. | x | x | x | x | x | | Grow recognition of Alaskan businesses and startups. | | DCCED, Division of Agriculture, Governor's Office, State Legislature |
| | Highlight Alaska startup companies on state government communication channels. | x | x | x | x | x | | Grow recognition of Alaskan businesses and startups. | | DCCED, Alaska Development Team |
| | Create an online marketplace for Made in Alaska. | x | x | x | | | | Grow recognition and value of made in Alaska products. | DCCED | MEP, SBDC, Alaska Development Team |

*Table 5: Goal 3 Objective Matrix*

## Goal 4: Build and Update Economic Foundations

All economies depend on basic foundations in order to function and grow. These foundations include infrastructure, housing, recreational amenities, energy, and other factors influencing living costs and quality of life. When these foundations are strong, they help to attract and retain human capital, and support the wellbeing of communities.

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| 4.1: Ensure **access to broadband** in all Alaska communities that meets an acceptable standard for speed, reliability, and affordability. | Develop a plan to maximize the value of broadband funds coming to Alaska under Broadband Equity, Access, and Deployment (BEAD) Program, Digital Equity Act (DEA) and other federal sources. | x | | | | | | Eliminating the connectivity gap in Alaska. | Alaska Broadband Office | Department of Commerce, Community, and Economic Development (DCCED), Alaska Development Team, Alaska Telecom Association, local governments, tribal governments, telecom companies, Alaska Regional Development Organizations (ARDORs), Economic Development Organizations (EDOs) |
| | Establish and fully staff the State of Alaska Office of Broadband. | x | | | | | | Eliminating the connectivity gap in Alaska. | DCCED | Governor's Office |
| | Build middle and last mile broadband infrastructure to increase access and reduce costs in unserved and underserved areas. | x | x | x | x | x | | Eliminating the connectivity gap in Alaska. | Alaska Broadband Office | DCCED, Alaska Development Team, Alaska Telecom Association, local governments, tribal governments, telecom companies, ARDORs, EDOs |
| | Utilize funding under the Digital Equity Act to close the digital divide and promote equity and digital inclusion. | x | x | x | x | x | | Eliminating the connectivity gap in Alaska. | Alaska Broadband Office | DCCED, Alaska Telecom Association, local governments, tribal governments, telecom companies, ARDORs, EDOs |
| | Connect tribal communities to affordable broadband through the Tribal Broadband Connectivity Program as well as other state and federal programs. | x | x | x | x | x | | Eliminating the connectivity gap in Alaska. | Alaska Broadband Office | DCCED, Alaska Telecom Association, local governments, tribal governments, telecom companies, ARDORs, EDOs |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| | Invest in redundancy to maintain internet connectivity when feasible to continue service during interruptions. (See Goal 4) | x | x | x | x | x | | Avoidance of service disruptions. | | Alaska Broadband Office, local governments, tribal governments, telecom companies, ARDORs, EDOs |
| 4.2: Ensure the continuation of the **Alaska Marine Highway System** as a commercial artery for the communities of coastal Alaska. | Maintain passenger service to coastal communities. | x | x | x | x | x | x | Maintaining commercial linkages. | Alaska Marine Highway System (AMHS) | Governor's Office, State Legislature, Southeast Conference, ARDORs |
| | Utilize the system to transport freight to reduce logistics costs. | x | x | x | x | x | | Reduced cost of freight. | AMHS | DCCED, local governments |
| | Reduce system costs by building docks meeting AMHS vessel requirements. | x | x | x | x | x | | Maintaining commercial linkages. | | AMHS, Alaska Department of Transportation and Public Facilities (DOT), local governments |
| 4.3: Preserve the **Bypass Mail Program**, which has a significant beneficial impact for Rural Alaska families and businesses. | Preserve the Bypass Mail Program, which has a significant beneficial impact for Rural Alaska families and businesses. | x | x | x | x | x | x | Maintaining access to goods. | | Congressional delegation, tribal governments, local governments |
| 4.4: Increase the **supply of housing** for urban and rural communities throughout Alaska. | Assess the potential for local government tax exemptions to incentivize developers to build more housing. | x | x | | | | | Increasing supply of worker-affordable housing. | University of Alaska Center for Economic Development (UA CED) | State Legislature, Governor's Office, Alaska Municipal League, Alaska Housing Finance Corporation (AHFC) |
| | Examine and, when needed adjust existing zoning laws and permitting processes with the goal of reducing barriers to constructing economical housing. | x | x | | | | | Increasing supply of worker-affordable housing. | | Alaska Municipal League, local governments, UA CED |
| | Assess reforms to Title 29 statutes limiting local governments' ability to offer voluntary tax exemptions. | x | x | | | | | Increasing supply of worker-affordable housing. | UA CED | State Legislature, Governor's Office, Alaska Municipal League |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| | Evaluate and apply lessons from Alaska Industrial Development and Export Authority (AIDEA)'s current master plan development for military housing in the Fairbanks North Star Borough (FNSB). | x | x | x | x | x | | Increasing supply of worker-affordable housing. | UA CED | AIDEA, Alaska Development Team, Alaska Municipal League, FNSB, Fairbanks Economic Development Corporation (FEDC), ARDORs, EDOs, AHFC |
| | Proactively plan for housing expansion in communities where large industrial expansion is planned (for example, the Nome deep-water port). | x | x | x | x | x | x | Increasing supply of worker-affordable housing. | | Local governments, DCCED, AHFC, AIDEA |
| | Evaluate potential powers for local governments to develop abandoned property. | x | x | | | | | Increasing supply of worker-affordable housing. | | Local governments, Governor's Office, State Legislature |
| 4.5: Upgrade and, where needed, expand **port, harbor, and waterfront infrastructure**. | Assist coastal communities in expanding harbor capacity where demand is sufficient. | x | x | x | x | x | | Strengthening fisheries and maritime commerce. | | Local governments, tribal governments, DOT, Alaska Municipal Bond Bank, Governor's Office, State Legislature |
| | Upgrade aging coastal infrastructure. | x | x | x | x | x | | Maintaining commercial linkages and access to goods. | | DOT, Port of Alaska, local governments, Governor's Office, State Legislature, ARDORs, EDOs |
| | Utilize IIJA funds to improve all aspects of port and harbor infrastructure. | x | x | x | x | x | | Maintaining commercial linkages and access to goods. | | DOT, local governments, Governor's Office, State Legislature, ARDORs, EDOs |
| | Expand electrification of docks for cruise industry and other large commercial vessel operators. | x | x | x | x | x | | Maintaining commercial linkages and access to goods. | | DOT, local governments, Governor's Office, State Legislature, ARDORs, EDOs, Alaska Energy Authority (AEA), electric utilities |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| 4.6: Reduce the **cost of energy** for industrial and residential use through any realistic means throughout the state. | Build natural gas infrastructure to increase the supply of natural gas to the Interior, leveraging public and private investment. | x | x | x | x | x | x | Reduce the cost of energy. | Alaska Gasline Development Corporation (AGDC) | FNSB, Interior Gas Utility, AIDEA |
| | Where feasible, install renewable energy systems such as wind, tidal, geothermal, and solar to reduce power costs in rural areas. | x | x | x | x | x | x | Reduce the cost of energy. | AEA | Electric utilities, local governments, tribal governments, Alaska Center for Energy and Power (ACEP) |
| | Use industrial access roads and bulk purchasing power to supply low-cost fuel to rural communities located near natural resource development sites. | x | x | x | x | x | | Reduce the cost of energy. | AIDEA | Local governments, tribal governments, Alaska Native Corporations |
| | Expand transmission lines to connect outlying communities to the Railbelt (or other regional) grids wherever a cost-benefit analysis indicates a positive value. | x | x | x | x | x | | Reduce the cost of energy. | AEA | Local government, tribal governments, electric utilities |
| | Utilize federal infrastructure funds to retrofit commercial and industrial buildings for greater efficiency. | x | x | x | x | x | | Reduce the cost of energy | | AEA, AHFC, DCCED |
| | Build new, and upgrade existing hydroelectric facilities to provide low cost, low emissions power. | x | x | x | x | x | | Reduce the cost of energy. | | AEA, electric utilities, local governments, tribal |
| | Fully implement Commercial Property Assessed Clean Energy (CPACE) financing to help commercial building owners increase energy efficiency and reduce costs at the local government level. | x | x | | | | | Reduce the cost of energy. | | AEA, local governments, commercial lenders |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| | Establish a green bank to finance energy efficiency projects in partnership with the private sector. | x | x | | | | | Reduce the cost of energy. | | AEA, AIDEA, commercial lenders, local governments, Renewable Energy Alaska Project (REAP) |
| | Increase the reimbursement for Power Cost Equalization (PCE) from 500 kWh to 750 kWh. | x | x | | | | | Reduce the cost of energy. | AEA | Governor's Office, State Legislature |
| | Upgrade Railbelt transmission lines to increase transmission capacity, per announced $200 million capital plan. | x | x | x | x | x | | Reduce the cost of energy. | AEA | Electric utilities, |
| 4.7: Improve **transportation infrastructure** between communities throughout Alaska to enable lower cost of living, provide better access to health care, support intercommunity commerce, and allow greater opportunities for educational interaction. | Secure IIJA and other federal funds to build and upgrade air, road, rail, and marine infrastructure. | x | x | x | x | x | | Maintaining commercial linkages and access to goods. | DOT | Local governments, tribal governments, Governor's Office, ARDORs, EDOs |
| 4.8: Strategically invest in **recreational and quality of life amenities** in Alaska communities. | Promote downtown revitalization in urban communities. | x | x | x | x | x | | Workforce attraction and retention. | | Local governments, ARDORs, EDOs |
| | Build hiking, bicycle, and motorized trails within and between communities around the state. | x | x | x | x | x | | Workforce attraction and retention. | | Local governments, ARDORs, EDOs, outdoor advocacy groups, public land management agencies |

*Table 6: Goal 4 Objective Matrix*

## Goal 5: Develop Alaska's Workforce and Human Capital

A healthy economy depends on addressing workforce development, education, and other factors related to career skills and workforce availability. A robust network that includes the University of Alaska—the most comprehensive provider of workforce training in the state—as well as tribal colleges, school districts, public and private training centers, and apprenticeship programs serve Alaska well. At the same time, human capital in the state faces serious constraints related to aging, outmigration, and limited childcare availability.

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.1: **Align and coordinate** statewide workforce development efforts and strengthen collaboration. | Strengthen the Alaska Workforce Investment Board (AWIB) under the Department of Labor and Workforce Development (DOLWD) to serve as a "hub" to coordinate and align workforce development efforts in close collaboration with other public, private, and nonprofit entities. | x | x | x | x | | | Improved access to services for workers and employers. | DOLWD | University of Alaska (UA), training providers, unions, employers, K-12 system |
| | Develop and maintain an accessible inventory of all public and private training programs in the state and ensure connectivity and mutual referrals. | x | x | | | | | Greater utilization of training programs. | | UA, training providers, unions, employers, K-12 system |
| | Identify and fill gaps in the workforce ecosystem by creating new programming to serve high-need occupations. | x | x | x | x | x | x | Greater workforce availability in high growth fields. | DOLWD | UA, training providers, unions, employers, K-12 system |
| | Provide online tools and resources to help individuals assess occupations and locate specific training requirements and providers. | x | x | x | x | x | x | Greater utilization of training programs. | DOLWD | UA, training providers, Alaska Regional Development Organizations (ARDORs), economic development organizations (EDOs) |
| 5.2: Maximize the **educational opportunities** of Alaskans to prepare them for successful careers. | Sustain and grow investment in the University of Alaska System and its offerings in pre-college programs, certificates and degrees, and professional development. | x | x | x | x | x | x | A higher-skilled workforce with greater earning potential. | UA | Governor's Office, State Legislature |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| | Sustain and grow investment in regional post-secondary training centers such as Alaska Vocational Technical Center (AVTEC). | x | x | x | x | x | x | A higher-skilled workforce with greater earning potential. | DOLWD | Training centers, K-12 system, Department of Education and Early Development (DEED) |
| | Sustain and fully fund K-12 education for all Alaskans, including career guides to expand awareness and strengthen secondary students' ability to transition into postsecondary pathways that lead to employment in good jobs. | x | x | x | x | x | x | A higher-skilled workforce with greater earning potential. | DEED | Governor's Office, State Legislature, DOLWD, school districts |
| | Utilize the collective voice of the statewide and regional partners to advocate for policies that will increase access to upskilling and reskilling Alaskans for employment and career advancement, and to retain a productive workforce. | x | x | x | x | x | | Responsive training programs that meet high demand quickly. | | |
| | Expand apprenticeships, pre-apprenticeships, and work-based learning pathways to expedite skill development for entry level employment. | x | x | x | x | x | | A higher-skilled workforce with greater earning potential. | DOLWD | Unions, employers, training providers |
| | Support STEM education activities at the K-12 level, such as coding academies, robotics, artificial intelligence, and others. | x | x | x | x | x | x | A higher-skilled workforce with greater earning potential. | | School districts, DEED, University of Alaska, technology firms (e.g. Apple, Google, Microsoft) |
| 5.3: Attract working-age **individuals and families to Alaska** to fill jobs we cannot fill from our existing | Strategically invest in quality-of-life elements and economic foundations to improve the attractiveness of the state as a place to live and work. | x | x | x | x | x | x | In-state retention of workforce. | | Local governments, ARDORs, EDOs, Governor's Office, State Legislature |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| workforce and retain our existing workforce in-state. | Initiate targeted marketing efforts to encourage people to move to Alaska to fill industry and occupational gaps. | x | x | x | x | x | | In-migration of new residents. | DCCED | Local governments, ARDORs, EDOs, Governor's Office, State Legislature |
| | Advocate for the easing of federal visa restrictions currently limiting the availability of guest workers in seafood processing, tourism, seasonal construction, and other industries. | x | x | | | | | Increased access to guest workers for Alaska employers. | | Tourism entities, seafood entities, chambers of commerce, Governor's Office |
| | Strengthen the military-to-civilian transitions to retain skilled talent in Alaska. | x | x | x | x | x | | Veterans entering Alaska's civilian workforce. | | UA, Department of Military and Veterans Affairs (DMVA), DOLWD |
| 5.4: Develop and expand opportunities for **remote work** in Alaska. | Develop an informational website for people interested in relocating to Alaska. | x | x | | | | | In-migration of new residents. | DCCED | Local governments, ARDORs, EDOs, Governor's Office |
| | Assist residents in accessing remote work opportunities that allow them to remain in their community. | x | x | x | | | | Retention of Alaska residents. | | Local governments, ARDORs, EDOs, Governor's Office |
| | Offer trainings and resources to help residents access remote work opportunities, especially in communities newly connected to broadband. | x | x | x | x | x | | A higher-skilled workforce with greater earning potential. | | |
| 5.5: Expand the availability of quality, licensed childcare to enable greater workforce participation by parents of young children. | Provide business planning assistance to establish childcare centers. | x | x | | | | | Establishment of new licensed childcare centers. | Center for Economic Development (CED) | Thread Alaska, Department of Health and Social Services (DHSS) |
| | Support individual community strategies and share best practices across the state. | x | x | x | x | x | | Increased childcare capacity. | | Thread Alaska, Department of Health (DOH), local governments, Alaska Municipal League |
| | Assist potential childcare operators in meeting regulatory and licensing requirements, as well as accessing variances when appropriate. | x | x | x | x | x | x | Establishment of new licensed childcare centers. | | DOH, Thread Alaska, CED |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| | Evaluate the potential for patient capital to assist in the startup of childcare centers. | x | x | x | x | | | Establishment of new licensed childcare centers. | | DCCED, DOH, Thread Alaska, CED |
| 5.6: Implement the Alaska Workforce Innovation and Opportunity Act (WIOA) **Combined Plan**. | Build clear routes to careers and/or employment for all Alaskans. | x | x | x | x | | | A higher-skilled workforce with greater earning potential. | DOLWD | UA, training providers, unions, employers, K-12 system |
| | Support job opportunities, training opportunities, and career progression opportunities for all Alaskans. | x | x | x | x | | | A higher-skilled workforce with greater earning potential. | DOLWD | UA, training providers, unions, employers, K-12 system |
| | Develop multiple pathways for statewide economic stability and job growth. | x | x | x | x | | | A higher-skilled workforce with greater earning potential. | DOLWD | UA, training providers, unions, employers, K-12 system |
| 5.7: Prepare Alaskans for **job opportunities to be created** by federally funded infrastructure projects. | Produce report on jobs likely to be created by IIJA projects, and associated training needs (current DOLWD effort). | x | | | | | | Employment opportunities for Alaska residents. | DOLWD | |
| | Assess the capacity of existing workforce providers to train workers for infrastructure job opportunities. | x | | | | | | Employment opportunities for Alaska residents. | DOLWD | UA, training providers |
| | Engage firms which operate in the highest demand industries to understand their basic requirements for incoming workers. | x | | | | | | Employment opportunities for Alaska residents. | DOLWD | Employers, unions |
| | Strengthen and expand existing workforce programs to help meet demand. | x | x | x | x | | | Employment opportunities for Alaska residents. | | UA, training providers, unions, employers, K-12 system |
| | Develop a rapid training plan tailored to the job opportunities expected to be in highest demand in construction, transportation, engineering, administration, and other areas. | x | x | | | | | Employment opportunities for Alaska residents. | DOLWD | UA, training providers, unions, employers, K-12 system |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.8: Develop or update and implement workforce development plans centered around the needs of Alaska's **Economic Engines, Emerging Sectors, and supporting industries**. | Maintain or update existing plans: Health Care, Construction, Oil and Gas, Transportation, Maritime, Mining, Agriculture. | x | x | x | x | | | A higher-skilled workforce with greater earning potential. | DOLWD | UA, training providers, unions, employers, K-12 system, industry associations |
| 5.9: Prepare the Alaska workforce for **job opportunities in low and no emissions** energy technologies, such as electric vehicles, renewable energy systems, and other technologies. | Obtain federal grants under the IIJA to train mechanics and maintenance workers on electric and hydrogen vehicles. | x | x | x | x | x | | A higher-skilled workforce with greater earning potential. | | UA, training providers, unions, employers, K-12 system, industry associations |
| 5.10: Streamline and simplify regulatory processes to **attract high value workforce**. | Continue improve and automate necessary regulatory processes. | x | x | x | x | x | | Greater depth of talent in Alaska's labor pool. | DCCED | DOLWD, Alaska Development Team, Division of Corporations, Business, and Professional Licensing (CBPL) |
| | Continue to coordinate with other states on uniform qualification criteria to better enable the transition of high value workforce participants into the state | x | x | x | x | x | | Greater depth of talent in Alaska's labor pool. | DCCED | DOLWD, Alaska Development Team, CBPL |

*Table 7: Goal 5 Objective Matrix*

## Goal 6: Build a Resilient Economy

Resiliency refers to the ability of an economy to avoid, withstand, or mitigate the effects of negative external events such as natural disasters, commodity price instability, or downturns. Recent years in Alaska have witnessed oil price swings, fisheries disasters, floods, earthquakes, severe storms, coastal erosion, and the COVID-19 pandemic. The CEDS includes both proactive and responsive measures to plan for and reduce negative impacts.

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| 6.1: Develop a **resiliency framework** specifying roles, responsibilities, and resources to be utilized for economic recovery in the event of an external shock and to address persistent economic deficiencies. | Organize a resiliency task force made up of federal agencies and economic development organizations that can be activated when needed. | x | x | x | | | | Advanced preparedness for next economic shock. | | Alaska Regional Development Organizations (ARDORs), economic development organizations (EDOs), Department of Commerce, Community, and Economic Development (DCCED), Governor's Office |
| | Leverage lessons learned/recorded during the COVID pandemic regarding cooperation, organizational structures, systems, and program deployment to promote business continuity and preparedness. | x | x | x | | | | Advanced preparedness for next economic shock. | | ARDORs, EDOs, DCCED, Governor's Office |
| | Work with communities to site new commercial and industrial developments in locations that are out of harm's way. | x | x | x | x | x | | Advanced preparedness for next economic shock. | | ARDORs, EDOs, DCCED, Governor's Office |
| | Support efforts to secure ongoing funding for the operations of Alaska Regional Development Organizations (ARDORs). | x | x | x | x | x | | Advanced preparedness for next economic shock. | | ARDORs, DCCED |
| 6.2: **Leverage Economic Engines and Emerging Sectors** to promote the resiliency to supply chain disruptions, | Develop in-state timber resources for construction lumber and biomass energy. | x | x | x | x | x | x | Supply chain resilience. | | Division of Forestry, Southeast Conference, Southeast Sustainable Partnership, private sawmills |
| | Utilize natural gas resources for power and heating needs. | x | x | x | x | x | x | Increased energy security. | | Alaska Industrial Development and Export Authority (AIDEA), electric utilities, gas utilities |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| natural disasters, and external shocks. | Increase in-state agricultural output for food security. | x | x | x | x | x | x | Increased food security. | | Division of Agriculture, Alaska Farm Bureau, University of Alaska Fairbanks (UAF) Cooperative Extension Service, Alaska Food Policy Council |
| | Grow the manufacturing sector to provide self-sufficiency from key imported products. | x | x | x | x | x | x | Supply chain resilience. | Alaska Manufacturing Extension Partnership | DCCED, Governor's Office |
| | Develop in-state applications for mariculture products. | x | x | x | x | x | | Supply chain resilience. | Alaska Mariculture Alliance | Alaska Development Team, UAF, Alaska Fisheries Development Foundation |
| 6.3: Build new, and upgrade existing, **infrastructure capable of withstanding resiliency shocks** such as natural disasters. | Upgrade ports, airports, highways, and rail connections as needed to ensure uninterrupted access to essential supplies. | x | x | x | x | x | | Supply chain resilience. | Alaska Department of Transportation and Public Facilities | Alaska Railroad, local governments |
| | Ensure power reliability for certain forms of infrastructure, such as ports and airports, which require an uninterrupted supply. | x | x | x | x | x | | Supply chain resilience. | | Local governments, electric utilities, Alaska Energy Authority (AEA) |
| | Invest in redundancy for transmission lines and broadband fiber when feasible to continue service during interruption (see Goal 4). | x | x | x | x | x | | Energy and telecommunications security. | | Alaska Broadband Office, AEA, electric utilities, telecommunications companies |
| | Upgrade rural energy infrastructure such as power houses and bulk fuel farms. | x | x | x | x | x | | Energy security. | AEA | Denali Commission, rural electric utilities |
| | Deploy clean energy systems to reduce dependence on diesel fuel, including renewable and micronuclear sources. | x | x | x | x | x | x | Energy security. | AEA | U.S. Department of Energy, electric utilities, |
| 6.4: Increase economic opportunity and self-sufficiency in **Rural Alaska** while | Promote cultural tourism opportunities for interested communities. | x | x | x | x | x | x | Economic diversification. | Alaska Native Heritage Center | Alaska Travel Industry Association (ATIA), DCCED, tribal governments, convention, and visitor bureaus |

| Objective | Action | Y1 | Y2 | Y3 | Y4 | Y5 | Y6+ | Priority Outcome | Potential Lead Entity | Partners |
|---|---|---|---|---|---|---|---|---|---|---|
| preserving balance with subsistence lifestyle. | Assist artists in marketing and selling crafted products. | x | x | x | x | x | | Economic diversification. | | Alaska State Council on the Arts, DCCED |
| | Provide e-commerce trainings and resources for all communities, especially those newly connected to broadband (see Goal 3). | x | x | x | x | x | | Economic diversification. | | Alaska Small Business Development Center (SBDC), DCCED, University of Alaska Anchorage (UAA) Business Enterprise Institute (BEI) |
| | Support industrial and natural resource development that provides job opportunities and community reinvestment. | x | x | x | x | x | x | Economic diversification | | DCCED, Governor's Office, AIDEA, tribal governments, local governments |

*Table 8: Goal 6 Objective Matrix*

# III. Evaluation Framework

Making progress on goals and objectives requires the ability to measure that progress. This CEDS offers a roadmap to grow, strengthen, and diversify Alaska's economy, and an evaluation framework is needed in order to gauge the success of those efforts—as well as to assess the overall health of the state economy. The evaluation framework presented here attempts to set indicators tied to five of the six goals. (The sixth goal, resilience, is supported by the metrics of the other goals).

The metrics shown below are based on careful consideration of the goals and objectives, as well as the consistent availability of data sources. However, economies are complex, and achieving the ambitious goals contained in this CEDS requires the coordinated efforts of many thousands of Alaskans. In addition, data availability is imperfect and not always timely. It should be recognized that caveats always apply, and failure to meet some numerical targets could be due to factors outside of Alaskans' control. Nonetheless, imperfect measures are better than none at all.

**Baseline measures for CEDS evaluation framework**

| Goal | Measure | Baseline | Year |
|---|---|---|---|
| Overarching | Annual Average Employment | 310,293 | 2021 |
| | Gross State Product (GSP) | $54,970,100,000 | 2021 |
| | Net Migration (Annual) | (3,327) | 2020-2021 |
| Economic Engines | Oil Production Average Barrels/Day | 437,000 | 2021 |
| | Permit Approval Time | TBD | |
| | Mining Employment | 3500 | 2021 |
| | Oil and Gas Employment | 6711 | 2021 |
| | DOD and DHS Contract Value | $1,771,213,425 | FY 2021 |
| | DOD and USCG Personnel | 30,697 | 2022 (Mar) |
| | Board Feet of Timber Harvested (MMBF all lands) | 151.5 | 2019 |
| | Air Cargo Volume TSAIA (Tons) | 3,157,682 | 2020 |
| | Alaska Resident Commercial Fishing Permit Ownership | 76.60% | 2022 |
| | Total Ex-Vessel Value of Seafood | $1,481,048,669 | 2020 |
| | Cruise Ship Visitors | 1,331,600 | 2019 |
| | Independent Visitors | 881,400 | 2019 |
| Emerging Sectors | Aquatic Plant Production (lb) | 563,390 | 2021 |
| | Permitted Aquatic Farms | 32 | 2020 |
| | Aerospace Product Manufacturing Employment | 138 | 2021 |
| | Farm Revenues (agriculture, non-aquatic) | $35,302,000 | 2017 |
| | Boat and Ship Building and Repair Employment | 383 | 2021 |
| | Manufacturing Employment (non-seafood) | 3894 | 2021 |
| | Critical Mineral Processing Employment | 0 | 2022 |
| | Number of Remote Workers | 21,083 | 2020 |

**Baseline measures for CEDS evaluation framework**

| Goal | Measure | Baseline | Year |
|---|---|---|---|
| | Renewable Share of Electricity Production | 39.40% | 2022 |
| Business Climate and Entrepreneurship | New Businesses Started | 8,034 | 2021 |
| | New Rural Businesses Started | 1,024 | 2021 |
| | SBDC SSBCI Loan Dollars | 0 | |
| | SBIR/STTR Awards | 4 | 2021 |
| | SBIR/STTR Award Dollars | $506,000 | 2021 |
| | University of Alaska Patents | TBD | |
| Economic Foundations | Households with 100 MBPS Broadband Service | TBD | |
| | Number of Licensed Childcare Centers | 523 | 2021 |
| | New Housing Starts | 1669 | 2020 |
| | Average Home Price | $388,648 | 2021 |
| | Median Adjusted Rent Cost | $1,179 | 2021 |
| | Average Residential Power Cost per kWh | $0.23 | 2022 |
| | Average Industrial Power Cost per kWh | $0.19 | 2022 |
| Workforce Development | Percent of Working-Age Alaskans with Postsecondary Credential | 55% | 2022 |
| | Total University of Alaska Enrollment | 24,483 | Fall 2021 |
| | Total University of Alaska Degrees/Certificates Awarded | 3,997 | |
| | Vo-Tech Enrollment (TVEP) | 7,723 | 2021 |
| | Labor Force Participation Rate | 66.20% | 2022 (May ) |

*Table 9: Baseline Measures for CEDS evaluation framework.*
*For data sources, see appendices.*

# IV. Economic Context

## Alaska's Population

**Population at a Glance**

- Alaska's total population increased steadily in the first half of the 2010-2020 decade, but saw decline in the latter half to roughly 734,000 in 2021.[6]
- Since 2012, more people have moved out of Alaska than have moved into the state every year. Between 2020 and 2021, the state saw net outmigration of 3,300 people.
- The number of prime working-age Alaskans fell by over 22,000 between 2010 and 2022, due to aging and outmigration.
- About a quarter (25%) of Alaskans over 25 years old have some college education but no degree.
- The majority (66%) of Alaskans identified as "White" in the 2020 Census. The second largest racial group in the state identify as "Alaska Native or American Indian" (19%).

Alaska has one of the lowest state populations in the U.S, with 734,323 people in 2021 according to estimates generated by the DOLWD.[7] Overall, over the last decade the state's total population has increased slightly. However, looking at the annual change tells a different story. From 2010 to 2016, the population rose steadily, growing 0.75% annually on average. After 2016, population began to decline, coinciding with the statewide recession lasting until 2018, when employment began to pick up, and likely would have been followed by a slow rise in population had it not been for the COVID-19 pandemic. From 2020 to 2021, population grew slightly due to natural increase (births over deaths) and a decrease in outmigration.

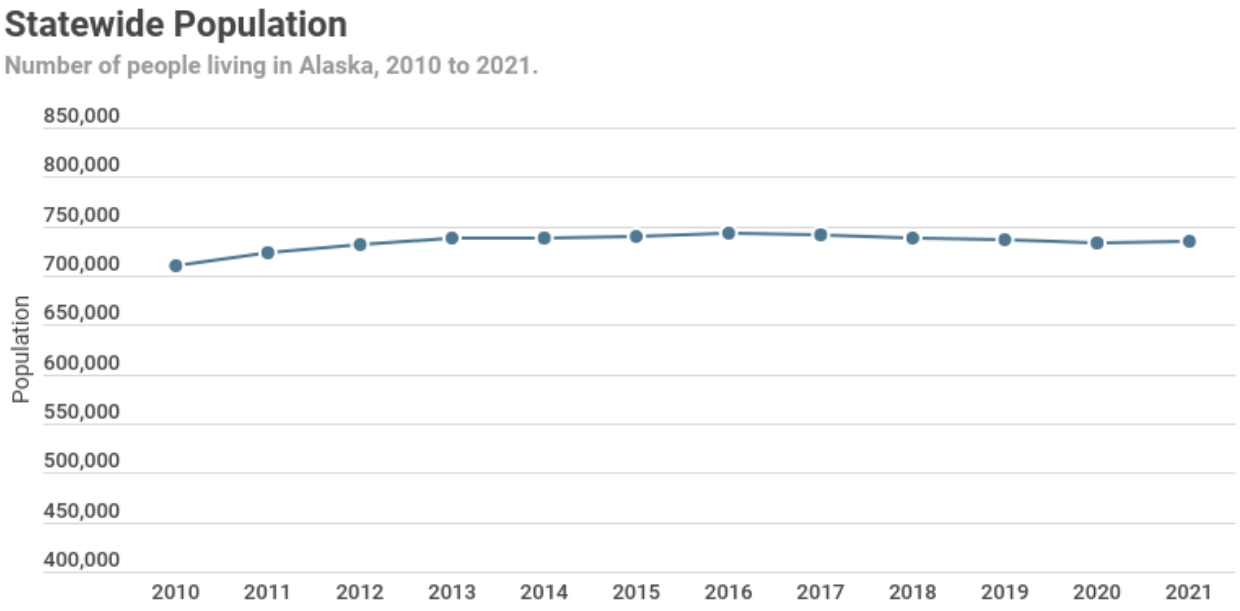



*Figure 5: Statewide population, 2010 to 2021.*
*Source: DOLWD.*

The populations of specific boroughs and census areas across the state have followed their own trends over the last decade. The Municipality of Anchorage is by far Alaska's most populated region, with just

under 300,000 people, and accounts for nearly 40% of the state's total population. Between 2011 and 2021, the total number of Anchorage residents has fallen by about 2.1%. In the Mat-Su borough, the second largest in the state, the number of residents increased over 18% since 2011.

**Population by Region, 2011 and 2021**

| Region | Population 2011 | Population 2021 | Percent Change |
|---|---|---|---|
| Skagway | 974 | 1,203 | 23.5% |
| Mat-Su | 91,620 | 108,805 | 18.8% |
| Aleutians East | 3,152 | 3,583 | 13.7% |
| North Slope | 9,674 | 10,995 | 13.7% |
| Hoonah-Angoon | 2,184 | 2,350 | 7.6% |
| Yakutat | 650 | 697 | 7.2% |
| Kusilvak | 7,710 | 8,139 | 5.6% |
| Bethel | 17,539 | 18,416 | 5.0% |
| Kenai Peninsula | 56,491 | 58,957 | 4.4% |
| Chugach Census Area | 6,839 | 7,009 | 2.5% |
| Petersburg | 3,303 | 3,368 | 2.0% |
| Ketchikan | 13,760 | 13,895 | 1.0% |
| Haines | 2,614 | 2,614 | 0.0% |
| Nome | 9,747 | 9,691 | -0.6% |
| Fairbanks North Star | 98,178 | 97,515 | -0.7% |
| Juneau | 32,411 | 32,155 | -0.8% |
| Northwest Arctic | 7,691 | 7,575 | -1.5% |
| Anchorage | 296,058 | 289,697 | -2.1% |
| Southeast Fairbanks | 7,058 | 6,881 | -2.5% |
| Dillingham | 4,945 | 4,718 | -4.6% |
| Aleutians West | 5,431 | 5,169 | -4.8% |
| Sitka | 8,992 | 8,387 | -6.7% |
| Kodiak Island | 13,887 | 12,900 | -7.1% |
| Yukon-Koyukuk | 5,686 | 5,255 | -7.6% |
| Denali | 1,813 | 1,655 | -8.7% |
| Prince of Wales-Hyder | 6,421 | 5,729 | -10.8% |
| Wrangell | 2,376 | 2,096 | -11.8% |
| Copper River | 3,018 | 2,626 | -13.0% |
| Lake and Peninsula | 1,669 | 1,421 | -14.9% |
| Bristol Bay | 1,018 | 822 | -19.3% |
| **Total** | **722,909** | **734,323** | **1.6%** |

*Table 10: Population by Region, 2011 and 2021.*
*Source: DOLWD.*

DOLWD estimates the state's population up to the year 2045, based on past trends and other analysis. Population growth is always uncertain, as it is subject to a variety of economic factors and other events, so DOLWD models a low, middle, and high population estimate to indicate a range of possibilities, from conservative to optimistic. In a conservative scenario the population will decrease slightly, while the

middle and optimistic scenarios project growth between 10% and 50% by 2045. Growth would depend on the reversal of the recent outmigration trend.

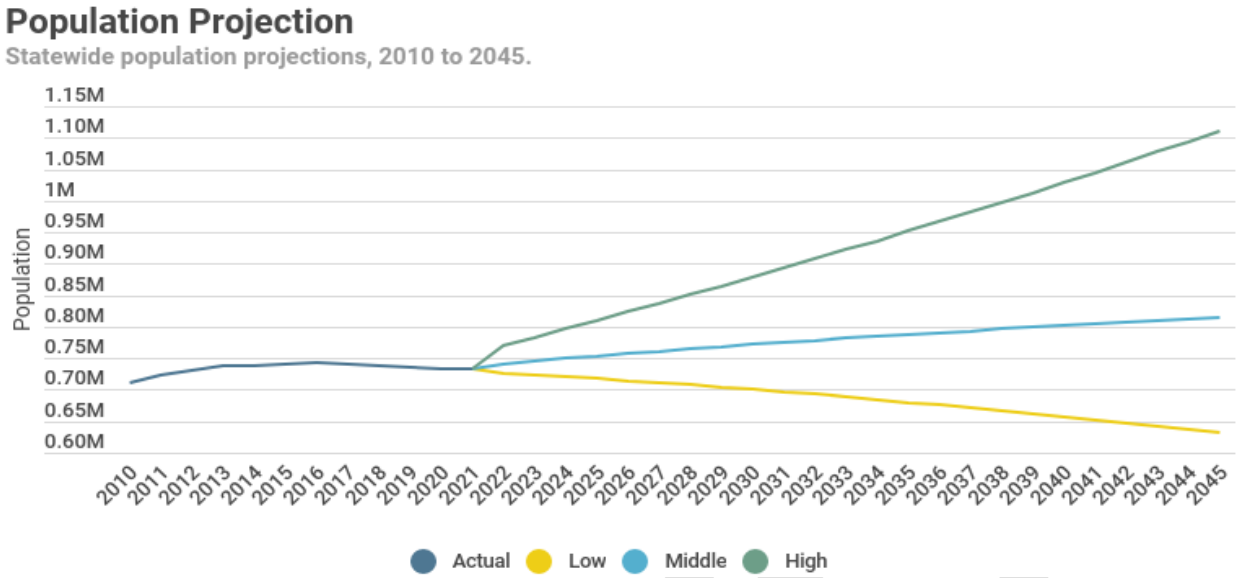



*Figure 6: Statewide population projections to 2045.*
*Source: DOLWD.*

## Migration

Population experiences a dynamic flow that is a function of birth and deaths, but also migration into and out of any given geography. When examining population dynamics, birth and death rates tend to remain constant; therefore, migration is a key metric for measuring community and economic health.

The net outmigration reached a peak in 2017 to 2018, coinciding with the state's economic recession and accompanying job losses. However, there is a common misperception that people are leaving Alaska in droves while no one moves into the state, which is not the case. Over 30,000 people have moved to Alaska every year since at least 2010 (roughly 4 to 5% of the total population); however, they are outnumbered by the people moving away.

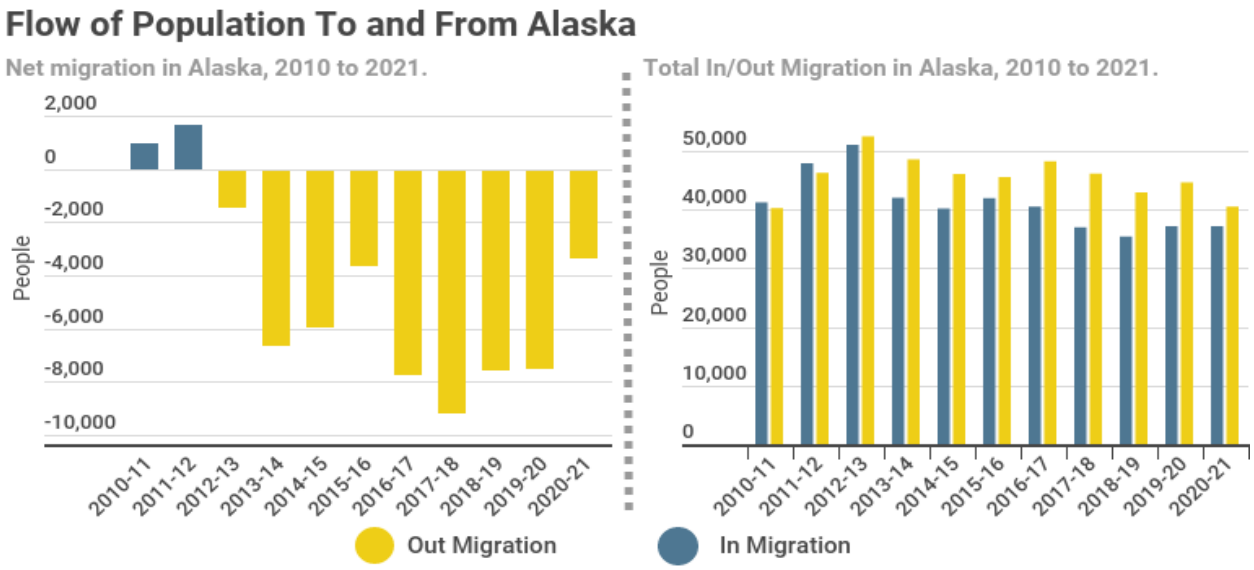



*Figure 7: Net migration in Alaska, 2010 to 2021.*
*Source: DOLWD.*

## Population by Sex and Age Group

Historically, men outnumber women in Alaska, a trend driven at least partly by the industries present in the state. That gap has decreased over time. In 2021, an estimated 51% of the state's population were male and 49% are female, according to DOLWD.

Age dynamics in the state are an important metric of Alaska's workforce. The largest age group for both men and women is 30 to 39, after which there is a significant drop off. This may be due to large employment concentrations in construction, oil and gas, and mining, which generally employ younger people and more men than women. The median age in Alaska 33.8 years, which is about 5 years lower than the median age nationwide.

Alaska's population as a whole is aging. From 2010 to 2021, the number of working age Alaskans (those aged 20 to 60 years) decreased by 5.3% while the number of Alaskans of retirement age, or 65+, increased by 82.3%.[8] While pandemic factors contributed to some people's decision regarding retirement, this has been an ongoing challenge in Alaska long before the outbreak of COVID-19. Alaskans are reaching retirement age without enough younger people to replace them in the workforce, contributing to today's hiring strains and staff shortages.


*Figure 8: Net Change in Age Groups, 2010 to 2021.*
*Source: DOLWD*

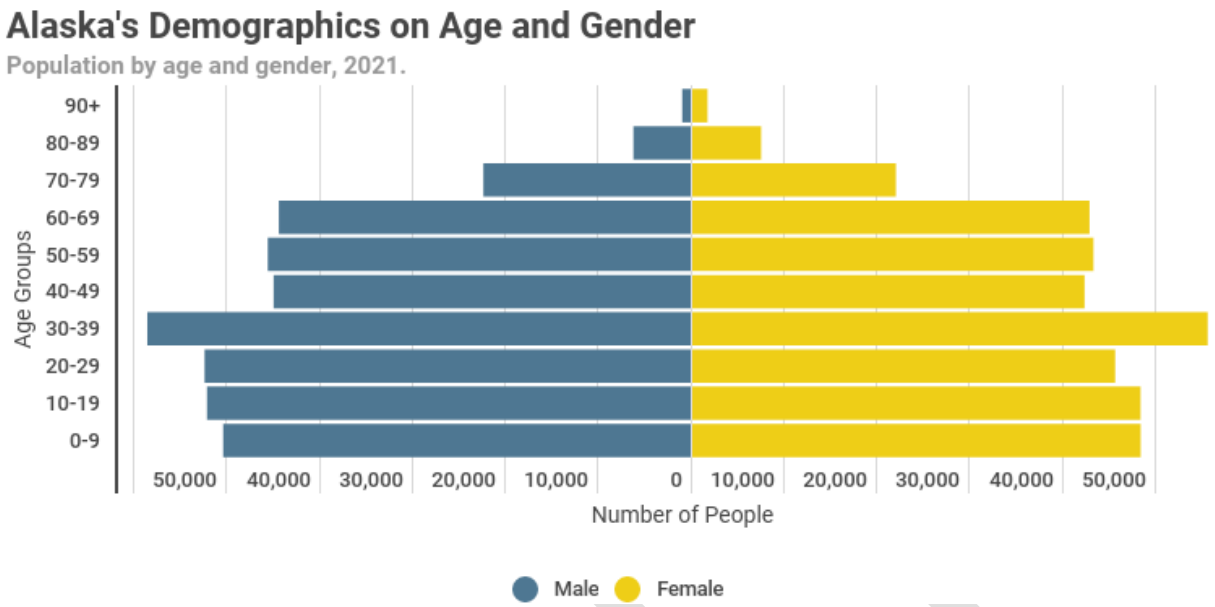



*Figure 9: Population by age and gender, 2021.*
*Source: DOLWD.*

## Race and Ethnicity

Alaska has an increasingly diverse population. After Alaskans identifying as "White" (66%), "Alaska Native or American Indian" (19%) were the second largest racial group in the state identified on the 2020 Decennial Census. Asian is the third largest racial group identified in the state, representing 8% of Alaskans. Between 2010 and 2020, the percentage of Alaskans identifying as a race other than white (alone or in combination)[9] grew while Alaskans identifying as "White" decreased: "Alaska Native or American Indian" grew by 6%, "Black or African American" by 15%, and "Asian" by 27%.[10]

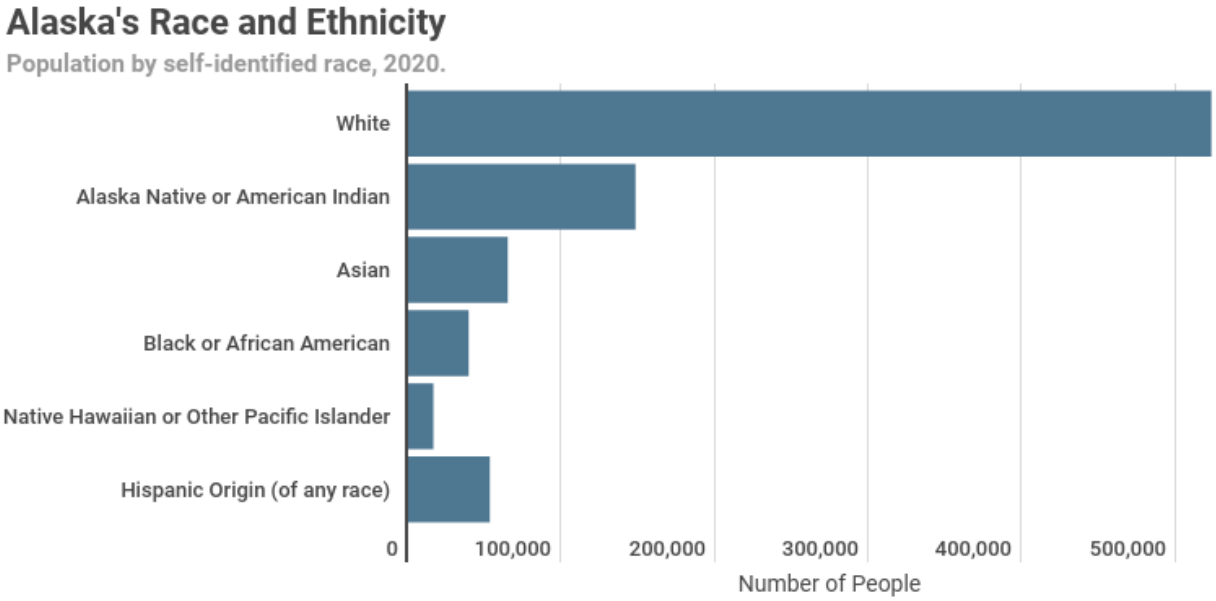



*Figure 10: Population by self-identified race, 2020.*
*Source: DOLWD.*

## Education

Educational attainment is an important consideration in evaluating the capacity of the workforce. Statewide, 93% of adults aged 25 and over have a high school diploma or equivalent, which is higher than the national average. However, just 30% hold a Bachelor's degree or higher, which is lower than the national average.

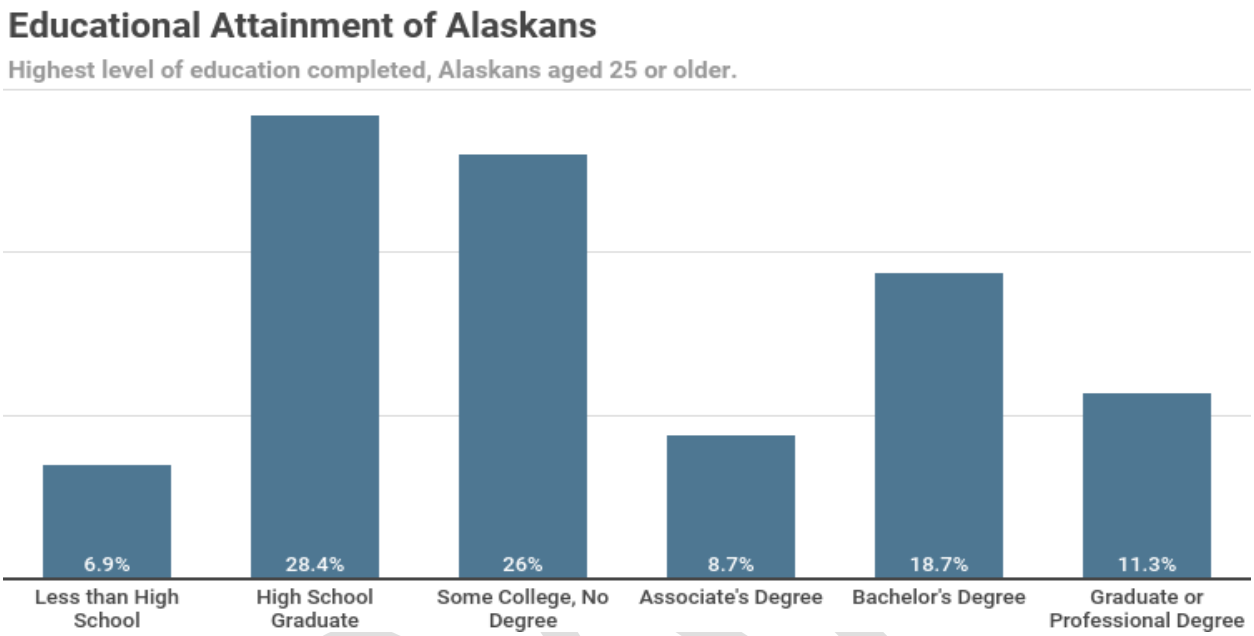



*Figure 11: Highest level of education completed, Alaskans aged 25 or older.*
*Source: U.S. Census Bureau American Community Survey (ACS) 5-Year Estimates, 2020.*

## Cost of Living

When assessing economic conditions in any region it is important to consider indicators of quality of life. A prosperous population can be a strong indicator of economic health. In addition, favorable quality of life indicators like low cost of living and access to services and amenities are important for attracting and retaining a qualified workforce.

Alaska has historically struggled with high costs of living across the state. Energy, health care, housing, retail goods, services, and more are typically more expensive than in the Lower 48, and sometimes unavailable at all. This impacts both firms and households who must spend more on basic necessities than their counterparts in the rest of the country. These challenges are especially prevalent in the state's rural communities, where costs can be crippling for households and make many forms of commercial activity infeasible.

These variables are balanced, however, by other quality of life indicators, some of which can be difficult to measure. Alaska is well known for its access to outdoor recreation opportunities and natural beauty. These are amenities that attract visitors to the state, but also improve quality of life for residents.

## Living Costs Compared

The Council for Community and Economic Research (C2ER) is the most widely cited source for comparing the cost of living in different cities in the U.S. via its Cost of Living Index (COLI). The COLI includes extensive price data from about 300 U.S. cities, and estimates cost indices for each city and state. The index factors in groceries, housing, utilities, transportation, health care, and miscellaneous goods. In 2021, Alaska ranked as the fifth most expensive state in the country, behind the District of Columbia, Hawaii, California, and Massachusetts, with overall living costs about 30% above the national average.[11]

In 2021, Alaska ranked as the fifth most expensive state in the country, behind the District of Columbia, Hawaii, California, and Massachusetts, with living costs about 30% above the national average.

**State cost of living index comparison, 2021**

| State | Percent Above U.S. Average |
|---|---|
| District of Columbia | 60% |
| Hawaii | 50% |
| California | 35% |
| Massachusetts | 32% |
| Alaska | 31% |
| Rhode Island | 29% |

*Table 11: State cost of living index comparison, 2021.*
*Source: C2ER.*

More detailed COLI data is available for the four Alaska cities that participate in the index: Anchorage, Fairbanks, Juneau, and Kodiak. All four communities rank among the 25 most expensive cities in the U.S. for overall living costs. Unfortunately, the COLI does not include data for other cities in the state.

**Living costs, percent above national average in 2022**

| City | Groceries | Housing | Utilities | Trans-portation | Health Care | Misc. Goods | Overall |
|---|---|---|---|---|---|---|---|
| Juneau | 41% | 43% | 37% | 15% | 53% | 7% | 30% |
| Anchorage | 26% | 39% | 27% | 12% | 49% | 18% | 28% |
| Kodiak | 48% | 23% | 30% | 0% | 56% | 21% | 27% |
| Fairbanks | 23% | 8% | 118% | 14% | 55% | 16% | 27% |

*Table 12: Living costs, percent above national average in 2022.*
*Source: C2ER.*
*Note: Includes only the four Alaska cities participating in the Cost of Living Index. Average of Q1 2021 through Q1 2022*

## Housing

Housing costs and availability are two of the most important factors in the cost of living. Housing costs across Alaska are variable, but high almost everywhere compared to the rest of the U.S.

As with most of the U.S., average home sales prices increased sharply in 2020 and 2021, with low interest rates and pandemic factors driving high demand. Statewide, the average sales price for a single-family home in 2021 was $388,648, about 8% higher than 2020.[12] Sales prices vary across the state according to local housing market conditions—from $313,802 in the Fairbanks North Star Borough to $439,961 in the Ketchikan Gateway Borough.

In 2021, median statewide rent cost was $1,179/month. At $950 per month, the Wrangell-Petersburg area had the lowest rent, with the highest being Sitka at $1,323 per month. Statewide, the rental vacancy rate fell from 9.2% in 2020 to 5.9% in 2021.[13]

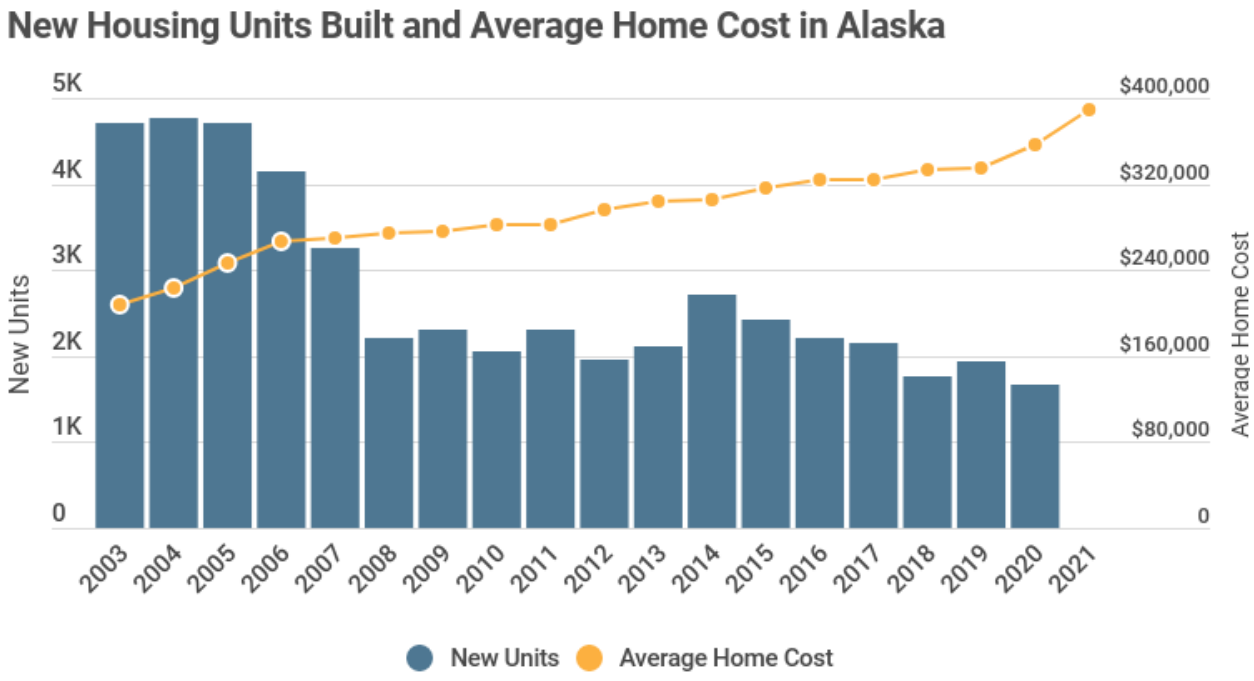



*Figure 12: New housing units in Alaska compared to average home cost, 2003-2021.*
*Source: DOLWD and AHFC.*

Both rental and owner-occupied housing appear to suffer from limited building activity. Over the last two decades, new housing construction fell from a high of nearly 4,800 units statewide, to only 1,669 in 2021.

## Health Care

Health care costs are a heavy burden on households and employers alike. Alaska's health care system is challenging in terms of both cost and availability. Across Alaska, residents struggle with accessing both basic health services in rural/remote areas and specialty services in more urban areas. Alaska's health care costs are the highest in the nation by any number of measures. The COLI data ranks Anchorage, Fairbanks, Juneau, and Kodiak as the four most expensive cities in the country for health care. Annual average health insurance premiums totaled $8,635 in 2020, the most of any state.[14]

**Most expensive health care premiums by state, 2020**

| State | Average Annual Total Premium |
|---|---|
| Alaska | $8,635 |
| New York | $8,177 |
| New Hampshire | $7,991 |
| Vermont | $7,868 |
| Wyoming | $7,743 |
| **U.S. Average** | **$7,149** |

*Table 13: Most expensive health care premiums by state, 2020.*
*Source: Kaiser Family Foundation.*

Employers in government, nonprofits, and businesses alike struggle with the high cost of providing health insurance for employees.

## Energy

Energy costs are high in Alaska compared to national averages and can be a constraint for households, industry, and businesses. Access to affordable heat and power can especially be a challenge in less urban areas.

Cost of power ranges widely according to community location and conditions. Urban Alaska experiences some of the lowest electricity costs—ranging from $0.22/kWh in the Chugach Electric Association service area, to $0.28/kWh in the Golden Valley Electric Association service area in 2020.[15]

In rural Alaska, costs are typically lowest in hub communities, driven by easier access to fuel delivery infrastructure and larger economies of scale. For example, in Kotzebue the average cost of power for residential customers is $0.41/kWh. In smaller communities, cost of power tends to be higher. In Kobuk, which is in the same region as Kotzebue, the cost of power for residential customers is $0.81/kWh.[16]

It is important to note the value of the Power Cost Equalization program subsidies for rural communities. In the cases of Kotzebue and Kobuk, the examples used above, the PCE subsidy lowers the effective cost of power for residential customers to $0.22/kWh and $0.28/kWh respectively.[17]

## Rural Alaska

Most consumable items in rural Alaska are prohibitively expensive—if they are available at all. Unfortunately, few data sources systematically track costs for rural Alaska. Reports of $12 for a gallon of

milk and $6 for a loaf of bread are not uncommon. One report from 2018, the Indian Country Food Price Index, recorded the cost of grocery items in select parts of rural Alaska, and reported a high cost divergence from national averages. In many cases, common food items were two to three times more expensive than national averages.

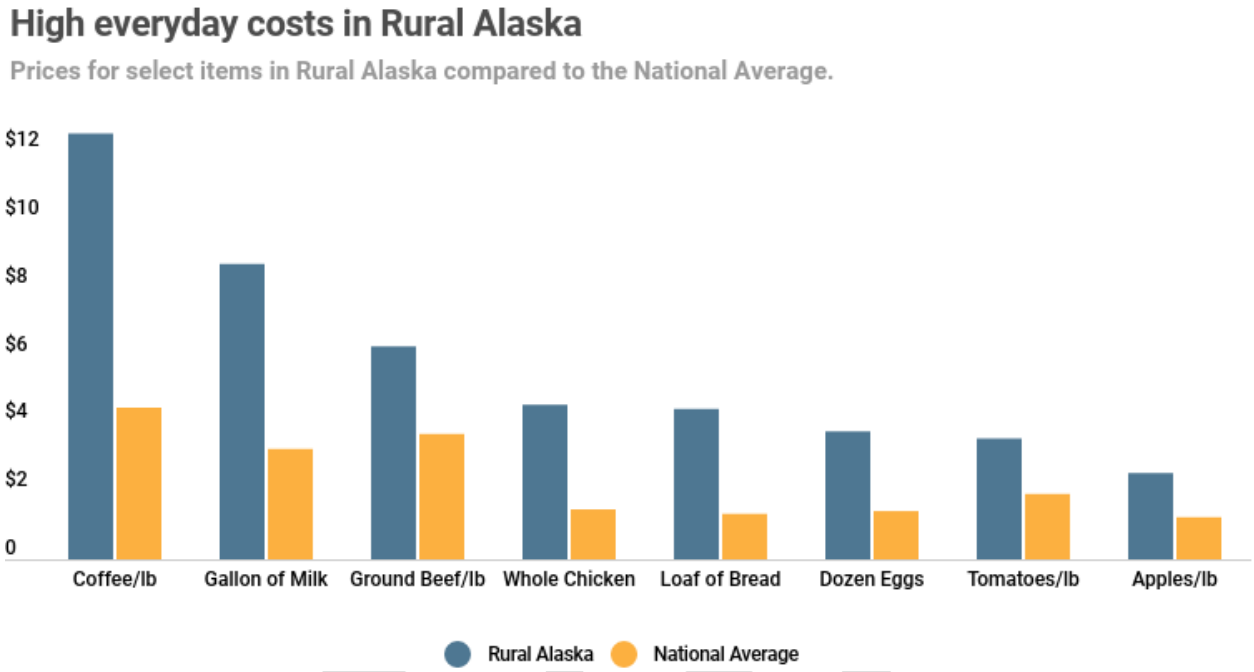



*Figure 13: Prices for select items in Rural Alaska compared to the National Average, 2018. Source: Indian Country Food Price Index.*

## Infrastructure

Alaska is the most sparsely populated state in the U.S., with communities spread across vast distances often not connected by roads and highways. While population density varies across the state, on average there are 1.2 people for every square mile. The majority of the population lives on the state's limited road system, which provides more immediate access to critical infrastructure and lowers the cost of living and the cost of doing business. However, for the hundreds of communities across the state outside the road system, airports and waterways provide access to natural resources, economic assets, and goods and services.

This vastness creates unique infrastructure challenges for the state. Maintenance and upkeep of existing infrastructure can be costly and time intensive. In addition, installation and construction of new infrastructure face the mountainous hurdles of costs, logistics, and distance.

Much of Alaska's infrastructure has historically been supported through the State of Alaska's capital budget, decided on by the legislature and approved by the governor. The capital budget appropriates funds for one-time expenditures such as roads, schools, port construction, and public works infrastructure. This budget fluctuates with the amount of revenue the state receives. In recent years, fiscal constraints have significantly reduced the capital budget—and its funding for infrastructure projects and maintenance.

As oil revenues increased in 2021-2022 and federal infrastructure dollars move to Alaska from the 2021 Infrastructure Investment and Jobs Act (IIJA), forecasts for funding for infrastructure projects in the state are improving. In addition, increased investment and interest in the Arctic are creating opportunities for northern communities to improve infrastructure.

## Transportation

Transportation infrastructure is the platform on which Alaska's economy rests, enabling the movement of goods and people across the state, out of state, and across the world. Alaska's transportation networks consist of railroads, roads and highways, airports, and waterways.

### Rail

**Assets and Stats:**

- The Alaska Railroad has 656 miles of track.
- More than 500,000 passengers served per year (pre-pandemic).
- More than 3.2 million tons of cargo moved (pre-pandemic).[18]

**New Developments:**

- Closure of Seward Coal Loading Facility.[19]
- A new cruise ship dock to be completed in Seward by 2025.[20]
- Alberta to Alaska (A2A) Rail: A proposal to build 1,600 miles of new rail joining the Alaska Railroad to Northern Alberta.[21]

The Alaska Railroad stretches from Seward in the south to Fairbanks in the north. The rail system is a major asset for the tourism industry, moving passengers from major ports of entry into the Interior. Prior to the 2020 COVID-19 pandemic, rail passengers reached a peak of 532,000 in 2018. The COVID-19

pandemic's impact on the tourism industry caused a 94% decline in ridership over the previous year.[22] It is expected that passenger traffic will rebound as the tourism industry recovers from the pandemic.

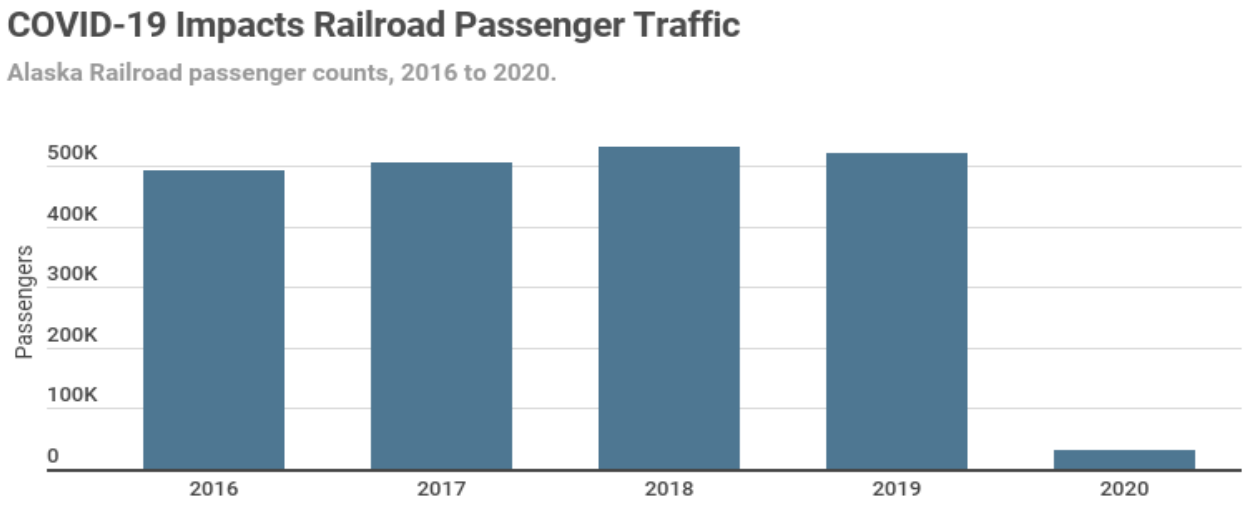



*Figure 14: Alaska Railroad passenger counts, 2016 to 2020.*
*Source: Alaska Railroad Corporation.*

The other function of the rail system is to transport freight. Gravel and coal are the two largest commodities transported by rail by bulk tonnage.[23]

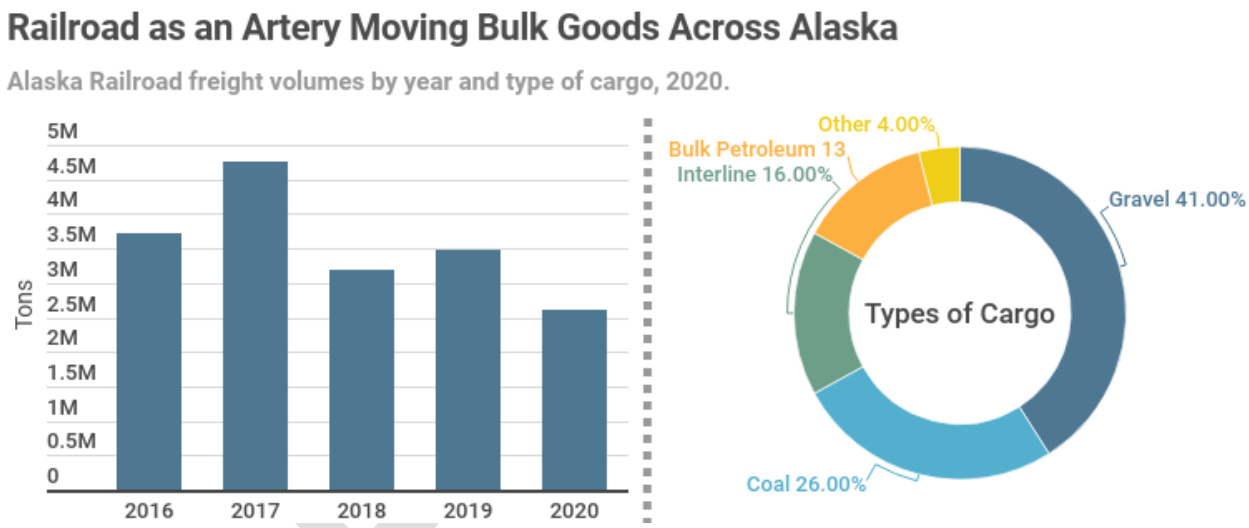



*Figure 15: Alaska Railroad freight volumes by year and type of cargo, 2020.*
*Source: Alaska Railroad Corporation.*

## Roads and Highways

**Assets:**

- 12 major highway routes and 1,529 bridges.
- 17,050 miles of public roads with 5,000 miles of paved roads. [24]

**New Developments:**

- 210-mile industrial access road under development connecting the Ambler Mining District to the Elliot Highway.[25]
- Denali National Park road repairs funded by the federal government, including 400 ft bridge over the Pretty Rocks landslide.[26]
- Installation of 15 electric vehicle fast charging stations across the Alaska road system.[27]

There is a limited road system in Alaska. The road system connects the population centers in Southcentral Alaska and the Interior, but not the communities in the Northern, Southwest, or Southeast regions (aside from Haines and Skagway in Southeast and the Dalton Highway to oil fields on the North Slope). However, this limited system is able to serve the majority of the Alaskan population. There are 12 major highway routes in Alaska.

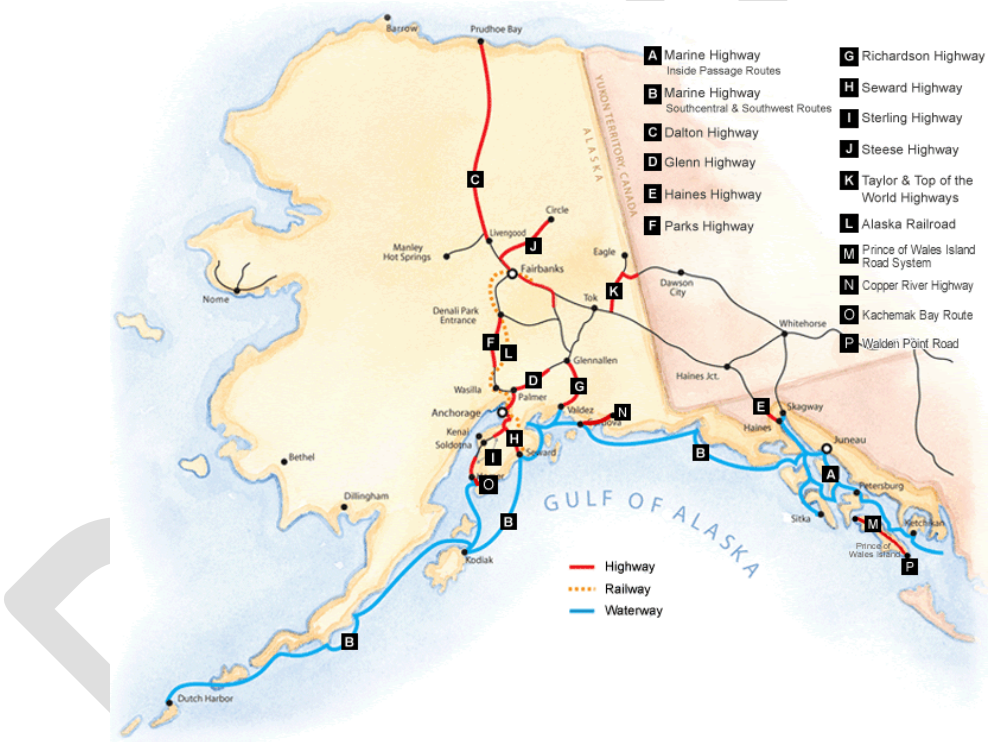



*Figure 16: Alaska's roads and highways.*
*Source: Alaska Public Lands Information Centers.*

A handful of notable road projects are under development in the state. The Ambler Access Project is a planned 210-mile industrial access road connecting the Ambler Mining District, located in the Northwest Arctic Borough to the Dalton Highway.[28] The project would provide access to mining prospects; however, the project has faced pushback from communities in the region.

As electric vehicles become more popular, the demand for charging stations will increase. The Alaska Energy Authority (AEA) is investing in an electric vehicle fast charging network across the road system. The first round of investment is funding the installation of 15 fast-chargers at nine stations, with plans to expand the network with an additional three locations.[29]

## Airports

**Assets:**

- 26 major airports.[30]
- 82% of communities in Alaska depend on the 235 airports in the rural aviation system.
- 2.4 million square miles of airspace.[31]

**New Developments**

- Ted Stevens Anchorage International Airport ranked the 2nd largest airport in the U.S. in 2020 by landed weight.[32]

With hundreds of communities across Alaska lacking access to the road system and vast distances between, isolation drives a high dependence on aviation across rural communities and industrial sites like remote mines and the North Slope. Airports are a critical resource for importing goods and services to Alaska from out-of-state and for moving people and goods around the state.


*Figure 17: FAA identified airports across Alaska with commercial passenger enplanements, 2021. Source: FAA.*

Ted Stevens International Airport is the largest aviation cargo hub in Alaska, serving as an asset for transporting people and goods to Alaska. However, the airport also serves as a logistics hub for the Pacific, with cargo flights from Asia stopping over in Alaska to refuel. The role Alaska plays in the global logistics supply chain has only grown during the COVID-19 pandemic. In 2020, Ted Stevens International Airport was the second largest cargo airport in the U.S. by landed weight. The airport saw 22.9 billion pounds of cargo in 2020, a 25% increase over the previous year.[33]

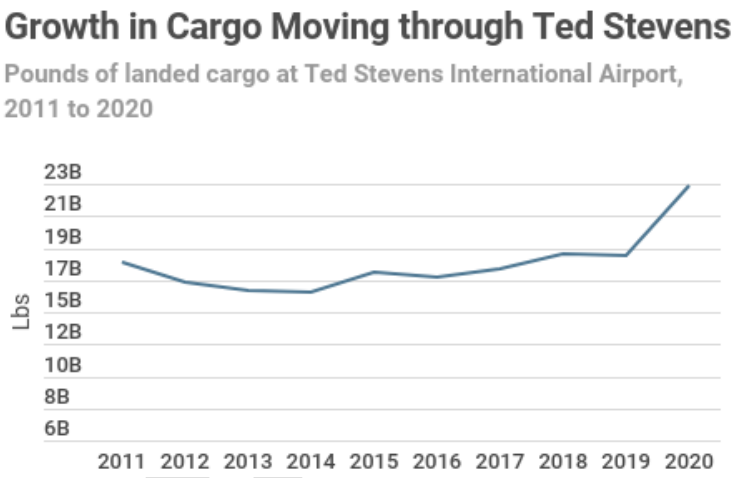



*Figure 18: Pounds of landed cargo at Ted Stevens International Airport, 2011 to 2020.*
*Source: FAA.*

**Top U.S. cargo airports, 2020**

| Airport | State | Landed Cargo (lbs) |
|---|---|---|
| Memphis International | TN | 25.2 B |
| Ted Stevens International | AK | 22.9 B |
| Louisville Muhammed Ali International | KY | 16.8 B |
| Los Angeles International | CA | 13.2 B |
| Miami International | FL | 9.9 B |
| Cincinnati/Northern Kentucky International | KY | 8.2 B |
| Chicago O'Hare International | IL | 7.9 B |
| Indianapolis International | IN | 5.7 B |
| Ontario International | CA | 5.2 B |
| Dallas-Fort Worth International | TX | 4.5 B |

*Table 14: Top U.S. cargo airports, 2020.*
*Source: FAA.*

## Marine Infrastructure

**Assets and Stats:**

- Alaska has 90 ports total, including 22 with container liner service[34]and six deep draft ports.[35]
- The Port of Alaska (Anchorage) handled 50% of all inbound cargo from all modes of transportation in 2019, serving 90% of the state's population.[36]
- AMHS serves 33 communities in the state, most of which lack highway access.[37]

**New Developments:**

- $250 million in federal infrastructure funding allocated to the development and construction of an Arctic deep-water port in Nome.[38]

With thousands of miles of coastline and rivers, and remote communities and resources, maritime activities play an important role in delivering goods to communities and in exporting Alaska's products

to out-of-state and international markets. Many of Alaska's key economic engines—fisheries, oil and gas, mining, and tourism—are dependent on critical maritime infrastructure.

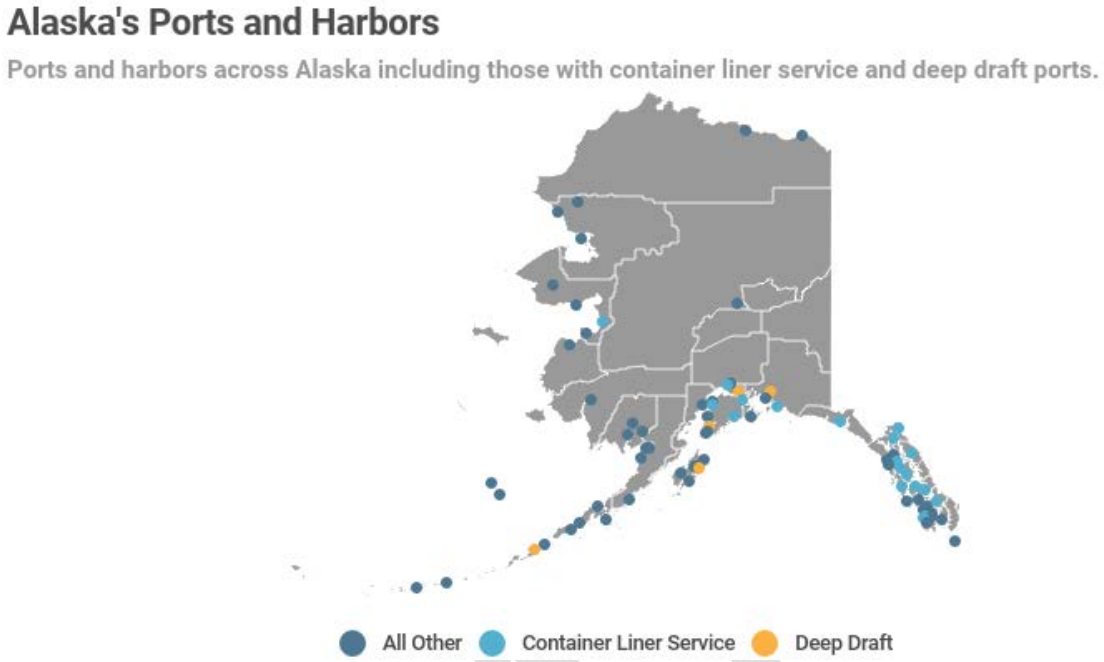



*Figure 19: Ports and harbors across Alaska including those with container liner service and deep draft ports.*
*Source: World Port Source and DOT.*

Ports and harbors dot Alaska's coastal landscape. There are 90 designated ports in Alaska, 22 with container liner service.[39] However, not every coastal or river-tied community possesses port or harbor infrastructure, such as the ability to receive cargo shipments, roll-on/roll-off capabilities, large boat docks, deep draft port infrastructure (docking facilities with a water depth greater than 35 feet), or access to the state ferry. In many regions of the state, port infrastructure is minimal to non-existent. According to a 2010 survey, there are no communities with roll on/roll off capabilities in the Arctic region.[40]

**Percent of communities with port and harbor capabilities in Alaska by region, 2011**

| Region | Receipt or shipment of cargo by water | Roll on roll off capability | Cruise ship dock | Access to State ferry |
|---|---|---|---|---|
| Southeast | 61% | 26% | 32% | 52% |
| Prince William Sound | 80% | 30% | 13% | 15% |
| Southcentral | 50% | 13% | 19% | 6% |
| Southwest | 60% | 12% | 12% | 28% |
| Yukon-Kuskokwim | 27% | 7% | 0% | 0% |
| Northwest | 20% | 7% | 7% | 0% |
| Arctic | 0% | 0% | 0% | 0% |
| Interior | * | * | * | * |

*Table 15: Percent of communities with port and harbor capabilities in Alaska by region, 2011.*
*Source: Northern Economics.*
*Note: There appear to be data discrepancies for the Interior region. Therefore, it was not included.*

### *Alaska Marine Highway System*

The AMHS is another piece of key marine infrastructure in the state, stretching from Southeast to the Aleutian Islands. The ferry system serves 35 communities—33 of which are in Alaska, one in Washington, and one in Canada. The marine highway has been plagued by budget issues causing reduced sailings and even cancelations in recent years. In 2020, the most recent data year, ridership declined by 73%, largely a result of the pandemic.[41]


*Figure 20: Ports of call, 2021.*
*Source: AMHS.*

The Port of Alaska is another key asset for the Alaska economy. The Port of Alaska, located in Anchorage, ultimately serves 90% of Alaska's population. The port handled 50% of all inbound cargo in the state in 2019 and 75% of all non-petroleum cargo (excluding Southeast). The Port of Alaska supported $14 billion in commercial activity in 2019.[42]

### *New Developments: Port of Nome*

Alaska is the U.S.'s gateway to the Arctic; however, the state lacks an Arctic deep-water port. This has come to the forefront of conversations about the Arctic in recent years as economic activity in the Arctic increases. The lack of an Arctic deep-water port represents a missed opportunity to capture some of the economic interest in the Bering Sea and the Arctic in Alaska, but it also represents a security risk for national defense and search and rescue operations in the Bering Sea and Arctic Ocean.

In December 2020, Congress authorized the Arctic Deep Draft Port project in Nome. Federal authorization enabled a two-year-long design phase to be kicked off in Spring 2021, setting out plans for greatly expanding existing port infrastructure in Nome. In January 2022, it was announced that $250 million from the federal infrastructure bill would be allocated to the Port of Nome.[43]

## Communications and Broadband

**Assets and Stats:**

- As many as 90% of households in urban Alaska have broadband subscriptions.
- Rural households lag the statewide average, with as few as 43% of households holding broadband subscription in the Yukon-Koyukuk Census Area.[44]

**New Developments:**

- The IIJA includes $65 billion for broadband infrastructure development nationally, with Alaska getting a minimum of $100 million in formula funds.[45]
- GCI's TERRA Project began in 2011 and has since connected 84 communities and 45,000 Alaskans to terrestrial broadband infrastructure. GCI continues to expand the network and plans to build out to additional villages in the future.[46]
- Low Earth Orbit satellite internet is beginning to enter the market. While satellite internet is not new in rural areas of Alaska, this new technology proposes providing faster speed internet at lower costs.[47]

Access to fast, affordable internet is increasingly recognized as an integral component of economic activity. Many parts of Alaska lag in access to broadband, specifically in regard to speed and affordability.

Broadband availability ranges widely across regions of Alaska. In more urban areas like Juneau and Anchorage, approximately 90% of households have a broadband subscription. In less densely populated areas of the state like the Nome Census Area, roughly 60 to 80% of households have broadband subscriptions. Households in the Yukon-Koyukuk Census Area in the rural Interior have the fewest number of broadband subscribers at 43%—likely a function of both availability and cost.[48]

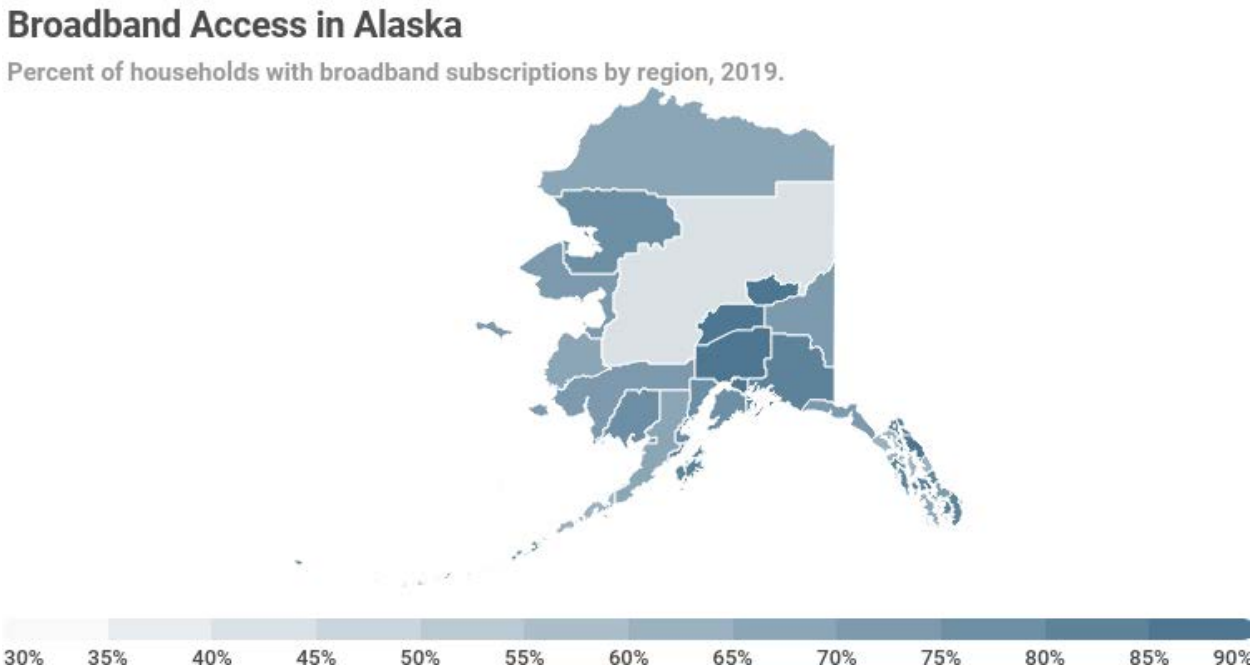



*Figure 21: Percent of household with broadband subscriptions by region, 2019.*
*Source: ACS 2019 5-Year Estimates.*

One key challenge for communities and service providers is middle- and last-mile infrastructure, which is the infrastructure connecting the long-haul networks to communities (middle-mile) and individual houses and structures to community networks (last-mile). Increasing access to broadband is critical to enabling economic development across Alaska, with the rise of telework, digital entrepreneurship, and e-commerce.

Federal investment in broadband and communications infrastructure have enabled progress in this area in the last decade, with several projects highlighting progress toward more affordable and available internet access for Alaskans in the future:

## Energy

**Assets and Stats:**

- The largest portion of Alaska energy consumption, 56%, comes from the industrial sector.[49]
- 77% of all energy produced in Alaska is derived from fossil fuels—natural gas, diesel, and coal. The remaining 23% comes from renewable sources including hydroelectric, wind, and solar.[50]
- Cost of power is higher than national averages with the average cost of residential electricity at $0.23/kWh statewide in 2019.[51] Costs range more widely across the state, from $0.08/kWh in Nuiqsut to $1.77/kWh in Lime Village before the PCE subsidy is applied.[52]

**New Developments:**

- Governor Mike Dunleavy set a goal of creating renewable portfolio standards for the Railbelt and introducing a sustainable power goal of 80% by 2040.[53]
- As of 2020, approximately 3.2 MW of solar power generation was installed across Alaska with the ACEP Solar Power Technologies Program.[54]

Just as with other forms of infrastructure in Alaska, energy infrastructure in the state is a complex patchwork heavily influenced by low population density and great distances. The majority – 56% – of Alaska's energy consumption comes from the industrial sector. Fish processing, mining, and oil and gas extraction make up the building blocks of Alaska's economy and all are energy intensive. Following industrial consumption, the transportation sector consumes the next largest segment of the state's energy at 27%.[55]

Alaska has some of the highest energy costs in the nation and is largely dependent on fossil fuels—natural gas, diesel, and coal. Natural gas provides relatively low-emission power and heat, but distribution is limited outside of Southcentral Alaska. A growing percentage of Alaska's energy production comes from renewable resources—hydroelectric, wind, and solar.[56]

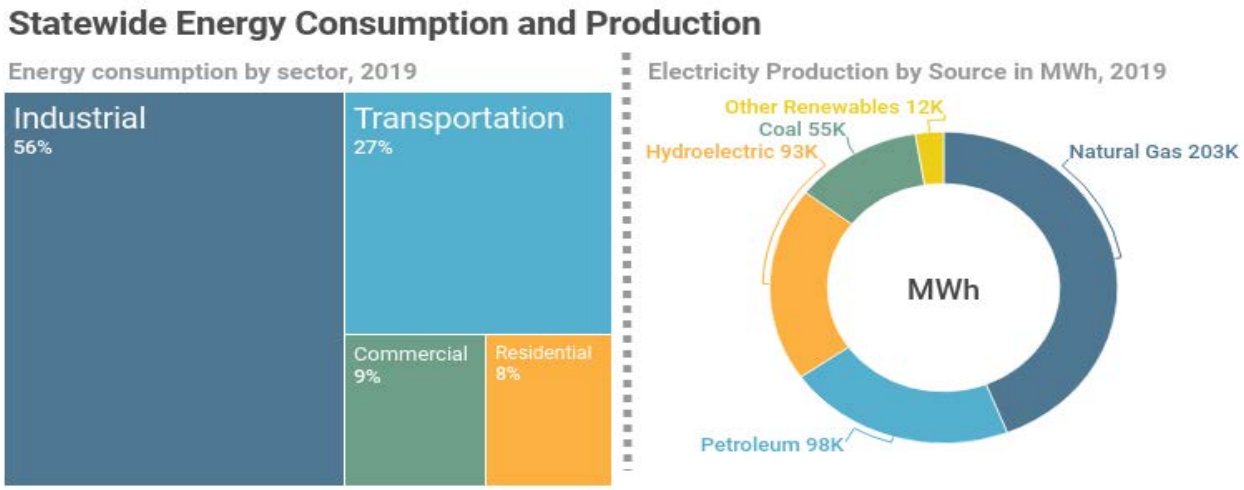



*Figure 22: Energy consumption by sector, 2019; Electricity production by source in MWh, 2019.*
*Source: Energy Information Agency (EIA).*

It can be helpful to divide Alaska's energy landscape into two parts: remote and urban. The urban interconnected grid stretching from Homer to Fairbanks along the rail system is colloquially referred to as the Railbelt and is comprised of five independent utilities. The Railbelt system is primarily powered by natural gas generation, followed by coal, hydro, diesel, wind, and solar. The five utilities that serve Railbelt customers are Chugach Electric Association, Matanuska Electric Association, Golden Valley Electric Association, Homer Electric Association, and City of Seward.

Other utilities, like Copper Valley Electric Association and Alaska Power and Telephone, serve customers on the road system. However, these power utilities are not connected to the larger Railbelt grid.

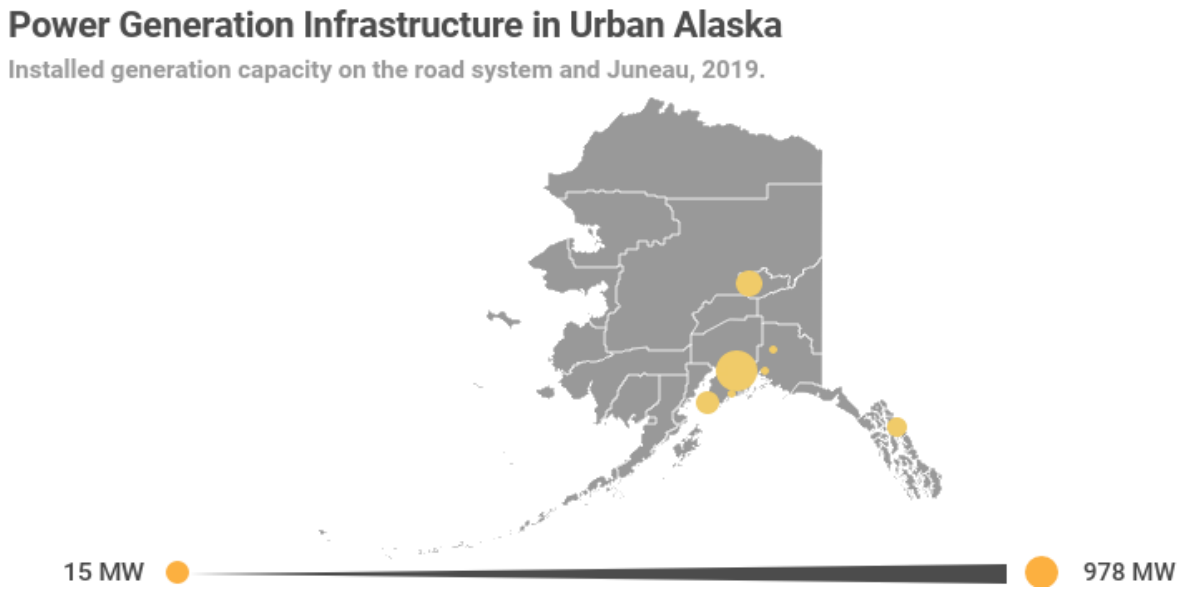



*Figure 23: Installed generation capacity on the road system and Juneau, 2019.*
*Source: EIA.*

In 2021, the sale of Municipal Light and Power to Chugach Electric Association consolidated two of the electric utilities serving the Anchorage area into one. The Railbelt has been working toward the creation of an electric reliability council tasked with the creation of reliability standards, coordinating joint

resource planning, and ensuring consistent interconnection protocols.[57] Furthermore, Governor Mike Dunleavy introduced legislation in February 2022 that would create a renewable portfolio standard on the Railbelt. The proposed legislation also includes a commitment to transitioning the Railbelt energy portfolio to 80% sustainable power by 2040.[58]

Remote communities and industry sites across Alaska are powered by a diverse mix of islanded microgrids. Most microgrids in Alaska are dependent on diesel powered generation. However, generation sources can vary according to the resources available in the area. One commonality is small size; community micro-grids across Alaska range in size from 500 kW to 48 MW.[59]

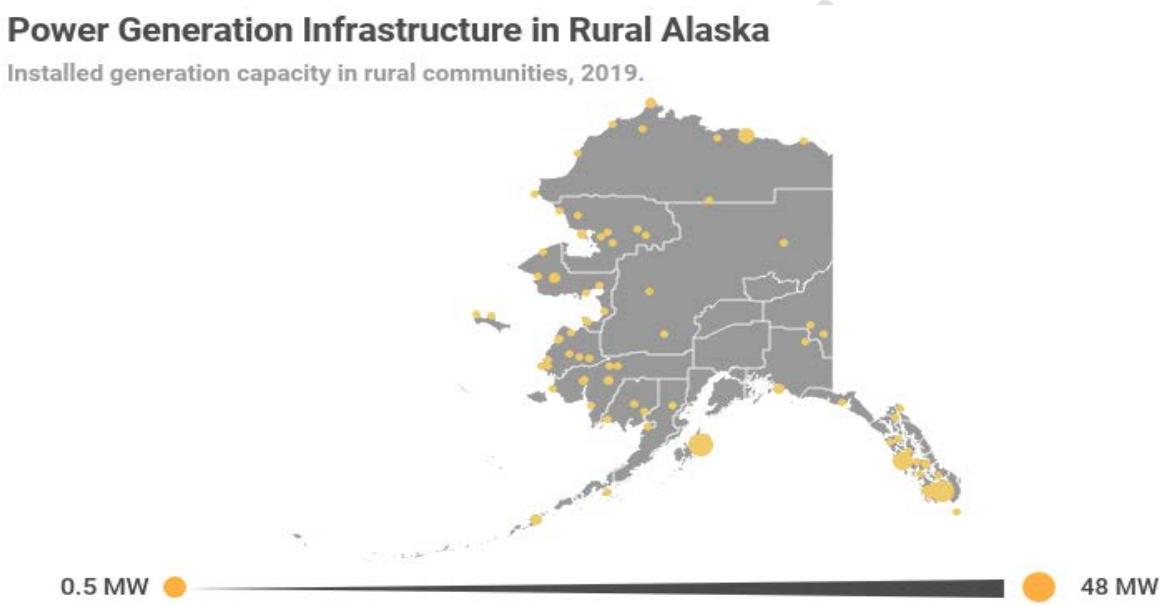



*Figure 24: Installed generation capacity in rural communities, 2019.*
*Source: EIA.*

## Resilience

Alaska's economy has faced a series of shocks in recent years. Some were caused by natural occurrences, like wildfires, earthquakes, and the COVID-19 pandemic. Others were the result of national and global political and market forces, like volatile oil prices, rapid inflation, and workforce shortages. Though many of these events were individually unpredictable, disruptive occurrences are a reality, elevating Alaska's need for economic resilience.

"Resilience" is a broad term with multiple meanings, but this CEDS refers to economic resilience as described by the U.S. Economic Development Administration (EDA). According to the EDA, economic resilience has three attributes, entailing the ability to:

- Recovery quickly from a shock;
- Withstand a shock; and,
- Avoid a shock altogether.

### Resilience Threats

Shocks or threats to economic vitality can be unpredictable. In 2019, very few would have predicted a global pandemic lasting more than two years was just over the horizon. Nonetheless, recent history and situational awareness informs the process of identifying potential hazards so that they can be proactively addressed. Various types of shocks capable of disrupting the economic life of Alaskans are described below.

**COVID-19 and other public health crises.** The COVID-19 pandemic disrupted almost every aspect of Alaska's economy. The state lost 40,000 jobs in spring 2020 at the pandemic low point, with some industries like tourism, food service, and hospitality hit especially hard.[60] Like the rest of the country, Alaska saw businesses close, workers laid off, and increased demand for public assistance. More business was conducted online than ever before, which further highlighted Alaska's need for affordable, high-quality broadband internet. As of July 2022, 64.6% of Alaskans are vaccinated against COVID-19, and caseloads had come down from their peaks.[61] However, new variants and future outbreaks remain a major concern.

**Inflation, recession, and cost of living.** Over the last two and half years, the U.S. has experienced an unprecedented recession followed by record-breaking inflation, and Alaska is no exception from the nationwide trends. Alaska already has a higher cost of living than the U.S. average, and the economic disruptions of COVID-19 exacerbated many existing challenges related to the price of fuel, food, housing, and other necessities.

**Job loss and workforce shortages.** After dramatic job losses in 2020, Alaska is now experiencing a workforce shortage. Businesses are struggling to hire staff, especially seasonal positions like those in the tourism and seafood industries. Moreover, many essential positions like teachers, nurses, and other health care workers, remain unfilled. One cause of this shortage is a lack of available housing which presents a large barrier to hiring, especially for seasonal workers in communities with a relatively small year-round population and reliance on summer industries like tourism and seafood. In an example from the 2022 Statewide CEDS survey, one business owner cited several potential employees accepted job offers that they later declined because they could not find anywhere to live.[62]

**Infrastructure vulnerability.** Much of Alaska's infrastructure, including roads, ports, airports, and powerlines, is aging or deteriorating. Alaska imports most of its food and other essential products from the Lower 48 and abroad and relies on ports and roads that are in need of maintenance. Furthermore, single-point-of-failure infrastructure makes transportation systems extremely vulnerable to disasters. For example, an avalanche or rockslide can leave a community stranded and cut off from the rest of the state if it blocks the only road access.

**Climate change**. Alaska's economy and broader way of life has a strong connection to its unique environment. Economic Engines like oil and gas, mining, fisheries, timber, and tourism all depend on access to Alaska's natural resources. Climate change threatens these industries and the Alaskan way of life. Melting permafrost, coastal erosion, ocean temperatures, and changing flow levels in streams and rivers threaten critical infrastructure, housing, and barge access to deliver fuel and other goods, with some entire communities needing to relocate. Higher temperatures are affecting ice formation in winter, which many residents of Rural Alaska depend on for subsistence hunting and transportation.

**Seismic events**. Alaska's location on the Pacific "Ring of Fire" means it is vulnerable to natural disasters like earthquakes, tsunamis, and volcanic eruption. Most earthquakes are small and do not cause significant damage. However, larger earthquakes can be destructive, like the 2018 earthquake in the Southcentral region. In some parts of the state, including the Kenai Peninsula, the Alaska Peninsula, and the Aleutian Islands, seismic events can trigger a tsunami, which have the potential to be devastating. Volcanic eruption can trigger earthquakes and emit ash, which can ground flights and cause hazardous air quality.

**Wildfires**. Summers in Alaska virtually guarantee some wildfire activity, which can threaten lives, property, and public health when it occurs near population centers. Fires regularly cause unsafe levels of smoke in communities throughout the state, especially in Interior, Southcentral, and Southwestern Alaska. This can also be a deterrent to tourism and other kinds of economic activity.

**Floods and coastal erosion**. Many Alaska communities are located on major rivers with a history of flooding, or coastal areas facing erosion. Communities like Utqiaġvik and Shishmaref have suffered property and infrastructure damage from winter storms. The Yukon-Kuskokwim Delta village of Newtok had to be relocated in 2019 due to flooding and erosion.

**Fisheries disasters.** Seafood is a $5.7 billion industry in Alaska that many communities rely on.[63] Natural fluctuations in fish biomass create some uncertainty, which other environmental threats like climate change amplify. Salmon runs for some species have been decreasing in parts of the state, leading to reduced caps on catches or fishery closures. Other fisheries, like the cod in the Gulf of Alaska, have also experienced biomass declines and allowable catch reductions. This results in lost income for commercial fishers and reduced recreational opportunities for sport fishers. Fishery population drops can have devastating impacts on subsistence fishing communities that depend on them as major food sources throughout the year.

**Single-industry dependence.** Alaska as a state relies on a few key industries, or Economic Engines, that support its economy, including oil and gas, mining, seafood, and tourism. Disruptions to these industries are often factors beyond Alaska's control but severely impact the state's economy. Many of Alaska's regional economies are dependent on just one or two of these industries, and shocks to them can be devastating. Much of the state government's revenue depends on the price of oil, which fluctuates

unpredictably. Low oil prices can trigger a recession as it impacts direct industry employment and state spending and services.

**Subsistence resource threats.** Alaska Native people have subsisted on their ancestral lands for thousands of years. Hunting, fishing, and foraging are essential to traditional ways of life in Alaska. They are also critical to food security, as supply chains to remote Alaskan communities are easily disrupted. Low salmon runs, fishery closures, natural disasters, and regulations limiting hunting and fishing can threaten food security in much of Alaska.

## Resiliency Action Strategies

During the resiliency challenges over the last five years many organizations throughout the state have partnered to respond to such events. Experiences from these events provide learning opportunities to better anticipate future jolts to the economy. Planning for shocks and disruptions to the economy is critical for resiliency. There are tools that the State of Alaska, local governments, businesses, and other organizations can utilize for anticipating and responding to resiliency challenges.

**Pre-disaster planning.** When a negative event occurs, an efficient response is essential. Coordination between state, regional, local, and tribal governments, non-profit organizations, and private sector businesses in response to a disaster can pay off by reducing damage and speeding up recovery. Planning efforts should anticipate events known to occur in the state, like earthquakes and wildfire, and have a strategy to respond to unprecedented emergencies, like the COVID-19 pandemic.

**Import substitution.** Alaska is at the end of the global supply chain, meaning higher prices and increased vulnerability to disruptions. The Port of Alaska in Anchorage represents a single point of failure for the supply of food and other essential goods for most of Alaska. From there, products are distributed by truck or rail throughout the road system and barged or flown to communities off Alaska's road system. Alaska has very little agriculture, and relies almost entirely on importing food, except for subsistence activities (which would not sustain Alaska's entire population).

**Access to capital.** Disasters can be devastating to businesses, especially if they lack the resources to withstand lost revenue or incur unexpected expenses. This can mean layoffs for workers, reduced hours, and permanent closure. New, seasonal, and nontraditional businesses like commercial fishers, of which Alaska has many, are particularly vulnerable. Access to emergency capital after a disaster keeps Alaska's business afloat, its workers employed, and its economy running.

**Broadband access and affordability.** The COVID-19 pandemic highlighted Alaska's critical need for access to affordable, reliable broadband. Employees that were able to worked from home, the K-12 and university systems transitioned to online learning, and community gatherings went virtual, all of which demanded broadband. Alaska pays higher internet costs than the national average, and the difference is particularly pronounced in rural communities, where residents often pay hundreds of dollars per month for slow, unreliable internet access or go without it entirely. With more business than ever before conducted online, Alaska needs to improve access across the state to thrive in today's global economy. As described in other sections of this document, Alaska is the focus of large amounts of broadband funding in the future.

**Streamlining job access and training.** Labor shortages underscore the need for a well-trained workforce that employers can readily access. This means aligning training and certificate programs with

occupational demand, and making them easy to access. It also includes the use of remote and digital tools when possible.

**Ensure infrastructure reliability.** Much of Alaska's critical infrastructure requires substantial capital investment to extend its lifespan and mitigate risks of failure. This includes transportation infrastructure as well as power and telecommunications linkages. The 2021 Federal Infrastructure Investment and Jobs Act (IIJA) includes funding specifically to increase the resilience of critical infrastructure.

**Emerging Sectors.** A resilient economy is a diverse economy, and the state is actively pursuing emerging industries to combat vulnerabilities from overreliance on a few large economic drivers. The Emerging Sectors identified in this CEDS have the potential to grow into large industries that leverage Alaska's unique features as strengths.

**Support and grow entrepreneurs.** Investing in emerging industries that diversify the economy means supporting and growing Alaska's innovators and entrepreneurs, and encouraging them to keep their operations in state. Entrepreneurs seeking the venture capital route and those seeking nontraditional models like employee-owned cooperatives contribute uniquely to the state's economy.

**Connectivity, communication, and coordination.** Coordination between the different public and private entities in Alaska is critical to an effective disaster response. ARDORs and other economic development organizations across the state consistently serve as a bridge between small businesses, nonprofits, and governmental entities. Building networks and task forces that can be activated during a crisis or disaster is one important component of pre-disaster planning.

# V. Economic Engines

## Oil and Gas

**Oil and Gas at a Glance**

- The oil and gas sector is the largest industry in Alaska, creating about 77,600 jobs in 2018, or about a quarter of all wage and salary employment in the state. [64]
- Between 2019 and 2021, Alaska produced an average of approximately 160 million barrels of oil each year. In 2021, Alaska produced the sixth largest quantity of crude oil of any US state.[65]
- Between 2019 and 2021, approximately 76 million barrels equivalent of natural gas were extracted annually in the Cook Inlet Region of Alaska.
- In 2021 alone, over 3.1 billion barrels equivalent of natural gas were extracted in the North Slope region, but most of this oil was reinjected into the ground, not sold.[66]
- The industry is the largest source of revenue for state government, paying $2.7 billion in taxes and royalties in FY 2019. Local governments collected $449 million in oil and gas revenues the same year.[67]
- Oil and gas contributions to the Alaska Permanent Fund were $46.9 billion cumulatively at the end of FY 2021.[1]

Alaska has a long history of oil and gas production. While the Trans-Alaska Pipeline System (TAPS) was not constructed until the 1970s, there was smaller-scale development of oil and gas resources as early as 1919 in the Gulf of Alaska Basin. This was followed by the discovery of additional resources in the Cook Inlet Basin in the 1950s. In the most recent 3 years for which we have complete data (2019-2021), Alaska produced an average of 160 million barrels of oil annually, or just under 450,000 barrels per day. This is markedly lower than the peak years of the late 1980s but still represents the largest industry when accounting for all direct, indirect, and induced jobs, including government jobs funded by oil revenues. The ongoing contribution of oil and gas development (royalties and revenues) into Alaska's Permanent Fund are critical to improving the State's long-term prospects for self-sufficiency.

[1] Alaska Permanent Fund Corporation. "Alaska Permanent Fund Financial History and Projections as of March 31, 2022."

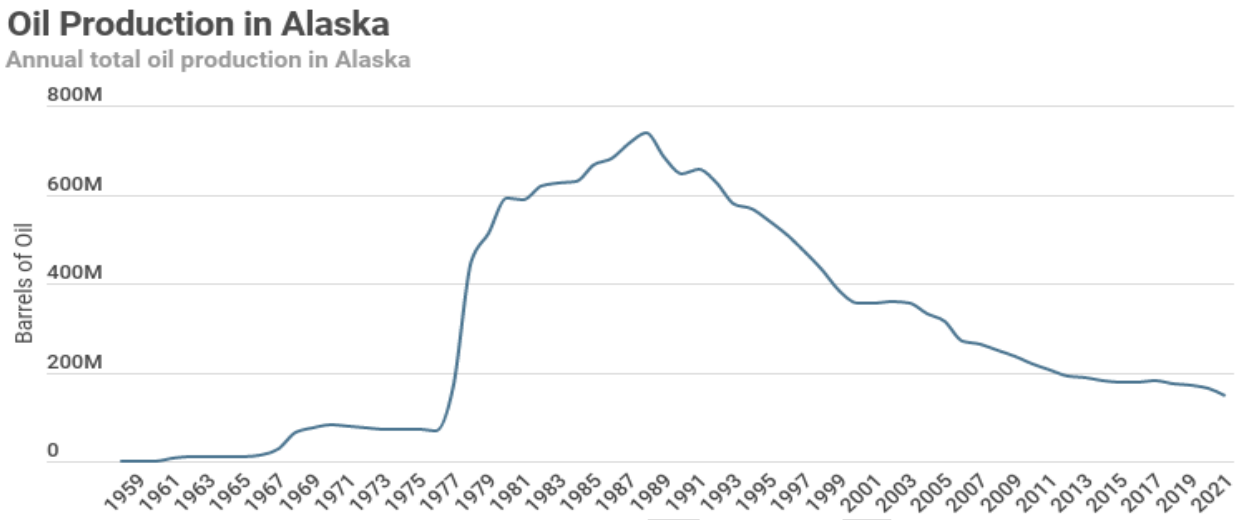



*Figure 25: Annual total oil production in Alaska.*
*Source: Alaska Oil and Gas Conservation Commission (AOGCC).*

Alaska also has a robust natural gas sector. While there are significant gas resources on the North Slope of Alaska, very little of it reaches the market due to the dearth of infrastructure for, and cost associated with, moving natural gas from the North Slope of Alaska to a port capable of liquifying and exporting it to global markets. Most of the natural gas that gets sold and used in Alaska comes from the Cook Inlet region and is primarily consumed in-state. Natural gas heats almost 50% of homes in Alaska and provides about 40% of the electricity generated by utilities in the state.[68] However, there is little natural gas distribution outside of Southcentral Alaska and parts of the Interior, leaving much of the state dependent on high-cost diesel and fuel oil for heat and electricity.


*Figure 26: Annual total gas production in Cook Inlet, Alaska.*
*Source: AOGCC.*

Due to varying levels of production and dramatically fluctuating prices, the value of oil produced in Alaska can be volatile and hard to predict. The State of Alaska relies heavily on royalties and taxes paid by oil producers. In some years, the funds collected by the state from oil producers can be greatly in

excess of expectations and lead to a budget surplus. In other years, when revenues from oil production were low, the state has had to use nontraditional methods for balancing the state budget. In 1981, the inflation-adjusted gross value of the oil produced in Alaska was nearly $39 billion. In the last three years (2019-2021), the value of oil has averaged slightly less than $9 billion.[69]

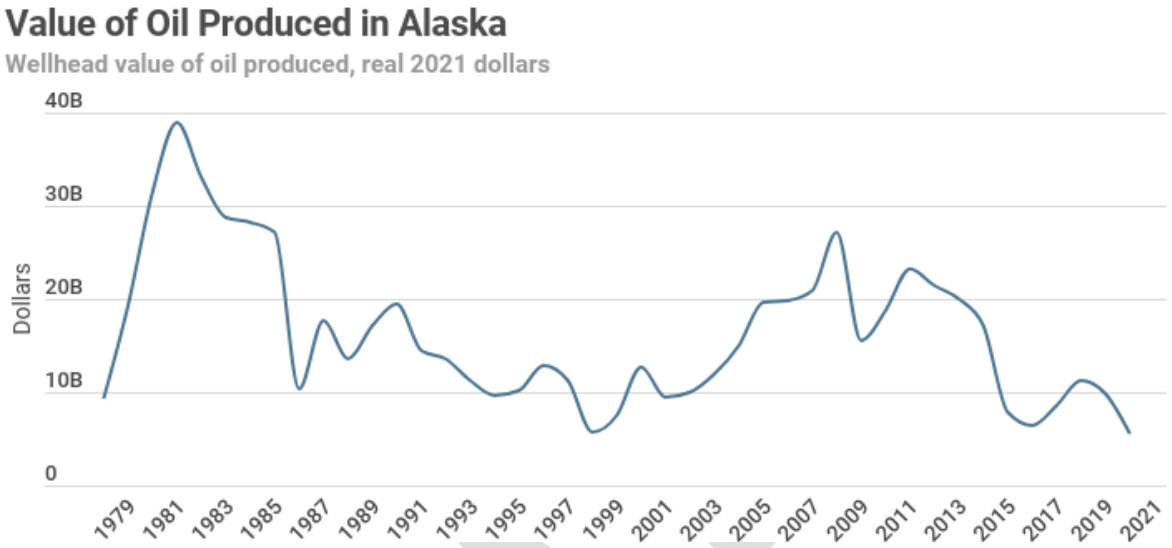



*Figure 27: Wellhead value of oil produced, real 2021 dollars.*
*Source: AOGCC.*

## Oil and Gas Infrastructure

TAPS, the main line of which stretches 800 miles from Prudhoe Bay on the North Slope to Valdez on the coast of Prince William Sound, is a critical piece of infrastructure for the oil and gas industry in Alaska. Additional pipeline projects have been proposed, including a plan to construct a natural gas pipeline from the North Slope to the Cook Inlet region to produce liquefied natural gas (LNG) for export and in-state use. However, due to the complexity of global supply and demand, and regulatory concerns, this project is still in the planning phase. A gas line would potentially create thousands of jobs in Alaska, along with state and local government revenues and reduced energy costs for many residents.

**Critical issues for oil and gas:**

- Federal restrictions on drilling, such as in the Arctic National Wildlife Refuge (ANWR).
- Need for consistency and transparency in the federal permitting process.

**Opportunities**:

- LNG export to global markets.
- New production in ANWR, the National Petroleum Reserve—Alaska, and the continental shelf.
- Innovative new alternative uses for natural gas, such as hydrogen fuel production.

## Mining

**Mining Industry at a Glance:**

- Zinc, lead, and gold exports ranked in the top five exports by value from Alaska, with $1.5 billion in exports in 2020 across the three commodities.[70]
- In 2020, the mining industry supported 9,600 jobs in Alaska and $890 million in wages.[71]
- Alaska is home to six major operating mines, with a further two in the advanced permitting stages.[72]

Mining has deep roots in Alaska. From the gold rush beginning in the late 1800s which brought thousands of people to Alaska seeking riches, to the construction of Red Dog Mine in the 1980s, the resource wealth of the state has been a cornerstone of Alaska's economy. Today, zinc, lead, and gold rank among the top five commodities exported from Alaska by value, with copper and other precious metals also ranking among the top 20.[73]


*Figure 28: Current operating, permitting, and exploratory mines, 2022.*
*Source: Alaska Miners Association.*

With six operating mines, two mines in the permitting stages, and a further seven deposits in the advanced exploration stages, the mining industry will likely continue to play an important role in the state's export economy into the future. Currently operational mines in the state produce gold, silver, coal, zinc, copper, and lead. Mines under development or exploration are expected to produce gold, copper, zinc, cobalt, rare earth elements, and more.[74]

**Alaska mines and prospects**

| Mine | Development Stage | Minerals Produced |
|---|---|---|
| Red Dog | Operating | Silver, Zinc, & Lead |
| Usibelli | Operating | Coal |
| Fort Knox | Operating | Gold |
| Pogo | Operating | Gold |
| Kensington | Operating | Gold |
| Greens Creek | Operating | Gold, Silver, Zinc, & Lead |
| Pebble | Permitting | Copper, Gold, Molybdenum |
| Donlin | Permitting | Gold |
| Manh Choh | Advanced Exploration | Gold |
| Upper Kobuk | Advanced Exploration | Copper, Zinc, Gold, Silver, & Cobalt |
| Graphite Creek | Advanced Exploration | Graphite |
| Livengood | Advanced Exploration | Gold |
| Palmer | Advanced Exploration | Copper, Zinc, Silver, Gold, & Barite |
| Niblack | Advanced Exploration | Copper, Gold, Silver, & Zinc |
| Bokan Mountain | Advanced Exploration | Rare Earth Elements |

*Table 16: Alaska mines and prospects.*
*Source: Alaska Miners Association*

In 2020, the mining industry supported 9,600 total jobs in Alaska, including 4,700 direct jobs.[75] Mining employment has grown 2% annually on average between 2011 and 2020.[76] The industry experienced employment growth during both economic downturns of the last decade—the 2015 to 2018 recession caused by the drop in oil prices and the 2020 downturn caused by the COVID-19 pandemic.

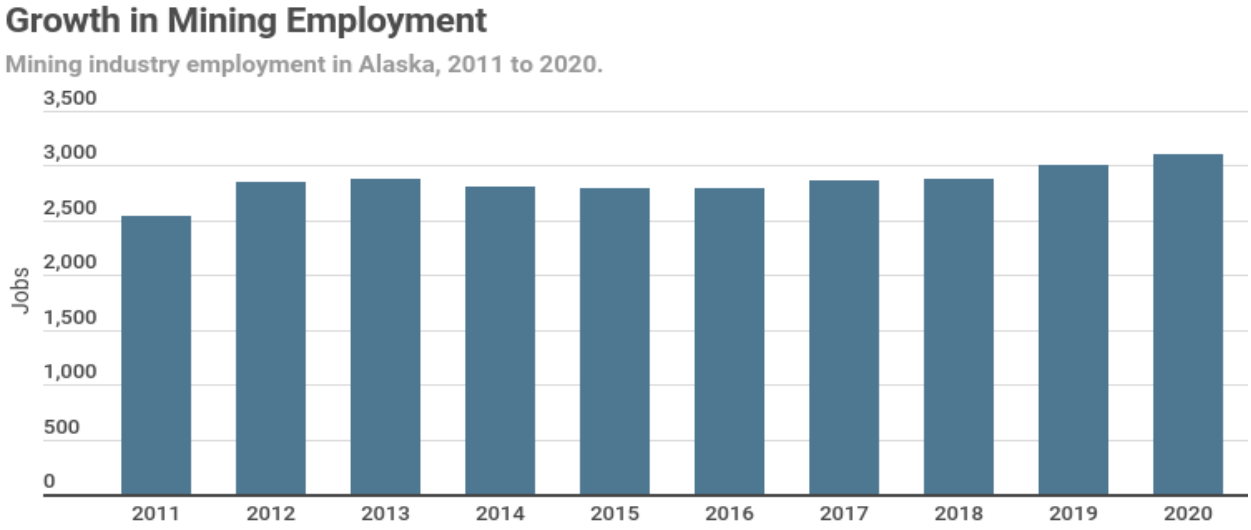



*Figure 29: Mining industry employment in Alaska, 2011 to 2020.*
*Source: QCEW*
*Note: Numbers for each year represent an annual average.*

Mineral extraction contributes extensively to Alaska's GDP and the state's international export balance. Over the last five years Alaska has exported $1.8 billion on average annually in mineral ore and concentrates. Zinc makes up the majority of mineral exports by value, despite experiencing a decline

over the last three years. Despite this, total mineral exports have remained relatively steady, mostly because of growing gold exports from the gold mines in the state.

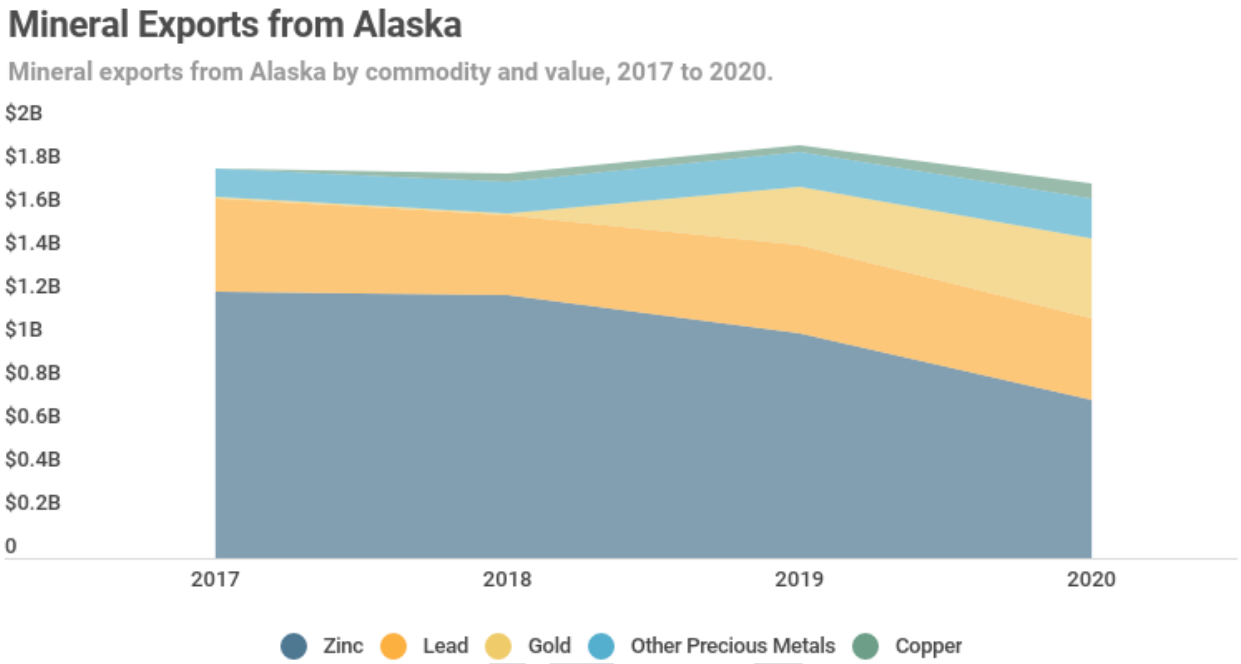



*Figure 30: Mineral exports from Alaska by commodity and value, 2017 to 2020.*
*Source: U.S. Census Bureau.*

Growing interest in rare earth elements (REE) and other types of critical minerals present an opportunity for Alaska's mining industry. REE are a set of 17 metallic elements which are used in the manufacture of many technologies including cellphones, hard drives, electric vehicles, satellites, and more.[77] At least one of the mines engaged in advanced exploration in Alaska—Bokan Mountain located southwest of Ketchikan—possesses REEs.[78] In addition to mine exploration in the region, the company developing Bokan Mountain, Ucore Rare Metals, Inc, has proposed to construct a REE processing facility in Ketchikan, which would create additional jobs.

The 2021 Infrastructure Investment and Jobs Act includes federal funding to survey for deposits of critical minerals. In addition to REEs, Alaska also has known deposits of cobalt in the Upper Kobuk, which is used in the manufacture of rechargeable batteries. The Nome area has a significant graphite deposit in advanced exploration as well. Other yet-to-be discovered critical minerals could create jobs and investment in Alaska while reducing dependence on overseas resources.

**Critical Issues for Alaska Mining**

- Need for coordination, timeliness, efficiency, consistency, and transparency in the federal permitting process.
- High nonresident worker share.
- High operational expenses resulting from remoteness of mines, especially in energy costs.
- Energy intensity combined with high energy costs prevent capturing local value-added processes.
- Regulatory barriers and oversight.

- Public opposition to some projects.

**Opportunities for Alaska Mining**

- Expansion of value-added processing in-state.
- Growing demand for REEs and other critical minerals to support the technology industry.
- Electrification of mining processes and equipment.
- Renewable energy and low carbon fuel sources used in extraction and processing technologies.

## Seafood

**Fisheries stats at a glance:**

- Alaska leads all states in both pounds harvested and total value of catch.[79]
- 17 of the top 100 fisheries ports in the US are Alaskan ports, including the top three—Unalaska, Aleutian Islands, and Kodiak (by pounds landed) in 2020.[80]
- In 2019, the seafood industry directly employed a total of 62,200 workers in Alaska throughout the year, including almost 20,000 resident fishermen.[81]
- The seafood industry's economic output was $5.7 billion in 2019.[82]

Alaska's iconic seafood industry reaches back to at least 1878 with the first salmon canneries in Sitka and Klawock.[83] Over nearly 150 years, commercial fisheries in Alaska have undergone major changes with the banning of fish traps at statehood, the introduction of the limited-entry permit system in the 1970s, and the advent of the quota system in the 1990s. Despite global competition (including from farmed salmon) Alaska's seafood industry remains a leading Economic Engine in 2022.

With a total of 62,200 workers in 2019, seafood creates more direct private sector jobs than any other industry in the state, with the important caveat that the oil and gas industry creates more total jobs through multiplier effects. Of these, 31,300 were in fishing and harvesting, 27,100 in processing, and 3,800 in management, hatcheries, and other related activities. About 20,000 Alaska residents worked as skippers or crewmembers in commercial fisheries in 2019.[84] Importantly, these figures count the number of unique individuals working at any time over the course of the full year. In a typical year, between 20,000 and 25,000 individuals are employed in harvesting during the peak month (July). As a year-round average, a typical employment figure for a given year is between 6,500 and 8,500 harvesting workers, incorporating the slower months of the year. Nonresident participation in fisheries is high.

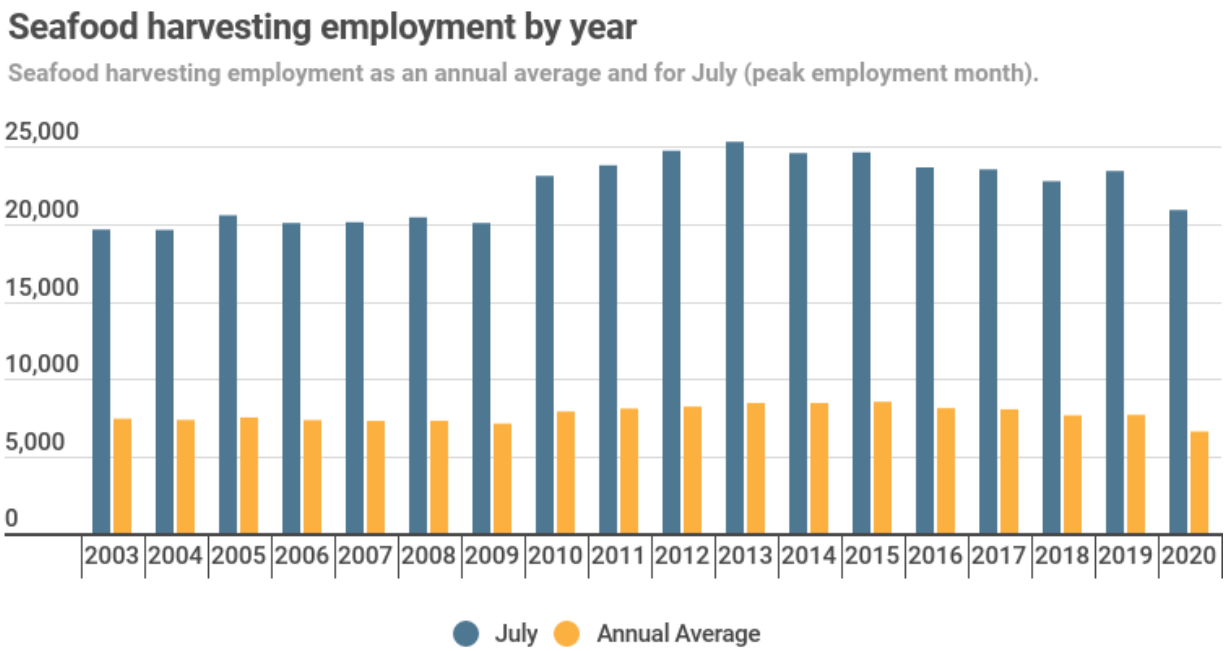



*Figure 31: Seafood harvesting employment as an annual average and for July (peak employment month). Source: DOLWD.*

For 2019, DOLWD estimated peak (July) employment in harvesting at 23,440 and an annual average of 7,653. Almost 60% of the latter figure were involved in salmon fisheries. In 2020, when fisheries suffered pandemic-related disruptions, a similar proportion still worked in salmon harvesting. Groundfish (especially pacific cod and pollock), halibut, and sablefish collectively employ most of the remainder.[85]

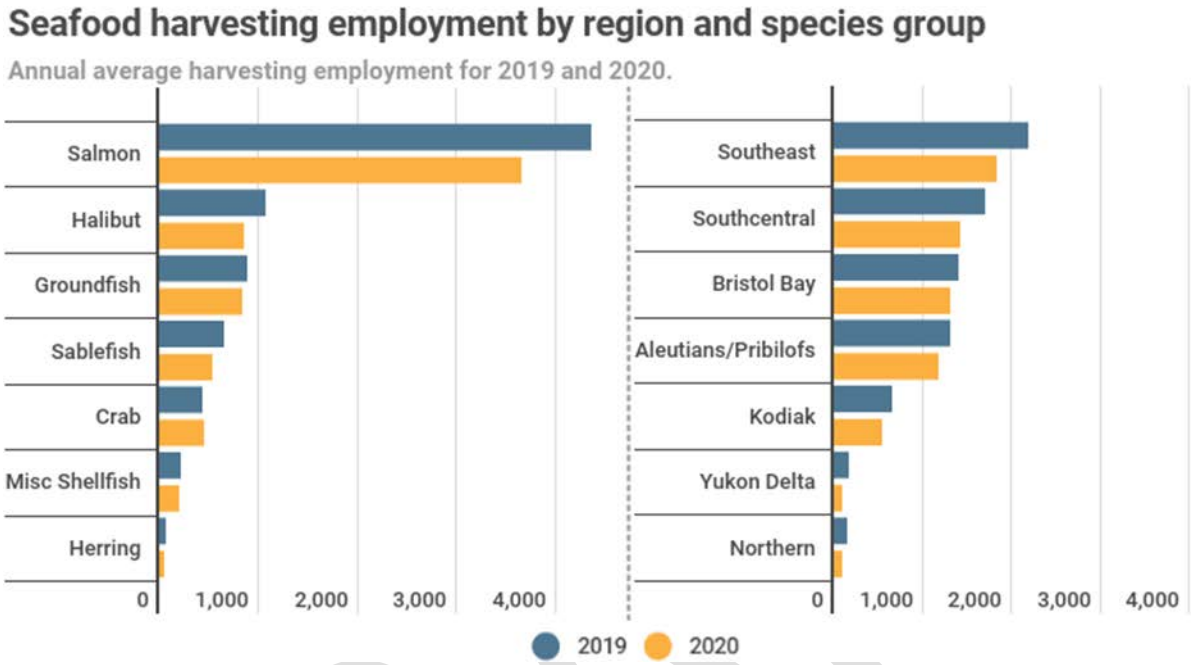



*Figure 32: Annual average harvesting employment for 2019 and 2020.*
*Source: DOLWD.*

Commercial fisheries are especially important sources of income and employment in Southeast, the Gulf of Alaska, and Southwest Alaska. Southeast, Southcentral, and Bristol Bay top the list due to their large salmon fisheries. With the exception of the Aleutian and Pribilof Islands, where groundfish dominates harvesting employment, salmon are the largest source of fisheries jobs.

The processing segment of the seafood industry is also a large source of employment. In July 2019, for instance, more than 20,000 individuals worked in seafood processing in Alaska.[86] However, a combination of the pandemic and difficulties obtaining work visas reduced employment in 2020 and 2021. According to DOLWD, almost 80% of all seafood processing workers were nonresidents in 2020, a share similar to other years.[87]

By ex-vessel value (the sum paid to the crew upon delivery of the seafood to a processor), salmon and pollock account for roughly similar shares. In 2020 all Alaska seafood harvests amounted to nearly $1.5 billion in ex-vessel value, of which salmon were $449 million and pollock $420 million. These were followed by crab ($181 million), Pacific cod ($137 million), halibut and sablefish ($112.5 million), and rockfish and Atka mackerel ($63 million).[88]

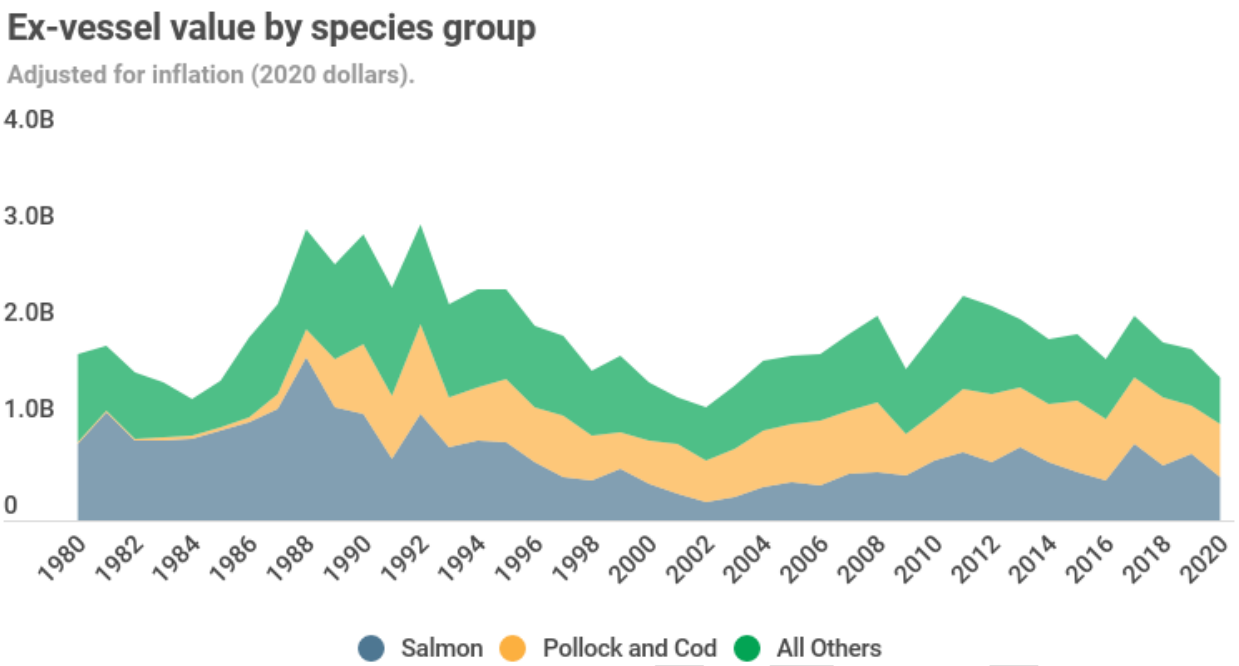



*Figure 33: Ex-vessel value by species group.*
*Source: National Oceanic and Atmospheric Administration (NOAA) Fisheries. Deflated by CPI-U, CED calculations.*

An important trend in Alaska's seafood industry is price competition in global markets where seafood products are sold. Prices can change dramatically from year to year, and long-term pressures have been especially hard on the salmon market. Economist Gunnar Knapp argues that the expansion of farmed Atlantic salmon in places like Chile and Norway since the mid-1990s have reduced the pricing power of wild salmon fisheries.[89] After reaching a low in the early 2000s, salmon prices rebounded somewhat on the strength of wild salmon's premium market positioning.

**Critical Issues for Alaska Seafood**

- High nonresident worker share, especially in processing.
- Worker shortages and visa challenges in seafood processing.
- "Aging of the fleet"; few young people entering fisheries as older permit holders retire.
- Difficulty and expense of buying permits, vessels, quota, and gear.
- Competition from farmed salmon.
- Recent reductions in pollock and Pacific cod allowable catch.

**Opportunities for Alaska Seafood**

- Expansion of value-added processing in-state.
- Establish handling designation/standard for premium, wild-caught seafood
- Utilization of waste products such as fish oil and chitin from crab shells.
- Processing automation to improve efficiency.
- Renewable energy and low carbon fuel sources in processing technology.
- Electrification of marine vessels.

## Visitor Industry

**Tourism at a Glance:**

- The number of tourists arriving in the state increased steadily from 2010 to 2019, reaching 2.4 million before falling to 427,000 in 2020 as result of the COVID-19 pandemic.[90]
- No large cruise ships visited Alaska in 2020, and only 116,000 passengers visited in 2021, about one-tenth of the pre-pandemic volume.[91] Other forms of transportation to the state were also dramatically reduced, air travel in the state was down 57% over the previous year in 2020[92] and with the border closure and travel restrictions in Canada, visitors to the state by road were also reduced.
- Visitors directly or indirectly contribute to a variety of state and local government revenues through taxes and fees. In 2019, these amounted to $143.3 million to state government,[93] and $45 million in local government bed taxes in FY 2020.[94]
- Tourism created roughly 35,000 direct jobs in Alaska in 2019, and approximately 50,000 total jobs.[95]

With its untamed wilderness, stunning views, and extraordinary wildlife, Alaska is a major destination for domestic and international visitors. In 2019, the peak year for visitation before the COVID-19 pandemic, 2.4 million visitors traveled to the state. This means that for every resident, there were three visitors that year. Visitors spent $2.79 billion that year, which circulated through the state economy in the form of wages, business income, and state and local taxes.[96]

Tourism is a major employer in the state. In 2019, the industry generated roughly 35,000 direct jobs, with a payroll of $1.1 billion. In 2020, employment and wages both fell by 79% as the COVID-19 pandemic effectively eliminated cruise ship travel.[97] Past research indicates that Southcentral Alaska accounts for the greatest number of tourism-related jobs, followed by Southeast and the Interior.[98] As a share of total employment in each region, Southeast sees the greatest impacts, with roughly one job in four being tied to tourism before COVID-19.[99] Statewide, tourism supports about one in ten jobs.

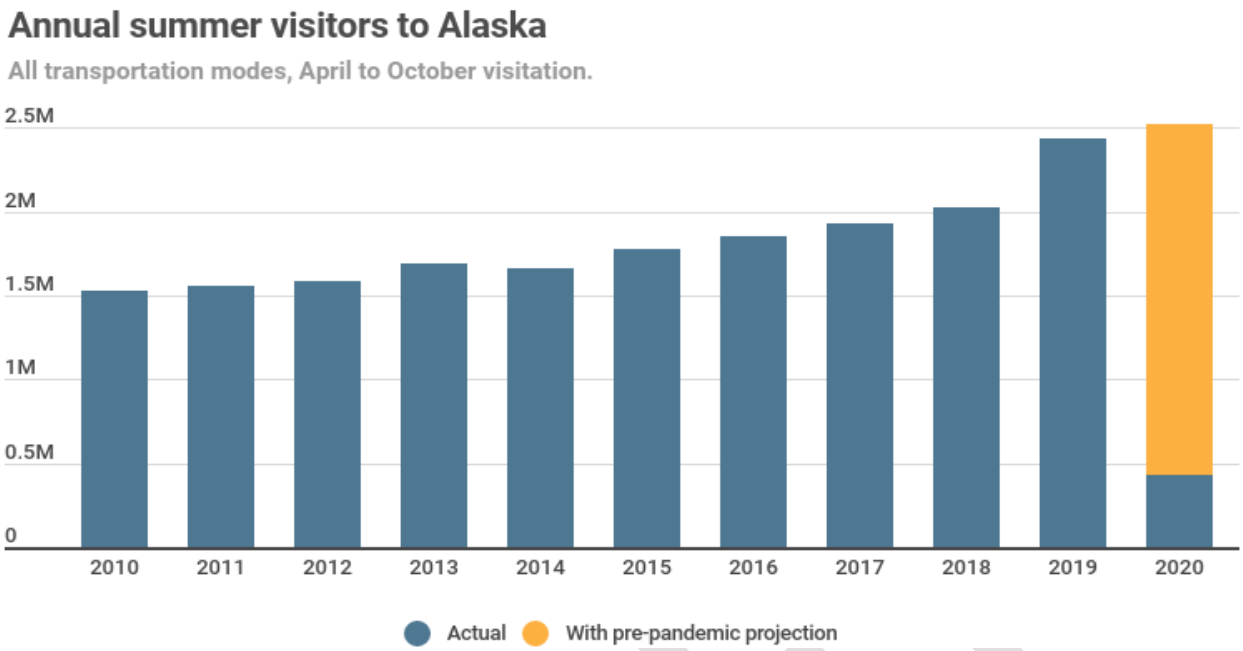



*Figure 34: Annual summer visitors to Alaska, 2010 to 2020.*
*Source: McKinley Research.*

The visitor market in Alaska can be broken into three transportation markets, each with its own economic characteristics: cruise ships (accounting for 60% of visitors in 2019), air (36%), and highway or ferry (4%).[100] Most cruise ships enter the state through Southeast Alaska's Inside Passage, making it the most frequently visited part of Alaska. Anchorage is the most common entry point for air visitors.

Leisure travel to Alaska (including all modes of transportation) rose steadily from 2010 to 2019 and then plummeted to zero in 2020 due to COVID-19. In the absence of the pandemic, McKinley Research Group estimated that visitation would have reached over 2.5 million in 2020. Instead, it fell by over 80% in 2020, with no large cruise ships arriving that year, reduced air travel, and border closures.[101] The 2021 season saw a small number of cruise ships return to Alaska, with about 116,000 visitors—less than one-tenth of the pre-pandemic projection.[102] However, the 2021 season did see a surge in independent travelers—visitors to the state traveling independent of big tour companies or cruise ship operators.[103]

One metric that can be used to gauge the impact of the visitor industry is bed tax revenues levied by local governments. Many communities that host visitors charge such a tax, ranging from a few dollars per night to over 10% of the nightly rate. Overall, the bed taxes around the state generated over $45 million dollars combined in FY 2020. Local bed tax revenues halved in FY 2021, generating just over $20 million dollars in revenues statewide.[104] These figures are reported by State of Alaska fiscal year, which runs from July 1 to June 30, meaning that much of the 2020 visitor season was reported in FY 2021.

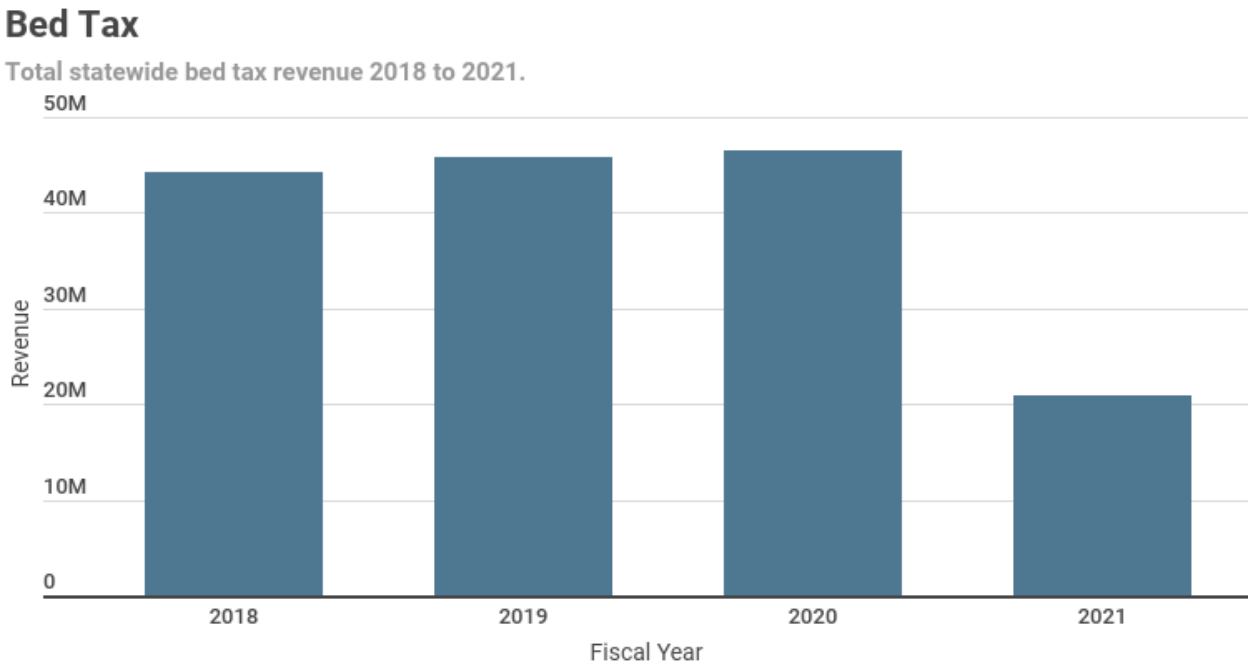



*Figure 35: Total statewide bed tax revenue 2018 to 2021.*
*Source: State of Alaska Division of Community and Regional Affairs (DCRA).*

## New Visitor Segment Development

Outside of traditional tourism visitor segments, interest in new visitor development opportunities is growing. Cultural tourism, shoulder season and winter visitation, outdoor recreation, and independent travelers are all receiving attention. Development of new tourism segments has the potential to grow visitation, bringing more economic value to the state, but also support small businesses and provide more robust year-round revenue and employment opportunities.

One example of a growing visitor segment is adventure travel. Outdoor recreation is already a major driver of tourism in Alaska, and it is increasingly recognized as an industry in its own right, albeit one that overlaps with tourism. Increasing access to recreation opportunities and promoting Alaska as an adventure travel destination might be a way to grow this visitor segment.

The Bureau of Economic Analysis (BEA) now produces estimates of the economic impacts of outdoor recreation at the state level. According to the BEA, over 17,700 Alaskans were employed in outdoor recreation earning a combined $1 billion in compensation in 2020. The top three outdoor recreation activities in terms of total value added were boating/fishing, RVing, and climbing/hiking/tent camping.[105] These impacts derive from money spent by both resident and nonresident consumers when they recreate, purchasing equipment, meals, lodging, and transportation.

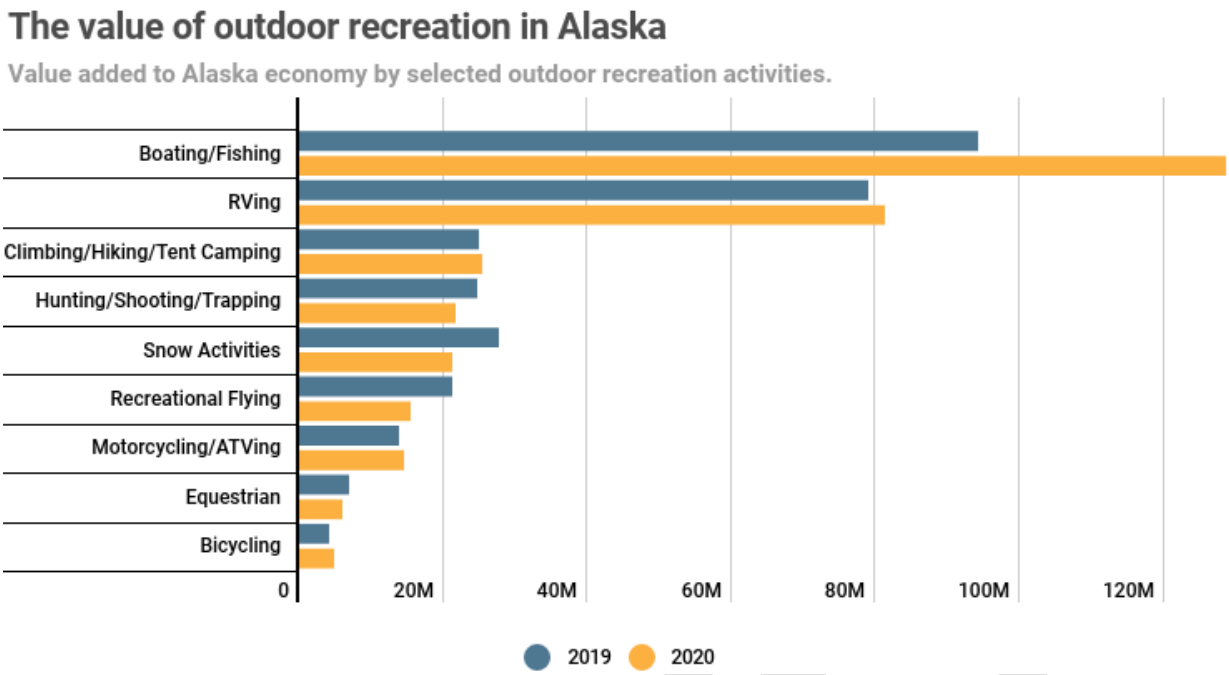



*Figure 36: Value added to Alaska economy by selected outdoor recreation activities.*
*Source: BEA.*

**Critical Issues for the Visitor Industry**

- Recovery from the COVID-19 pandemic.
- Workforce and supply chain shortages.
- International visa restrictions affecting both visitors and workforce.

**Opportunities**

- Continued expansion into new market segments:
  - Cultural tourism;
  - Independent tourism;
  - Shoulder season and winter tourism;
  - Adventure travel.
- Investment in recreation assets that attract visitors or improve access:
  - Creation of a long trail.

## Defense Sector

**Defense at a Glance**

- Alaska is home to a large defense presence, with major Air Force, Army, and Coast Guard installations hosting more than 30,000 personnel in 2021.[106]
- The state's strategic position in the Arctic and Pacific Rim have attracted large defense investments in the state, such as F-35 aircraft and a Long-Range Discrimination Radar.
- Defense spending in Alaska—including contracts and payroll—was $3.7 billion in federal fiscal year 2020.[107]
- The estimated number of jobs in Alaska tied to defense is 58,000—roughly one in six jobs in the state.[108]

The military has played a large role in shaping Alaska's economy and demographics since World War II (1941-45). The defense buildup in the 1950s during the early Cold War brought an influx of active duty servicemembers, civilian defense workers, and contractors—along with their families. This population growth contributed to a booming economy and accelerated the push for statehood, achieved in 1959. Ports, airports, highways, and telecommunications systems built for defense purposes also helped spur development of the private sector economy.[109]

Today, Alaska is home to two large Air Force bases (Eielson and Elmendorf Air Force bases) and two large Army installations (Fort Richardson and Fort Wainwright), one Space Force station (Clear), one major Coast Guard base (Kodiak), and numerous smaller stations. Together they hosted 30,562 total personnel in September 2021,[110] with a total payroll of more than $1.9 billion.[111] This figure includes active duty, civilian defense workers, reservists, and members of the National Guard. Department of Defense (DOD) and Department of Homeland Security (DHS) contracts performed in-state in FY 2021 had a value of nearly $1.8 billion.[112]

That combined $3.7 billion in spending has an enormous impact on Alaska's economy as a whole, and to communities hosting installations in particular. For FY 2018, the University of Alaska Center for Economic Development estimated that DOD and DHS spending created a total of 58,000 jobs in Alaska—about one in six civilian jobs. In the Interior, defense spending creates a total of one-third of all civilian employment.[113] These figures include indirect and induced jobs created as the initial spending circulates through businesses and households.

The defense contracts awarded in Alaska are focused on the needs of the major installations in the state. Construction is the largest category, associated with several large projects. These include a long-range discrimination radar (LRDR), and facilities for the F-35 fighters. "Administrative and Support and Waste Management and Remediation Services" is the second largest category, consisting of a variety of on-post facilities services as well as environmental remediation. The installations are large purchasers of refined fuel (under manufacturing) and utility services (such as power) as well as professional services like engineering.[114]

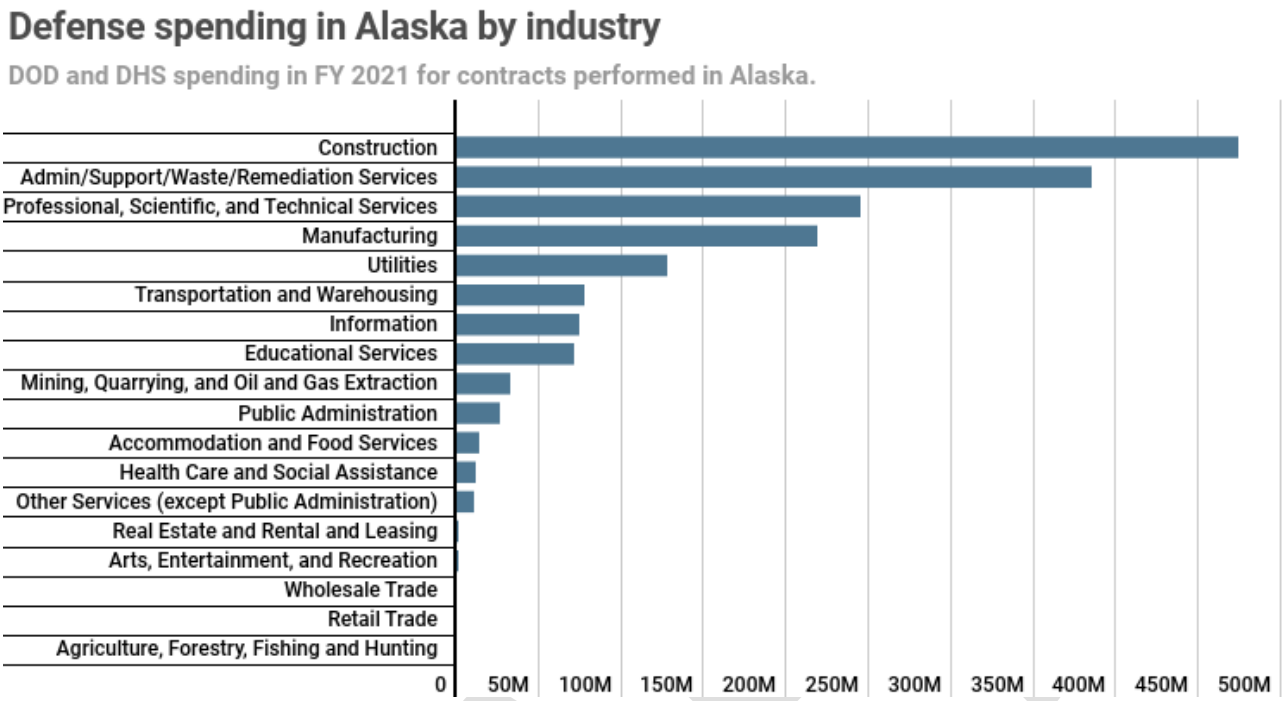



*Figure 37: DOD and DHS spending in FY 2021 for contracts performed in Alaska.*
*Source: SAM.gov*

An important point about defense contracts in Alaska is that in-state firms capture a majority of the awarded values. One analysis showed that between FY 2017 and FY 2019, 77% of the dollar value of contracts performed in Alaska were performed by firms based in the state.[115] Alaska Native Corporations are the largest in-state defense vendors, although thousands of firms in the state win prime or sub-contracts each year. While successful at obtaining defense contracts in-state, Alaska-based defense vendors actually earn a majority of their revenue outside of Alaska—again due to the success of Alaska Native Corporations.[116] Profits earned outside Alaska circulate within the state in the form of shareholder dividends, scholarships, and community development funds.

As during the Cold War, Alaska's geostrategic position in the Arctic and Pacific Rim is important to U.S. defense policy. The DOD published its most recent *Arctic Strategy* in 2019, calling for a greater ability to defend U.S. sovereignty and increase operational capabilities in the region through the stationing of two F-35 squadrons and the construction of at least one Polar Security Cutter (icebreaker), among other measures. The DOD-wide strategy was followed by Arctic strategy documents by the Air Force in 2020, and the Navy and Army in 2021.

As the job creation estimates show, military spending in Alaska produces large economic impacts. The opportunity to homeport an icebreaker, host new assets like the LRDR, or expand the number of servicemembers would all carry significant economic potential.

**Critical issues for Defense**

- Limited community housing to host new personnel
- Transferability of occupational licenses for spouses
- Increased emphasis on quality of life and recreational amenities for defense communities

**Opportunities**

- Construction of a deep draft port in Nome for Arctic defense and resupply.
- Homeporting additional Coast Guard or Navy vessels in Alaska.
- Growing U.S. icebreaker fleet.
- Stationing additional personnel in Alaska
- Establishment of new command structures in-state
- Opportunity for cold climate technology or energy development for defense purposes
- Infrastructure improvements to further enable rapid deployment.

## Logistics and Air Cargo

**Logistics stats at a glance:**

- Logistics-related industries in Alaska supported 11,615 direct jobs in 2020.[117]
- Air transportation supported approximately 5,100 jobs in 2020, a 18% drop in employment compared to 2019.[118]
- Ted Stevens Anchorage International Airport ranked second in the U.S. and fourth in the world for cargo volume in 2020, after a 25% increase over 2019.[119]

As a state heavily reliant on imports to support its economy, the local logistics sector is a well-established critical component of Alaska's economic existence. The industry supports every business and household in the state. However, growing interest in the state's strategic geographic position in the Pacific and Arctic signal new economic potential for the industry. Recent developments at Ted Stevens Anchorage International Airport, positioning itself as a strategic air cargo hub due to proximity to Asia, have highlighted the growing role that Alaska could play in the global supply chain.

Ted Stevens Anchorage International Airport (TSAIA) serves as a logical stopping point for air cargo carriers to refuel and redistribute cargo on flights from Asia to North America. Anchorage's geographic position between the major industrial centers of East Asia and the Lower 48 allows aircraft to carry more cargo and less fuel, increasing profitability.

**Top U.S. cargo airports by volume, 2020**

| Airport | State | Cargo Volume (Millions of Lbs.) |
|---|---|---|
| Memphis International | TN | 25,157 |
| Ted Stevens Anchorage International | AK | 22,883 |
| Louisville Muhammad Ali International | KY | 16,757 |
| Los Angeles International | CA | 13,172 |
| Miami International | FL | 9,930 |

*Table 17: Top U.S. cargo airports by volume, 2020.*
*Source: FAA.*

Cargo volumes at TSAIA have grown over the last five years, with a significant 25% jump in cargo volume in 2020 over 2019. This trend is consistent with global growth in air cargo, corresponding to global demand for goods;[120] however, air cargo volumes in Anchorage have grown faster than the global average. For the last two decades, Anchorage has consistently ranked among the top six cargo airports in the world.

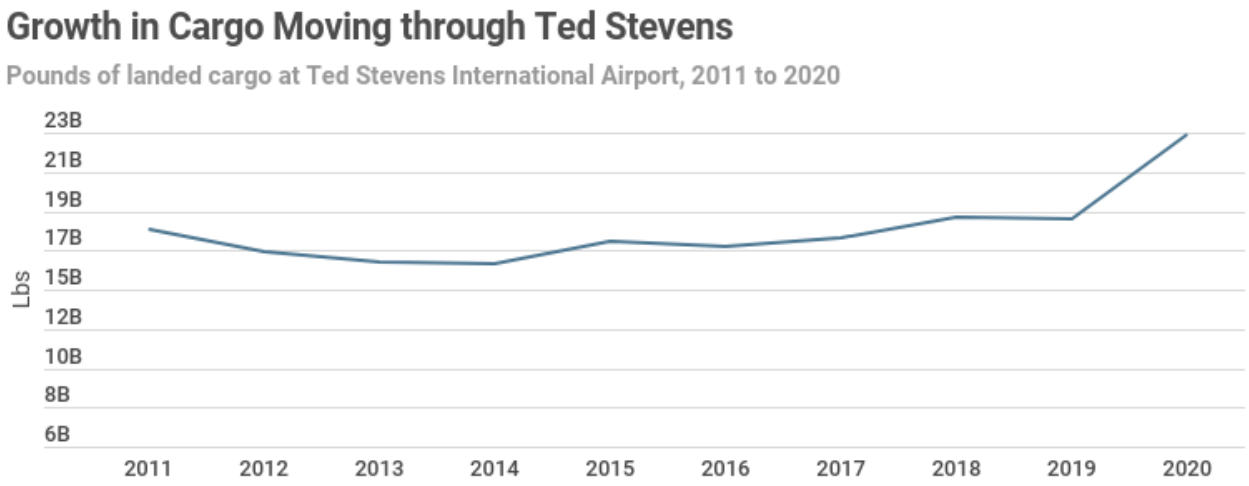



*Figure 38: Pounds of landed cargo at Ted Stevens International Airport, 2011 to 2020.*
*Source: FAA.*

In 2020, total employment in logistics related industries—air transportation, water transportation, truck transportation, support services, and warehousing and storage—included approximately 11,600 jobs. Over the last decade employment in logistics related industries grew slight to 13,148 jobs in 2019 (pre-pandemic), approximately 0.4% annually. However, like with many areas of Alaska's economy, logistics related employment was impacted by the COVID-19 pandemic, losing 12% of its total jobs between 2019 and 2020.[121]

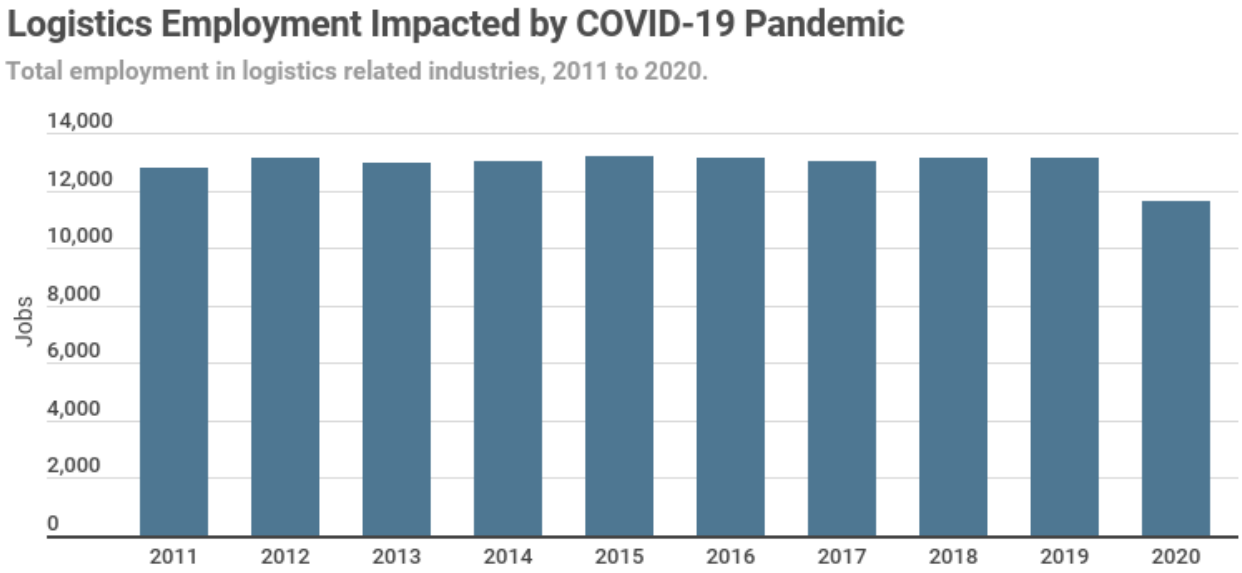



*Figure 39: Total employment in logistics related industries, 2011 to 2020.*
*Source: QCEW.*

**Critical Issues for Alaska Logistics Industry**

- Capacity limitations.
- Lack of infrastructure.
- Access to skilled workforce.

**Opportunities for Alaska Logistics Industry**

- Increased traffic in the Arctic.
- Further marketing TSAIA as a cargo hub.
- Expand TSAIA capabilities (foreign trade zone freight sorting, secure storage, cold storage, refueling, maintenance/repair/overhaul aka MRO).
- Opening air-to-sea multi-modal cargo transportation routes.
- Accessing value of cargo stopovers in Anchorage from transpacific flights.
- Accessing backhaul capacity to Lower 48 to export Alaskan-made products.

## Forest Products

**Forestry at a Glance:**

- There are 129 million acres of forested land in Alaska, predominantly owned by federal, state, and local governments, and Alaska Native Corporations.[122]
- The timber industry supported 329 jobs in 2020, an 88% decline from its peak in 1990.[123]
- 10 million board feet of logs harvested from Tongass National Forest were exported from Alaska in 2021.[124]

Forestry has a deep history in Alaska, with the timber industry serving as one of the cornerstones of Alaska's economy well into the 1990s. In the past, logging activities were focused in Southeast Alaska—predominantly Tongass National Forest—with some activity in Interior Alaska and elsewhere. In 1975, the timber industry supported at least 2,100 jobs across the state with logging and sawmill operations.

However, in the 1990s, with changes to resource management policies at the federal level restricting harvest allowances, the timber industry in Alaska began to decline. As a result of harvest reductions coinciding with environmental restrictions and regulations, and economic pressures, the two pulp mills in Southeast closed.

In 2020, the timber industry in Alaska supported approximately 329 jobs. Employment is driven by timber harvests occurring on State of Alaska and Alaska Native Corporation lands. In 2019, 151.5 million board feet (MMBF) of timber were harvested in Alaska.[125]

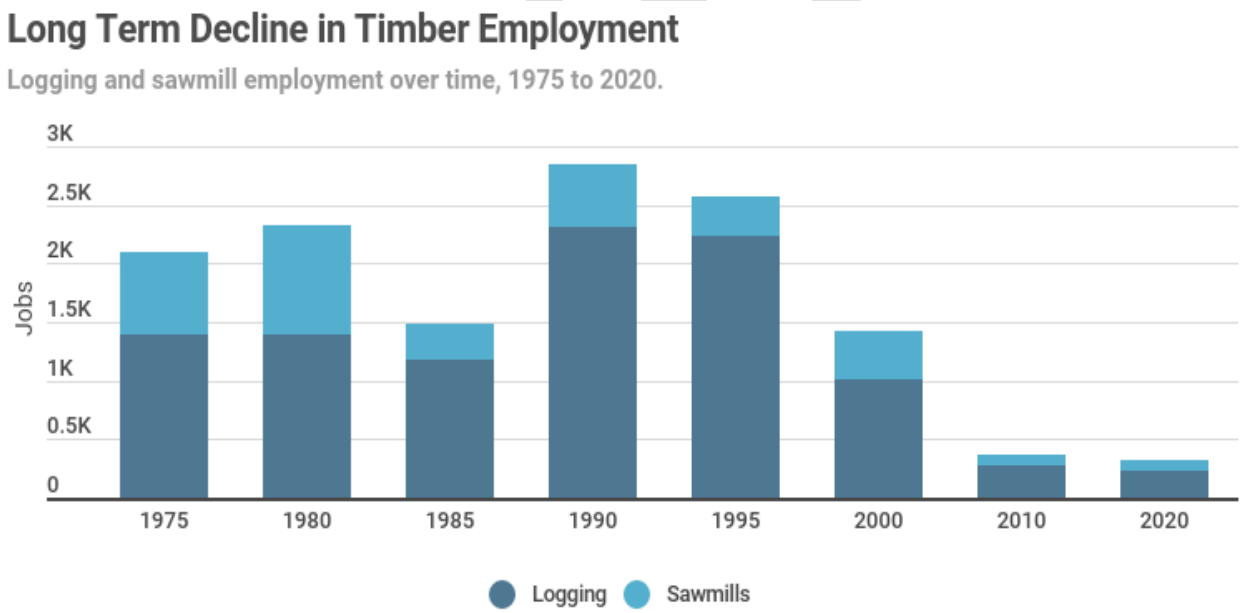



*Figure 40: Logging and sawmill employment over time, 1975 to 2020.*
*Source: BLS.*

Timber harvests in Alaska focus primarily on Sitka spruce and western hemlock, with some harvesting of White Spruce, cottonwood, aspen, and paper birch in the interior. The majority of the timber harvested now is exported as raw logs, however a handful of small dry-kiln facilities in Southeast, Southcentral, and Interior Alaska support small, local timber industries.

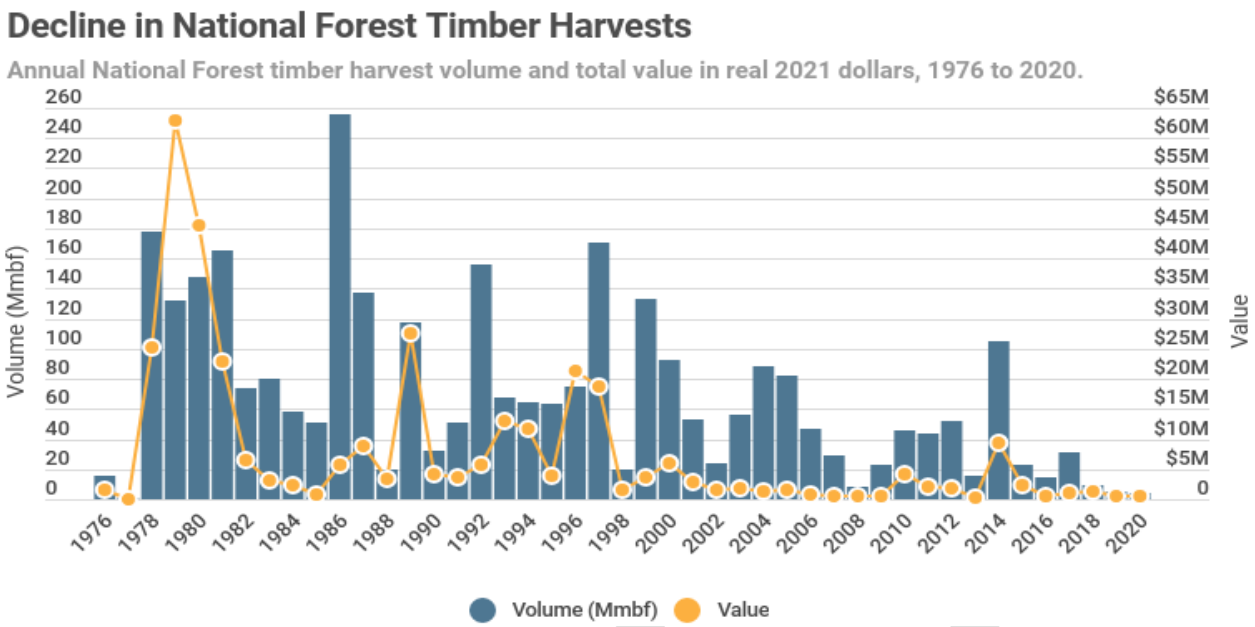



*Figure 41: Annual National Forest timber harvest volumes and total value in real 2021 dollars, 1976 to 2020.*
*Source: U.S. Forest Service (USFS).*

However, the loss of the timber industry in Alaska is not just about declining logging jobs. The timber industry supported local manufacturers, builders, and makers. The loss of local supply creates a deficit for local value-added activities. For example, in the 1970s and 1980s, when timber production was higher, the industry supported approximately 930 jobs in sawmills, enabling local manufacture of lumber and other wood products like pulp.[126] However, as those sawmills closed with decreased timber production, raw timber was exported in increasing quantities and the value those sawmills produced for Alaska's economy was lost. In 2021, 9.9 MMBF of logs from Tongass National Forest were exported from Alaska. Approximately 3% of those exports went to the Lower 48, while 97% were exported to other countries in the Pacific Rim.[127]

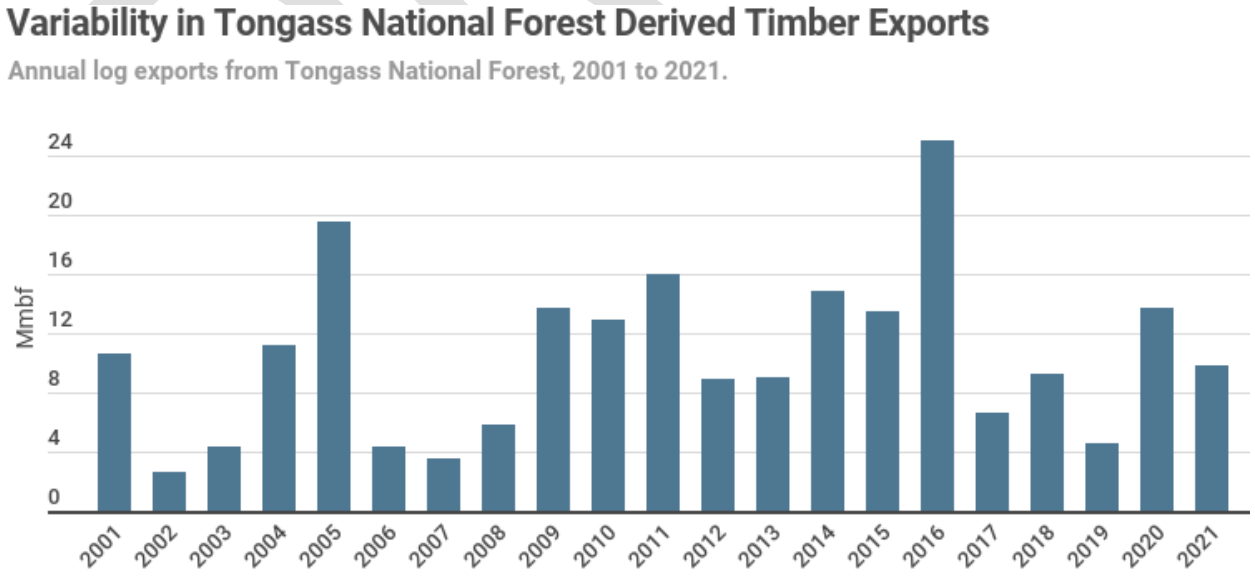



*Figure 42: Annual log exports from Tongass National Forest, 2001 to 2021.*
*Source: USFS.*

In recent years, however, Alaskan entrepreneurs and manufacturers have turned toward value-added forest products on a relatively small scale.[128] Local timber operations in the interior support biomass energy production; artists incorporate local woods into art pieces; local manufacturers use sustainably harvested wood to produce skis, lumber, and other products; and Alaska Native tribes harvest forest products significant for well-being, cultural value, art, medicinal purposes, and to support their livelihood. Some communities across Alaska severely impacted the invasive spruce bark beetle have been engaged in discussions on ways to harvest and utilize dead trees.[129]

In 2021, a Southeast Alaska CDFI, Spruce Root, was awarded an EDA Build Back Better Regional Challenge Phase 1 grant to develop a southeast Alaska sustainable forest products cluster. The application proposes to (1) develop a sustainable forest products business incubator; (2) invest in long-term planning, market analysis, and infrastructure projects with Tongass National Forest and Sealaska; (3) invest in biomass energy projects; (3) improve forest accessibility; and (5) promote forest product workforce development.[130]

**Critical Issues for Alaska Forestry Industry**

- Economic losses due to reinstatement of the Alaska Roadless Rule restricting access to new areas of Tongass National Forest and limiting repairs to current access points.
- High cost of energy limiting value-added processing.
- Low, uneconomical volume of timber sales by the USFS.
- Environmental regulations.

**Opportunities for Alaska Forestry Industry**

- Developing sustainable forest products cluster in Southeast Alaska.
- Development of new value-added forestry products.
- Increased use of biomass technologies for local energy production.
- Transition to young growth harvest.

# VI. Emerging Sectors

## Mariculture

**Mariculture at a Glance:**

- In 2021, there were 49 producing mariculture operations in Alaska—29 farms with sales and one hatchery/nursery.[131]
- Seaweed production in Alaska grew by 232% in 2021, to 536,390 lbs sold.[132]
- Oyster production declined for the third year in a row in 2021, with 4.6 million oysters sold.[133]

Mariculture—production of food products from the ocean—is not new in Alaska. Oysters, mussels, and clams have been farmed in Alaskan waters for decades, and the wild harvest has fluctuated over the years. However, developing opportunities with pharmaceuticals, nutraceuticals, bioenergy, and food industries have stimulated a booming interest in the industry, specifically in the cultivation of aquatic plants like kelp.

Aquatic farms are scattered across Southeast, Southcentral, and Southwestern Alaska. The industry is challenged by high energy costs and logistical hurdles, both linked to the remoteness of most mariculture operations. Both factors create challenges for processing products and getting them to market.


*Figure 43: Permitted mariculture operations in Alaska, January 2022.*
*Source: Alaska Department of Fish and Game.*

Mariculture production in Alaska has remained variable over the years with oyster production peaking in 2018 at 11.8 million oysters sold by commercial growers.[134] Sales decreased in 2019, 2020, and 2021. This was not expected to be a long-term trend; however, the lockdowns and business closures, specifically restaurant closures, associated with the COVID-19 pandemic dramatically disrupted Alaska

oyster production.[135] The three-year trend is likely driven by reduced sales from hatcheries and nurseries.[136]

Aquatic plant production—seaweed and kelp—has boomed over the last four years, reaching 536,390 lbs sold in 2021 from essentially nothing just five years earlier.[137] As recently permitted mariculture operations mature, mariculture production could continue to grow rapidly.

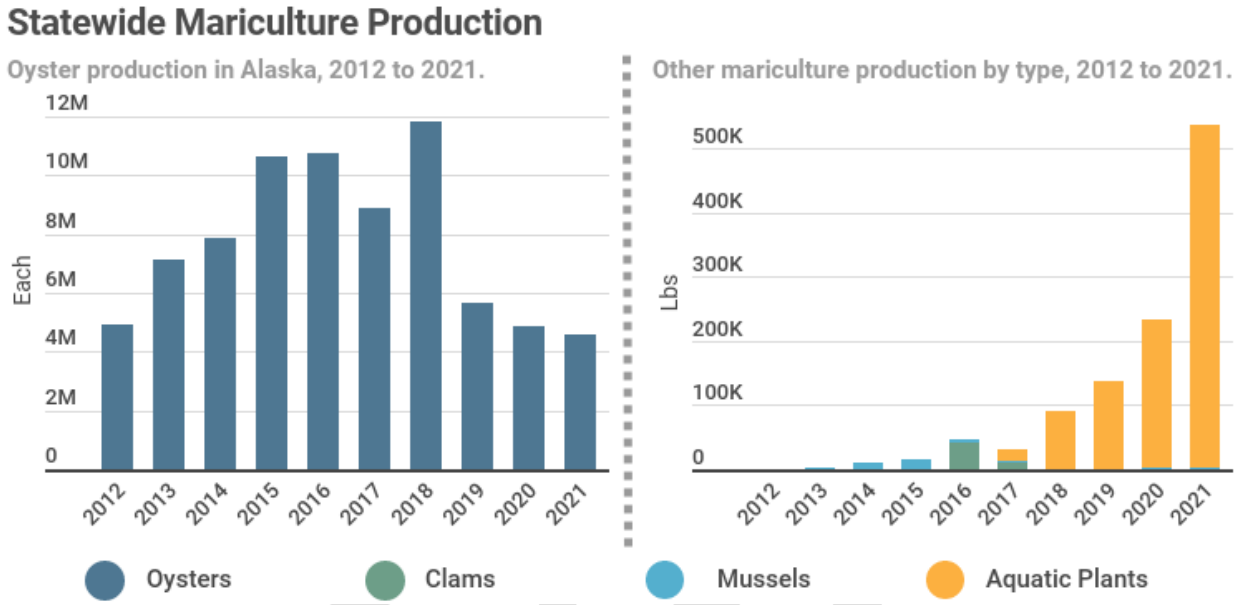



*Figure 44: Oyster, mussel, clam, and aquatic plant production, 2012 to 2021.*
*Source: Alaska Department of Fish and Game.*

Seaweed and kelp mariculture represents one area of mariculture that has been targeted for its growth potential. Currently 97% of the worlds' commercial seaweed is produced in Asia. Worldwide, farmed seaweed production has grown 7% annually over the last 20 years.[138] Seaweed is used to produce hydrocolloid products, food products, protein replacement, bioplastics, and more; however, Alaska seaweed and kelp is primarily sold to food markets currently.

Alaska's commercial seaweed and kelp producers are still limited by low volumes and high production costs. Achieving larger economies of scale will be necessary to enter the broader global market. Alaska has three currently permitted seaweed farms—two with production; however, 49 seaweed mariculture permits were submitted to the State of Alaska between 2017 and 2021. In addition to a limited number of producers in the state, seaweed and kelp growers also have a limited number of buyers for their products. Blue Evolution and Seagrove Kelp Co. are the two commercial kelp buyers in the state, serving growers in Kodiak and Southeast.[139]

**Critical Issues for Alaska Mariculture**

- Limited local market for products.
- High production cost.
- Regulatory and permitting barriers.
- Access to global markets.
- Cultivation of seed stock.

**Opportunities for Alaska Mariculture**

- Marketing of premium “Alaska Grown” products.
- Seaweed and mariculture research and product development.
- “New habitat”: large-scale, carbon sequestering, offshore seaweed farms.
- Expansion of seaweed buyers diversifying the supply chain.
- Growth in seaweed uses and products.
- Marketing Alaska oysters to restaurants and other premium buyers in the Lower 48.

## Marine Services Industry

**Marine Services Industry at a Glance:**

- Approximately 380 jobs in boat and ship building statewide in 2020.[140]
- A fleet of over 9,000 vessels greater than 28ft in length.[141]

Alaska's dependence on the marine environment runs deep—from Inupiat whale hunters in *umiaqs* millennia ago, to Bristol Bay sailboat gillnetters in the last century. Today, almost all economic activity in the state has ties to maritime activities. Ocean transportation moves goods and people to the state and around the state and delivers fuel to communities and industry sites around the state. Boats are a tool for mining, seafood, tourism, and more.

All of this means that while the state is dependent on marine vessels, vessel operators are dependent on a robust marine services industry to maintain the current fleet and build new vessels. The marine services industry refers to the activities which facilitate the operation and maintenance of Alaska's fleet. According to a 2014 study, Alaska has an aging fleet of over 9,000 vessels greater than 28 ft in length with countless more smaller craft used for subsistence harvesting, recreation, transportation, and patrol.[142]

Alaska's in-state boat and ship building and repair industry is small, directly supporting approximately 380 jobs, and seasonal, with employment fluctuating between a peak of 454 jobs in March 2020 and a valley of 330 jobs in July 2020.[143] However, the industry is a growing force with the development of key assets, including the Vigor shipyard in Ketchikan, the JAG Alaska, Inc. Shipyard facility in Seward, and a handful of small boat and ship builders scattered across the state.


*Figure 45: Annual boat and ship building and repair industry employment, 2011 to 2020. Source: QCEW.*

While Alaska's marine services industry is small, it is important to recognize the value of capturing manufacturing and maintenance work that would otherwise go to out-of-state sources, predominantly Washington. A 2015 report published by McKinley Research, *Ties that Bind,* estimates that 5,300 jobs in the marine services industry in Puget Sound stem from Alaska business.[144]

Key constraints for Alaskan companies in this space include workforce challenges, capacity limitations, high energy costs, and access to materials. However, if Alaskan companies can find ways to compete with out-of-state firms by lowering costs or finding other comparative advantages it would reduce leakages out-of-state and improve the economic resilience of industries dependent on maritime activities.[145]

**Critical Issues for Alaska Marine Services Industry**

- High cost of doing business.
- Seasonality of demand for services.
- Workforce shortages.
- Access to working capital and financing for fixed assets.

**Opportunities for Alaska Marine Services Industry**

- Capture a larger share of repair and service business currently going to Puget Sound.
- Developing vessel technology innovations to meet the needs of Alaskans, providing an export opportunity.
- Expansion of maritime tech startups supported by the Alaska Ocean Cluster.
- Growing Alaska's maritime dependent industries (i.e. seafood and marine cargo) to grow business for the state's marine services industry.

## Agriculture

**Agriculture at a Glance:**

- Alaska has approximately 850,000 acres of operated farmland.[146]
- Approximately 1,050 farms operated in 2021.[147]
- Agriculture revenue has increased over the last two decades, reaching $39 million[148] in sales in 2017 in real 2021 dollars.[149]

Many areas of Alaska have a long history with agriculture, from Palmer which was formally established as an agricultural colony in 1935, to reindeer farming in western Alaska which commenced in the late 1800s and continues today.[150] While the scale of Alaska's agriculture industry does not lend itself to export—with the exception on the booming peony industry—the products aid Alaskan self-sufficiency and provide valuable import substitution for goods that would otherwise be imported from out-of-state.

A wide variety of agricultural products are produced in Alaska, predominantly for in-state consumption. Nursery, greenhouse, floriculture, and sod production (which includes peony growers) ranks the highest in the state in terms of gross market value of sales, with $16.9 million in total sales in 2017.

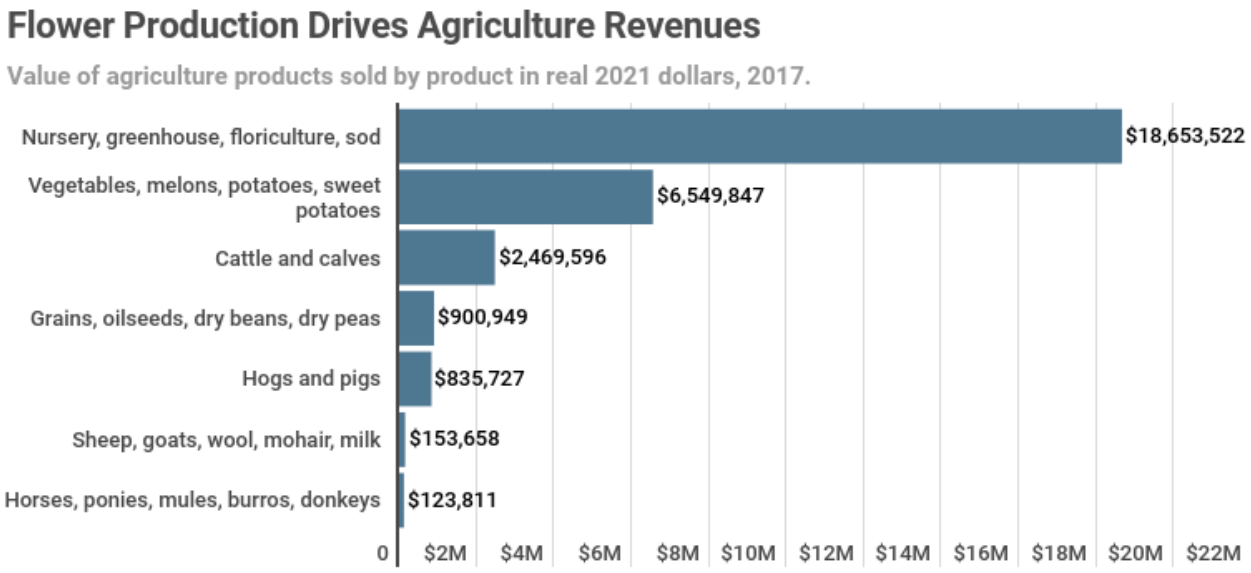



*Figure 46: Value of agriculture products sold by product in real 2021 dollars, 2017.*
*Source: USDA.*

Over the last two decades the total acreage of farmland in Alaska has grown. However, the average farm size has decreased. This is perhaps a function of a transition in the type of agricultural activity in the state. While farming activities which require large swatches of acreage, like hay or barley production, still play a role in the state's agriculture industry, the rise of micro-farms for small-scale vegetable production and peony farming has started to shift the industry. Despite this transition total farm sales have grown substantially.

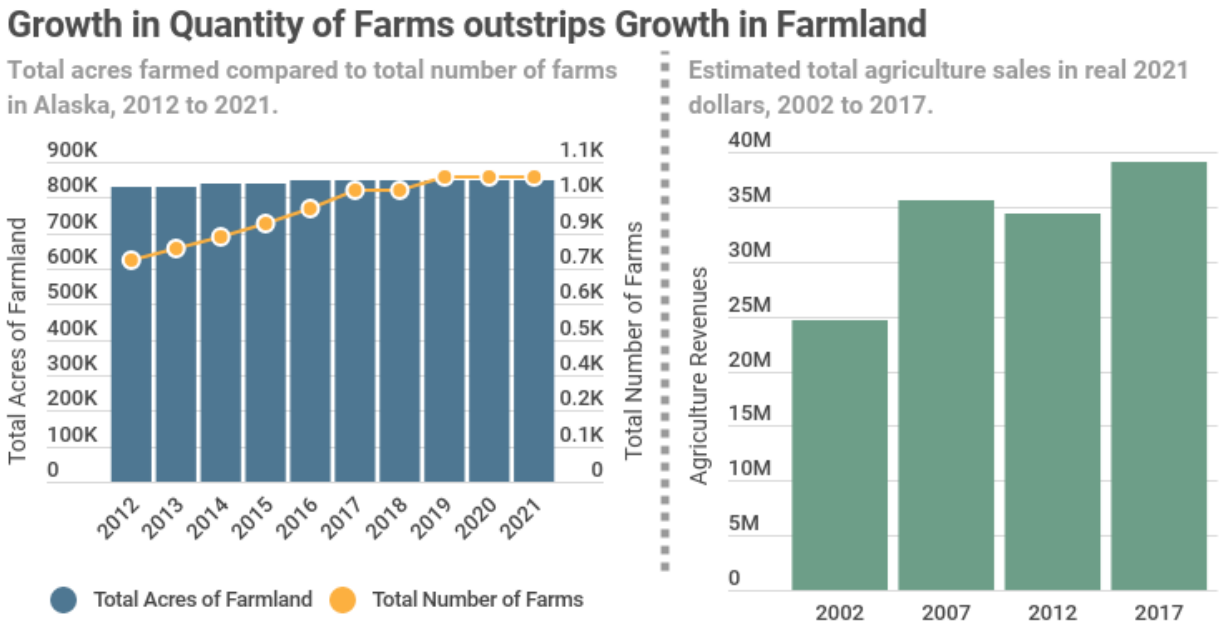



*Figure 47: Total acres farmed compared to total number of farms in Alaska, 2012 to 2021; Estimated total agriculture sales in real 2021 dollars, 2002 to 2017.*
*Source: USDA.*

**Critical Issues for Alaska Agriculture**

- Land availability.
- Succession planning—finding the next generation to step into established operations.
- High cost and logistical hurdles of meeting FDA/USDA requirements.
- High cost of operations in isolated areas.

**Opportunities for Alaska Agriculture**

- Growing local supply chains (i.e. Alaskan brewers using Alaskan barley and other Alaska grown products).
- Substituting in-state produce for imported produce to keep money local and increase resiliency.
- Maturation of high growth agriculture "cash crops" like peony production.
- Controlled environment agriculture of CEA (e.g. hydroponics and containerized growing systems) enabling year-round production.

## Aerospace and Aviation

**Aerospace and Aviation at a Glance:**

- A total of 6,451 jobs were supported by aerospace and aviation-related industries in 2020.[151]
- Aircraft engine and parts manufacturing exported $96 million in products in 2020, ranking 14th in the state's total exports.[152]
- FAA's Alaska Region has 2.4 million square miles of airspace.[153]
- Alaska hosts an FAA-designated test range for unmanned aircraft, and the University of Alaska Fairbanks is a global leader in the field.
- The Pacific Spaceport Complex – Alaska hosted its first private sector launch in 2018. In 2021, the launch site hosted 2 launches, both commercial.[154]

Aviation is not a new sector in Alaska's economy. Alaska's history has been dotted with the names of many firsts since the invention of aircraft: Noel Wien (Alaska's first commercial aviator), Ben Eielson (first to fly mail), and Joe Crosson (first to land on Denali's glaciers). Coinciding with that list of firsts is a history rich with aviation innovation and technology development, from airplane skis and floats to specialty bush plane tires designed to land on sandbars.

In 2020, aviation and aerospace-related industries supported 6,451 direct jobs in Alaska. This area of the economy was impacted by the COVID-19 pandemic and associated travel reductions. Prior to the pandemic the industry experienced slow but steady growth despite the statewide recession between 2015 and 2019. Though small, the aerospace parts manufacturing sector specifically has shown strong growth, nearly tripling the number of jobs over the last decade. This includes companies like Airframes Alaska and Airglas, who build aircraft components in Alaska and export them globally.[155]

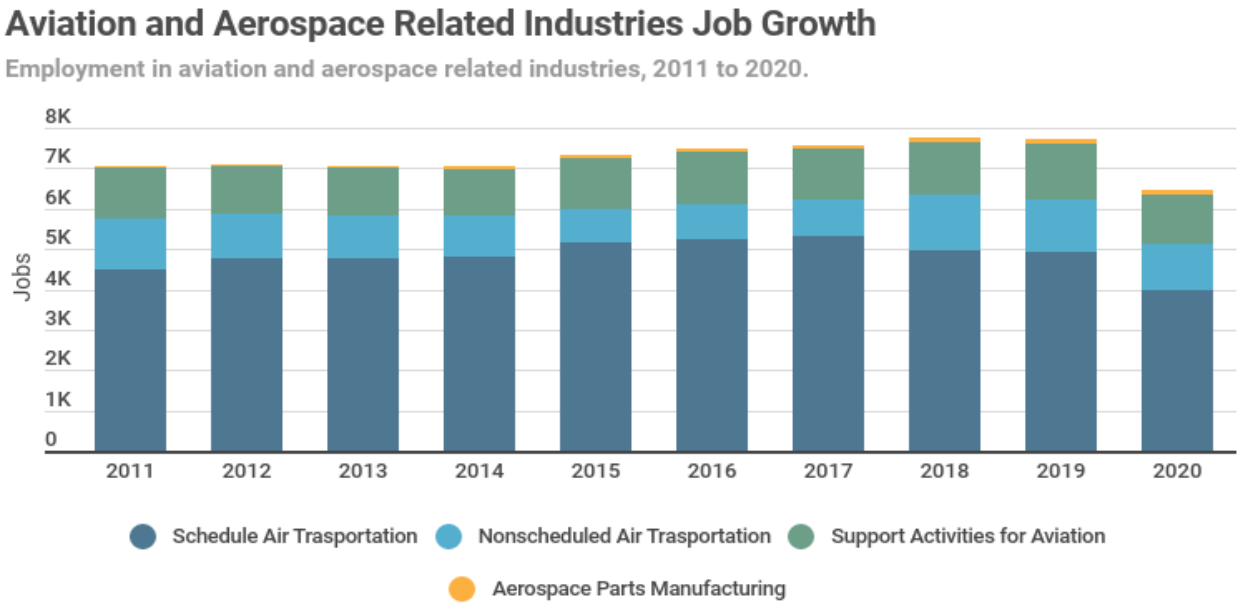



*Figure 48: Employment in aviation and aerospace related industries, 2011 to 2020.*
*Source: QCEW.*

According to a report published by the State of Alaska Department of Transportation and Public Facilities, the aviation industry in Alaska supported more than 35,000 jobs in Alaska in 2017.[156] This

considers the additional indirect and induced impacts of the aviation industry. The industry holds an outsized impact in Alaska's economy, representing 8% of the total employment in the state.

Today Alaska is also leading in other areas of aerospace. The Pacific Spaceport Complex, a launch site on Kodiak Island, facilitates launches by commercial and government partners. Another valuable asset, the Alaska Center for UAS Integration at UAF, operates one of six FAA unmanned aircraft test sites. Both sites are examples of innovation and technology development emerging out of Alaska's miles of airspace.

**Critical Issues for Alaska Aerospace and Aviation Industry**

- Supply chain isolation.
- High cost of operations.
- Complex regulatory processes.
- A need for greater awareness of Alaska as a testing ground.
- Access to high skilled workforce (technology skill sets, coding, etc.)

**Opportunities for Alaska Aerospace and Aviation Industry**

- Participation in recurring business from the low earth orbit (LEO) satellite industry.
- Marketing aerospace facilities to commercial operators
- Strategic northern location to access northern latitudes.
- Scale of available airspace to test new technologies.
- Integrated workforce and training opportunities in communities (Kodiak) and the University of Alaska system.

# VII. Strengths, Weaknesses, Opportunities, and Threats

A strengths, weaknesses, opportunities, and threats (SWOT) analysis is used to critically examine the position of a state economy, to assist in the formation of goals, objectives, and strategies. Strengths and weaknesses are internal to the state, while opportunities and threats are external elements that exert influence. This SWOT considers background research, community and industry forum input, and Strategy Committee discussion.

## Business and Industry Environment

**Strengths**

- Active Startup Ecosystem
- Aerospace and Aviation
- Agriculture
- Alaska Native Corporations
- Business and Entrepreneurship Programming
- Energy Innovation
- Federal and Defense Spending
- Global Logistics
- Mariculture
- Natural Assets
- Plentiful Natural Resources

**Weakness**

- Access to Capital
- Access to Resources
- Digital Competency
- Equitable Access to Business Resources
- High Operating Costs
- Lack of Economic Diversity
- Regulatory Burden on Small- and Mid-Sized Businesses

**Opportunities**

- Arctic Opening
- Critical Minerals
- Energy and Climate Technology
- Establishment of New Economic Engines
- Expanding Startup Programming
- Research and Development
- Using Known Resources in New Ways
- Value-Added Product Development
- World-Class Destination

**Threats**

- Federal Permitting and Regulation
- Geopolitical Threats
- Oil Production Decline
- Supply Chains, Operating Costs, Specialized Needs

## Strengths

**Active Startup Ecosystem.** Alaska is home to an active and growing startup ecosystem with regular events like Startup Week, 1 Million Cups, Arctic Innovation Competition, Alaska Angel Conference, and more highlighting and supporting entrepreneurs. The statewide startup ecosystem plays an important role connecting entrepreneurs and business owners with mentorship, business resources, and other community tools.

**Aerospace and Aviation.** With vast open airspace and developed aerospace infrastructure, the aerospace industry in Alaska is a small but growing force. Alaska is home to established aerospace and aviation institutions, from the Alaska Center for Unmanned Aircraft Systems Integration housed at the

University of Alaska Fairbanks to the Pacific Spaceport Complex, a FAA-licensed launch site on Kodiak Island. Alaska is home to innovative startups and established businesses in the aerospace and aviation spaces.

**Agriculture.** Most agricultural production in Alaska is consumed in-state. Growing farm production helps to improve the state's self-sufficiency and keep money circulating locally instead of leaving. However, one export sector of the industry, peony cultivation, is growing, with Alaska peonies sold for events around the world.

**Alaska Native Corporations.** The 12 regional corporations and 174 village corporations are a major economic force in the state. All 12 of the regional corporations rank among the top 50 Alaska-owned companies by gross revenue, with many village corporations included among the top companies as well.[157] These federally created corporations operate in government contracting, oil and gas, mining, real estate, telecommunications, and other areas and their activities feed back into local communities in the form of shareholder dividends, scholarships, and community development funds.

**Business/Entrepreneurship Programming.** Best in the West, Paths to Prosperity, North Slope Marketplace, Set Up Shop, Launch Alaska, Upstart Alpha, and gBeta are a handful of examples of programs serving to accelerate business development through cohort model business development intensives. Statewide business support programs like the SBA, SBDC, MEP, and PTAC provide further technical assistance. Alaska is home to a wide range of these business programs targeted at various geographies, demographics, and business stages.

**Energy Innovation.** With plentiful renewable energy resources, high energy costs, and harsh conditions, Alaska has served as a testbed for developing renewable energy systems. The state is home to about 12% of the world's microgrids, a subject of global interest.[158] With established expertise developing and integrating renewable energy systems, the state is home to a growing number of energy startups developing technology and expertise that is exportable around the world.

**Federal and Defense Spending.** Federal government spending is a large economic force in Alaska. One of the core elements of federal spending is defense, with government contracting generating revenue for Alaska businesses and military activities bringing thousands of families to the state. Defense spending in Alaska—including contracts and payroll—was $3.7 billion in federal fiscal year 2020.[159]

**Global Logistics.** With its strategic geographic position, Alaska is already a hub for air cargo from Asia. Ted Stevens Anchorage International Airport received 22.9 billion lbs. of landed cargo in 2020, a 25% increase over the previous year. It is among the top airports for landed air cargo in the U.S. and worldwide, ranking second in the U.S. in 2020.[160]

**Mariculture.** Mariculture in Alaska refers to the cultivation of aquatic plants like kelp and small aquatic creatures like shellfish. It does not include fish farming—according to state law, farming of finfish species is forbidden. With plentiful coastline and nutrient rich waters, mariculture has long been present in the state; however, recent growth in research, cultivation, and sale of aquatic plants signals growing potential. Between 2017 (the first year with data) and 2021, kelp sales have grown rapidly to 536,390 lbs.[161]

**Natural Assets.** The natural beauty of Alaska and access to recreational opportunities is a strong driver for attracting and retaining Alaskans, but it is also a major pull for visitors to the state. Alaska is home to

scenery and wildlife unavailable anywhere else in the U.S., with public lands, trails, waterways, and access to satisfy visitors and residents alike.

**Plentiful Natural Resources.** For decades, Alaska's plentiful resources have been the cornerstone of its economy. Timber, oil and gas, mining, and fisheries have all brought money into the state's economy and employed thousands of Alaskans. International exports from Alaska from these industries totaled $4.43 billion in 2020, not accounting for exports from Alaska to the rest of the U.S.[162] While still strong, these industries have faced economic hardships in recent years caused by drops in oil prices, fisheries decline, and the COVID-19 pandemic.

## Weaknesses

**Access to Capital.** In their 2021 Small Business Survey, the Alaska Small Business Development Center reported that 61% of Alaska businesses surveyed expected it would be at least somewhat difficult to raise capital within the next 12 months. Those businesses cited several things which would improve access to capital, including having a central place to learn options, tools to increase profitability, more non-traditional funding options, and mentorship/technical.[163]

**Access to Resources.** Oil, minerals, timber, and seafood are all often harvested from remote areas. Remoteness and lack of connections to infrastructure to enable exploration, development, and transit of resources to market dramatically impact the feasibility of development projects. Alaska's resource dependent industries rely on the sparse road systems and access to ports and harbors; however, limited infrastructure drives up the cost of doing business and effects the feasibility of projects.

**Digital Competency.** A growing amount of commerce is now conducted online, signaling a need for businesses to be proficient in e-commerce, cyber security, and digital business tools. Perhaps related to lagging access to broadband in many remote areas, many Alaskan entrepreneurs struggle with digital competency, specifically cyber security.

**Equitable Access to Business Resources.** Many of the resources for Alaskan entrepreneurs are located around the urban areas of Fairbanks, Anchorage, and Juneau. Other business plan competitions and services are available to more remote residents or focused on underserved populations; however, limited access and cost of high-speed internet can limit the ability to access resources remotely.

**High Operating Costs**. Alaska has high energy, labor, and logistical costs that impact nearly all businesses in the state in one way or another. Natural resource projects in remote areas face especially high costs to mobilize personnel and equipment and move products to markets.

**Lack of Economic Diversity.** Alaska's economy is reliant on a handful of core, resource-dependent industries. In 2020, 91% of Alaska's international exports came from three industries: seafood (41%), mining (38%), and oil and gas (13%).[164] These industries employ a significant portion of Alaskans, and their revenues support other essential businesses throughout Alaska. They also make up one of the core pillars of funding for state and local governments.

**Regulatory Burden on Small- and Mid-Sized Businesses.** Meeting regulatory requirements for small business and startups can be a barrier to doing business. Some recent examples of this include permitting for new kelp farms, environmental permitting for independent power producers, and even basic processes like filing for certain licenses in rural areas.

## Opportunities

**Arctic Opening.** Increased interest in the Arctic is emerging from several avenues, which could have a positive impact on Alaska's economy. Climate change and the opening of the Arctic could mean higher shipping and resource exploration traffic through the Bering Strait and in the Arctic Ocean. Research activity in the Arctic is growing as more federal funding is allocated toward assessing the impacts of climate change. Defense activity in the Arctic is also growing as tensions with Russia escalate, and interest in the Arctic from both Russia and China continue.

**Critical Mineral Exploration and Development**. In light of recent supply chain disruptions and international tensions, locating domestic sources of critical minerals is a national priority. Alaska contains known reserves of rare earth elements, zinc, cobalt, and other minerals classified as critical for national security and industry resilience. Development of these resources represents an opportunity to create thousands of high-paying jobs along with state and local revenues.

**Energy and Climate Technology.** In many ways Alaska is seen as a testbed for energy technologies. With the state's harsh climate, unique operating conditions, and high energy costs, testing early-stage technologies under Alaskan conditions can help prove out the technology for other markets. Tapping into this trend can serve industries and communities. However, it may also be an opportunity to develop businesses around the expertise and innovation found in the state.

**Establishment of New Economic Engines.** The Emerging Sectors identified above are currently small in terms of revenues and employment, but they have potential to grow rapidly to join the ranks of Alaska's Economic Engines like mining and tourism. These sectors could expand to bring new money to Alaska, or to substitute for goods otherwise purchased out of state. This would mean the establishment of new firms, job creation, and new sources of state and local revenues.

**Expanding Startup Programming.** Outside of developing skills, technology, and ideas, one of the main benefits of startup events—incubators, accelerators, sprints, and more—is community connections. Through these programs, entrepreneurs meet mentors and funders, make connections for projects, fine-tune prototypes, etc.

**Research and Development.** Research and development is one of the critical pathways for innovation. Applied research entities across Alaska, like the UAF Alaska Center for Energy and Power or the nonprofit Cold Climate Housing Research Center, serve as a bridge between researchers and consumers. Growing research and development capacity in-state could strengthen the business ecosystem and create more pathways to commercialization.

**Using Known Resources in New Ways**. The growing movement to reduce carbon emissions, combined with innovative new technologies, has led to alternative potential uses for some of Alaska's natural resources. For example, natural gas can be used to produce hydrogen, which can then be used as a fuel source for transportation, heating, or electrical generation. This offers new ways to reap the benefits of natural resource development in the state.

**Value-Added Product Development.** Largely due to the high cost of doing business—energy, workforce, housing, and more—most of the raw materials extracted from Alaska's land and waters are exported out-of-state or overseas for value-added processing. This represents a significant leakage from Alaska's economy as that value is captured in other geographies. Finding opportunities for moving some value-

added processing home or developing new products manufactured in Alaska from Alaska's raw materials would grow the value retained in Alaska's economy.

**World-Class Destination**. Before COVID-19, millions of visitors were drawn to Alaska each year by the state's natural attractions, supporting small businesses with their spending. In 2019, pre-pandemic visitor spending totaled nearly $3 billion during the summer season. With a national economic recovery underway and travel spending increasing, it is likely that tourism can resume its growth trajectory.

## Threats

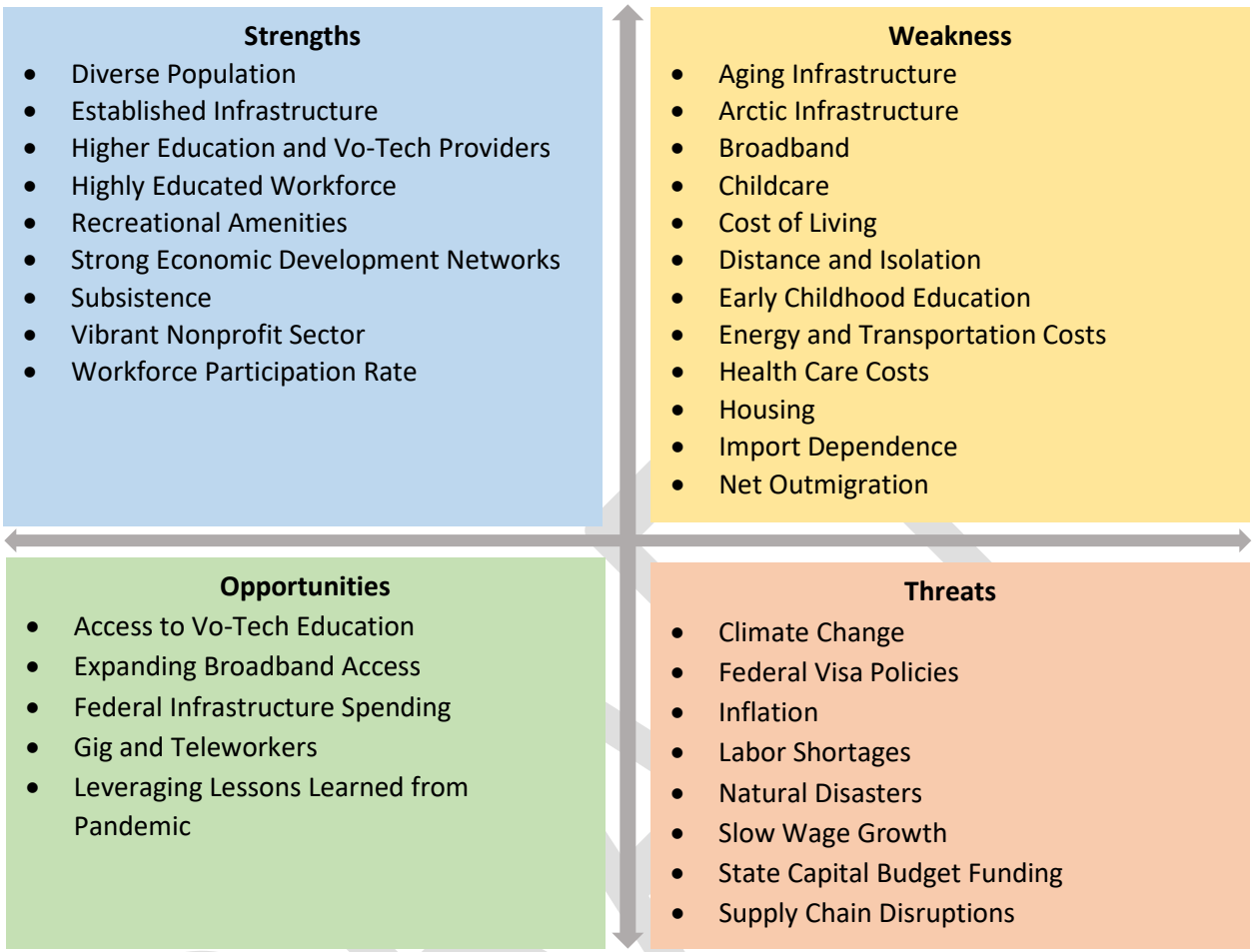
**Federal Permitting and Regulations**. Alaska's natural resource industries have a positive track record of environmental stewardship and adhere to rigorous standards. Despite this, federal permitting requirements are frequently excessive and require multi-year processes that companies must enter into without certainty about the outcome. Business leaders in-state argue that a shifting and tightening regulatory climate discourages investment and results in lost economic opportunity.

**Geopolitical Threats.** Geopolitical challenges can have economic consequences. Alaska's geographic position in the Pacific means the state shares a maritime boundary with Russia in the Bering Sea. Russian military exercises in the Bering Sea have impacted fishing activities of the Alaska fleet in the recent past. Increased tensions between Russia and the U.S. could have an impact on economic activities in the Bering Sea and Arctic in the future. In addition, economic tensions with China could have an impact on Alaska export industries. China is Alaska's top trading partner, receiving 25% of the state's international exports.[165]

**Oil Production Decline.** Global and local trends in the oil and gas industry have affected Alaska's economy over the last decade, showcasing how sensitive the economy is to changes in oil prices and production. Looking into the future, the decline in oil production on the North Slope may represent a continuing trend even if new fields are developed. Externally, trends in the power production and transportation markets away from carbon fuels could signal a decline in consumer demand for Alaska's oil.

**Supply Chains, Operating Costs, Specialized Needs**. As with other kinds of economic development in Alaska, success with Emerging Sectors depends on careful management of the supply chains needed to access inputs as well as markets for finished goods, while mitigating the high operating costs of working in the state. Additionally, some Emerging Sectors require specific services that are not available in Alaska, like certain types of laboratory tests for mariculture products.

## Human Capital and Economic Foundations




### Strengths

**Diverse Population.** With 19% of Alaskans identifying as "Alaska Native and American Indian" in the 2020 census,[166] Alaska has the highest share of indigenous people in the U.S.[167] Alaska's Native people have deep connections to the land, long oral traditions, and strong cultural heritage. The state is also home to Black, Hispanic, Asian, and Pacific Islander communities, and recently boasted the most diverse Census tract in the U.S.

**Established Infrastructure.** Although Alaska is underdeveloped from an infrastructure point of view, the state does have some important assets underpinning its economy. Bradley Lake Hydroelectric Plant, the Alyeska Pipeline, the Port of Alaska, and the Ketchikan Shipyard are just a few examples of core pieces of infrastructure that support Alaska's economy.

**Higher Education and Vo-Tech Providers.** Alaska is home to established higher education institutions—4 university campuses (3 public and 1 private) and 12 community college campuses. Expanding opportunities and lowering barriers of access to higher education for Alaskans to pursue degrees or continued education will support an agile and qualified workforce.

**Highly Educated Workforce.** An estimated 94% of adults ages 25 and older in Alaska have a high school diploma or equivalent, higher than the national average. A further 30% of Alaskans hold a bachelor's

degree or higher.[168] Training and educating Alaskans for the jobs in Alaska is critical for ensuring a stable economy.

**Recreational Amenities.** In a 2007 statewide survey, 58% of Alaskans listed "opportunities for outdoor activities" as a main reason for living in Alaska.[169] Access to amenities, including recreational amenities, is one of the core criteria many businesses and families look for when relocating. They are also one of the quality-of-life indicators which retain workers in an area. Alaska's recreational assets are world class, from countless miles of trails, to endless rivers and lakes, and fishing and hunting opportunities not found anywhere else.

**Strong Economic Development Networks**. The COVID-19 pandemic helped mobilize Alaska Regional Development Organizations (ARDORs), local economic development organizations, and other support organizations to respond quickly to a near-collapse of the state economy. One result of this mobilization was the establishment of a strong network that is familiar with the practices of economic resilience and providing support to businesses, communities, and nonprofit organizations.

**Subsistence.** In nearly every corner of Alaska subsistence harvests make up a core pillar of cultural practices for indigenous people, and in rural or remote areas subsistence harvests serve to supplement or replace store bought foods which may be hard to come by or costly. In some areas of Alaska, traditionally harvested food sources make up 50% of residents' diet. From a resiliency perspective, subsistence activities play an important role for the cultural health of indigenous residents as well as an economic role in terms of food security.

**Vibrant Nonprofit Sector.** Alaska's nonprofits directly employ nearly 40,000 Alaskans,[170] but their contributions to the state economy go well beyond this. Nonprofits support every major industry in the state, partner with government to deliver essential services, provide community investment and civic engagement, and leverage public funds to maximize returns.

**Workforce Participation Rate.** Alaska's labor force participation rate is strong and measurably higher than the national average. In April 2022, Alaska's labor force participation rate was 66.1%, signaling a recovery from the impacts of the pandemic and even higher than pre-pandemic levels, though labor shortages remain.[171]

## Weaknesses

**Aging Infrastructure.** In 2022, the American Society of Civil Engineers gave Alaska a "C-" in its annual Infrastructure Report Card.[172] With restricted capital budget funding over the last several years and a statewide recession affecting government revenue at all levels, many of the state's infrastructure assets – roads, ports, bridges, and more – are rapidly deteriorating. The infrastructure which makes it possible to bring Alaska's goods and services to the global market is essential to supporting Alaska's economy.

**Arctic Infrastructure.** Despite Alaska being the U.S.'s gateway to the Arctic, the closest U.S. deep-water port to the Bering Sea and Arctic Ocean is Dutch Harbor in the Aleutian Islands. The closest Coast Guard Base from which to launch search and rescue is on Kodiak Island. According to a study conducted by the U.S. Committee on the Marine Transportation System, marine traffic in the Arctic could increase up to 70% by 2030.[173] Building out Arctic infrastructure will be critical to accessing its economic opportunities and ensuring safe operations.

**Broadband.** Statewide, an estimated 87% of Alaskan households have access to internet.[174] However statistics on broadband access frequently do not paint the full picture in Alaska. In rural areas of the state, speed and affordability can vary widely. Of the roughly 360 Census Designated Places in Alaska, only 63% of communities have access to 100/10 Mbps service and 37% have access to 25/3 Mbps speed service.[175] While broadband availability in Alaska is growing, in many areas of the state availability of fast, affordable broadband is still severely limited or nonexistent. In the modern economy, fast and affordable internet access is a necessity for conducting business, education, and communication.

**Childcare.** An estimated 61% of Alaskans live in a childcare desert, as defined by the Center for American Progress. Lack of childcare impacts workers' ability to participate in the economy, and it worsened with the COVID-19 pandemic. In 2021 approximately 77% of parents reported missing work due to childcare issues. The U.S. Chamber of Commerce estimated in a 2021 study that childcare issues result in a $165 million loss annually to Alaska's economy.[176]

**Cost of Living.** In 2021, Cost of Living Index (COLI) ranked Alaska as the fifth most expensive state. A composite of housing, utilities, health care, groceries, and miscellaneous goods was about 30% more expensive than the U.S. average. Living costs within Alaska can vary widely, with rural communities being much more expensive than urban areas—but even the relatively lost cost parts of Alaska are well above U.S. averages.

**Distance and Isolation.** The distance and isolation of Alaska from the rest of the U.S. and of communities within Alaska impacts the cost and ease of doing business. In many ways, being at the end of the supply chain is a risk to the state economy, affecting its ability to weather shocks.

**Early Childhood Education.** In 2021, an estimated 13,204 children under the age of six in Alaska lacked access to early childhood education services.[177] Early childhood education plays a key role in building foundational skills and improving educational success. Investments in early childhood education have one of the highest rates of return.

**Energy and Transportation Costs.** High energy and transportation costs are the major limiting factor for any industry in Alaska. In February 2022, gasoline prices ranged from $3.59/gallon in Healy to $8.35/gallon in Atka. During the same period, heating fuel prices, which can be used as a metric for the cost of heat and power, ranged from $3.10/gallon in Healy to $14.00 in Arctic Village.[178]

**Health Care Costs.** Alaska has some of the highest health care costs in the U.S. In 2020, the average annual premium for employer-based health insurance in Alaska was the highest in the nation at $8,635 per year.[179] Both cost and access impact the health care industry in Alaska, with access to even the most basic health care services limited in rural and remote areas and limited access to specialists in urban areas. Many Alaskans must travel to Seattle or farther to seek specialized treatments.

**Housing.** Housing availability and costs are a constricting factor for most communities in Alaska. According to the Alaska Housing Finance Corporation's 2018 Housing Assessment, 32% of Alaskan households are cost burdened.[180] Between 2020 and 2021 the average home price rose by about 9%.[181] In some cases, housing availability severely impacts a community's ability to attract workers, especially in areas with large fluctuations in seasonal employment.

**Import Dependence.** Alaska's economy has a high dependence on imported goods. Even looking at the core industries that fuel Alaska's economy, raw materials are extracted in Alaska, shipped out-of-state

for processing, and, in many cases, goods are shipped back to Alaska for consumption (i.e. petroleum products). The supply chain that facilitates imports to Alaska is dependent on a handful of key ports. Failure at any point in the supply chain could dramatically impact the economy.

**Net Outmigration.** Between 2016 and 2020, Alaska's population declined an average of 0.3% annually.[182] This trend was primarily driven by greater outmigration than in-migration. Migration trends in Alaska appear closely related to the U.S. employment market, which has been stronger than the in-state job market for the last decade. Long-term net outmigration causes drag on the state's labor market, with fewer individuals in the labor pool.

## Opportunities

**Access to Vocational and Technical Education.** Approximately 24% of the jobs in Alaska in April 2021 were in skilled occupations.[183] These jobs are in transportation, maintenance, construction, resource extraction, and other areas. Growing access to vocational and technical education, including in rural areas of the state, provides a means to secure high-paying jobs for local residents.

**Expanding Broadband Access.** Federal funding and investment in rural broadband infrastructure is growing. The federal Infrastructure Investment and Jobs Act included $1 billion in funding specifically allocated to Alaska for broadband.[184] Investment in middle- and last-mile infrastructure will be critical for improving affordability and access across the state.

**Federal Infrastructure Spending**. The federal Infrastructure Investment and Jobs Act (IIJA) dedicated over $1 trillion in funding for infrastructure projects across the U.S. The law includes formula and competitive funding for highways, ports, airports, water/wastewater, broadband, and energy, among other areas. The IIJA will create thousands of jobs in Alaska related to construction, transportation, and administration between 2022 and 2026. These jobs will require at least some training but will provide high-wage employment around the state.

**Gig and Teleworkers.** In 2020, with the onset of the COVID-19 pandemic, many workers transitioned to remote work. According to a nationwide report of remote work, *2022 State of Remote Work,* an estimated 97% of workers would like to work remotely, at least some of the time, for the rest of their career.[185] This signals a shift toward a workforce with more mobility—able to disconnect the place they work from the place they live. Attracting gig and teleworkers to Alaska presents one opportunity to expand Alaska's workforce. Gig and telework also represents an employment opportunity for Alaskans. These workers contribute to local tax base, participate in local economies, and bring new wealth to Alaska's economy.

**Leveraging Lessons Learned from Pandemic.** The economic shocks generated by the COVID-19 pandemic created an enormous need for rapid responses to businesses and individuals in crisis. The pandemic generated an opportunity to learn from the experiences of 2020 and 2021 and build business support response plans and more to support businesses and residents when crises strike.

## Threats

**Climate Change.** Incidents of extreme climate events have endangered infrastructure, disrupted business operations, and pushed Alaskans out of their homes. Forest fires, landslides, erosion, extreme snowfalls, flooding, permafrost melting, and more are all common headlines. With the growing impacts

of climate change, it can be expected that the frequency of these disruptive events will increase, impacting workers and businesses.

**Federal Visa Policies.** In Alaska, temporary worker visas are commonly used in the tourism and seafood industries to rapidly staff seasonal positions. Changing rules and regulations around visas, fee increases, and processing backlogs at the federal level all impact the ability of Alaskan employers utilizing the program to access workers. This contributes to worker shortages that ripple throughout the economy.

**Inflation.** In May 2022 the U.S. Consumer Price Index rose 8.6% over the year prior. Continued rapid inflation would put Alaska's economy at risk as the cost for services and materials outstrips the ability of the economy to adjust its prices and wages. This is a threat for all industries but presents a major hurdle for industries in the growth stages.

**Labor Shortages**. Alaska's out-migration trend suggests that many residents (and would-be residents) see greater opportunity elsewhere. With a small labor force to begin with, Alaska will need to attract more working-age residents to meet the demand from employers in-state, who face severe labor shortages. This puts Alaska in competition with other states that have lower living costs, high-quality housing stock, and other amenities.

**Natural Disasters.** Over the last five years, Alaska has experienced earthquakes, forest fires, erosion, windstorms, and countless other natural disasters which have impacted households' and businesses' capacity to participate in the economy. With the growing impacts of climate change, it can be expected that the frequency of these disruptive events will increase, impacting workers and businesses.

**Slow Wage Growth.** Over the last decade, real wages have grown steadily on the national level, 1% annually on average between 2012 and 2021. In Alaska, the average real wage has fluctuated between years of small amounts of growth and years of decline, at about half of the national average at 0.5% annually.[186] This threatens the state's economy from several angles, primarily through the rising cost of inflation impacting households even harder as the purchasing power of a paycheck fails to keep up with the cost of goods and services. Wage decline also functions as another pull for workers leaving the state, seeking higher paid opportunities elsewhere.

**State Capital Budget Funding.** Coinciding with declines in oil prices, the State of Alaska has experienced fiscal instability since 2014. Budget constraints have significantly impacted capital project funding. With the State budget tied to oil revenues, future instability in oil prices could have significant impacts on State capital spending.

**Supply Chain Disruptions.** With the economic impact of the pandemic in 2020 and 2021, it became even more apparent that Alaska is at the end of the supply chain, with price increases and empty shelves. Disruption at one key point in the supply chain, like the Port of Seattle, can have immediate effects on Alaskan industries, businesses, and households.

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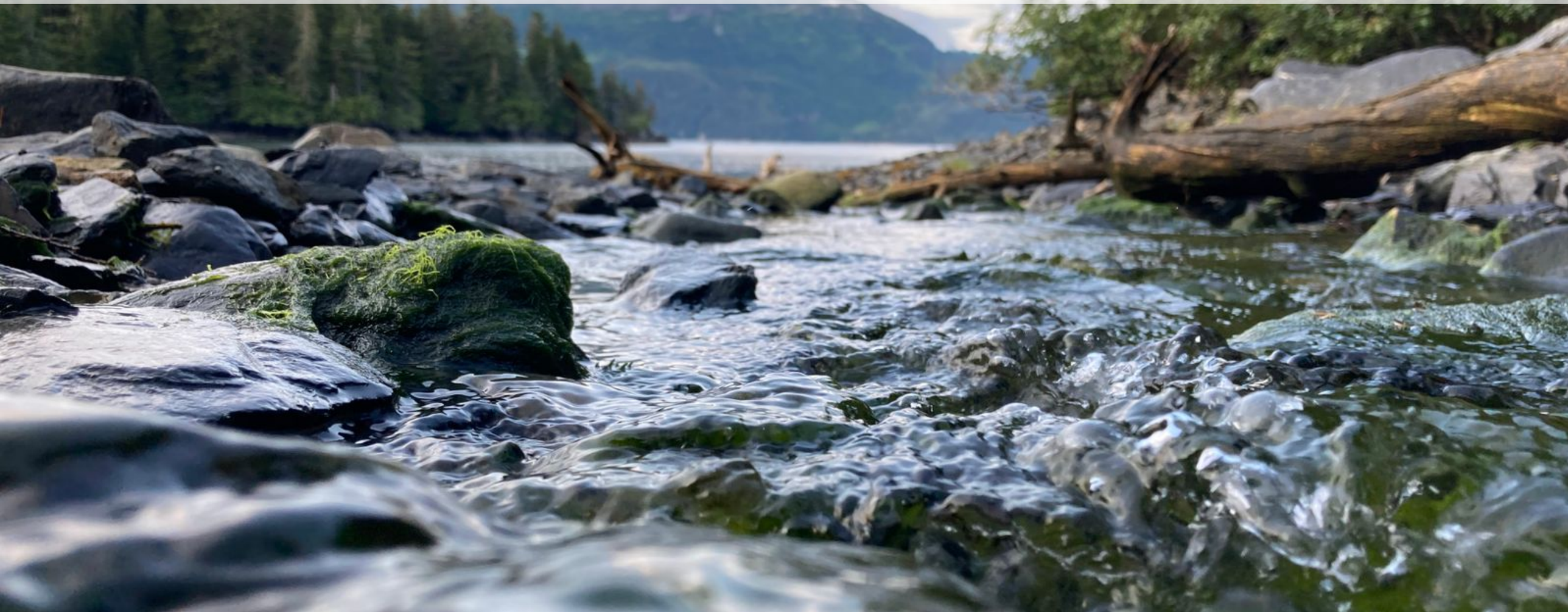
# Appendix: Evaluation Framework Sources

| Goal | Measure | Baseline | Year | Source |
|---|---|---|---|---|
| Overarching | Annual Average Employment | 310,293 | 2021 | Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW) |
| | Gross State Product (GSP) | $54,970,100,000 | 2021 | Bureau of Economic Analysis (BEA) |
| | Net Migration (Annual) | (3,327) | 2020-2021 | Department of Labor and Workforce Development (DOLWD) |
| Economic Engines | Oil Production Average Barrels/Day | 437,000 | 2021 | Energy Information Administration (EIA) |
| | Permit Approval Time | TBD | | |
| | Mining Employment | 3500 | 2021 | QCEW, NAICS codes 212 and 213114 |
| | Oil and Gas Employment | 6711 | 2021 | QCEW, NAICS codes 211, 213111, 213112 |
| | DOD and DHS Contract Value | $1,771,213,425 | FY 2021 | Federal Procurement Data System (FPDS) |
| | DOD and USCG Personnel | 30,697 | 2022 (Mar) | Defense Manpower Data Center |
| | Board Feet of Timber Harvested (MMBF all lands) | 151.5 | 2019 | Resource Development Council |
| | Air Cargo Volume TSAIA (Tons) | 3,157,682 | 2020 | Airports Council International |
| | Alaska Resident Permit Ownership | 76.6% | 2022 | Commercial Fisheries Entry Commission |
| | Total Ex-Vessel Value | $1,481,048,669 | 2020 | NOAA Fisheries |
| | Cruise Ship Visitors | 1,331,600 | 2019 | Alaska Travel Industry Association (ATIA) and McKinley Research |
| | Independent Visitors | 881,400 | 2019 | ATIA/McKinley Research |
| Emerging Sectors | Aquatic Plant Production (LB) | 563,390 | 2021 | Alaska Department of Fish and Game (ADF&G) |
| | Permitted Aquatic Farms | 32 | 2020 | ADF&G |
| | Aerospace Product Manufacturing Employment | 138 | 2021 | QCEW, NAICS code 3364 |
| | Farm Revenues (agriculture, non-aquatic) | $35,302,000 | 2017 | U.S. Department of Agriculture, Census of Agriculture |
| | Boat and Ship Building and Repair Employment | 383 | 2021 | QCEW, NAICS code 3366 |
| | Manufacturing Employment (non-seafood) | 3,894 | 2021 | QCEW, NAICS codes 31-33 minus 3117 |
| | Critical Mineral Processing Employment | 0 | 2022 | QCEW |

| Goal | Measure | Baseline | Year | Source |
|---|---|---|---|---|
| | Number of Remote Workers | 21,083 | 2020 | ACS 5-year 2020 |
| | Renewable Share of Electricity Production | 39.40% | 2022 | EIA, March 2022 |
| Business Climate and Entrepreneurship | New Businesses Started | 8,034 | 2021 | Business Formation Statistics (BFS) |
| | New Rural Businesses Started | 1,024 | 2021 | BFS, Alaska total minus Anchorage, Fairbanks, Juneau, Kenai, and Mat-Su |
| | SBDC SSBCI Loan Dollars | 0 | | SBDC |
| | SBIR/STTR Awards | 4 | 2021 | SBIR.gov |
| | SBIR/STTR Award Dollars | $506,000 | 2021 | SBIR.gov |
| | University of Alaska Patents | TBD | | |
| Economic Foundations | Households with 100 MBPS Broadband Service | TBD | | |
| | Number of Licensed Childcare Centers | 523 | 2021 | Thread Alaska |
| | New Housing Starts | 1,669 | 2020 | DOLWD and AHFC |
| | Average Home Price | $388,648 | 2021 | DOLWD and AHFC |
| | Median Adjusted Rent Cost | $1,179 | 2021 | DOLWD and AHFC |
| | Average Residential Power Cost per KwH | $0.23 | 2022 | EIA, March 2022 |
| | Average Industrial Power Cost per kWh | $0.19 | 2022 | EIA, March 2022 |
| Workforce Development | Percent of Working-Age Alaskans with Postsecondary Credential | 55% | 2022 | Alaska Postsecondary Access and Completion Network |
| | Total University of Alaska Enrollment | 24,483 | Fall 2021 | UAA, UAF, and UAS websites |
| | Total University of Alaska Degrees/Certificates Awarded | 3,997 | 2021 | UAA, UAF, and UAS websites |
| | Vo-Tech Enrollment (TVEP) | 7,723 | 2021 | DOLWD, total enrollment for entities with TVEP grants |
| | Labor Force Participation Rate | 66.2% | 2022 (May) | Bureau of Labor Statistics |

# Appendix: 2022 Statewide Comprehensive Economic Development Strategy Business and Stakeholder Survey Results



# Survey Response Quick Look

**201**

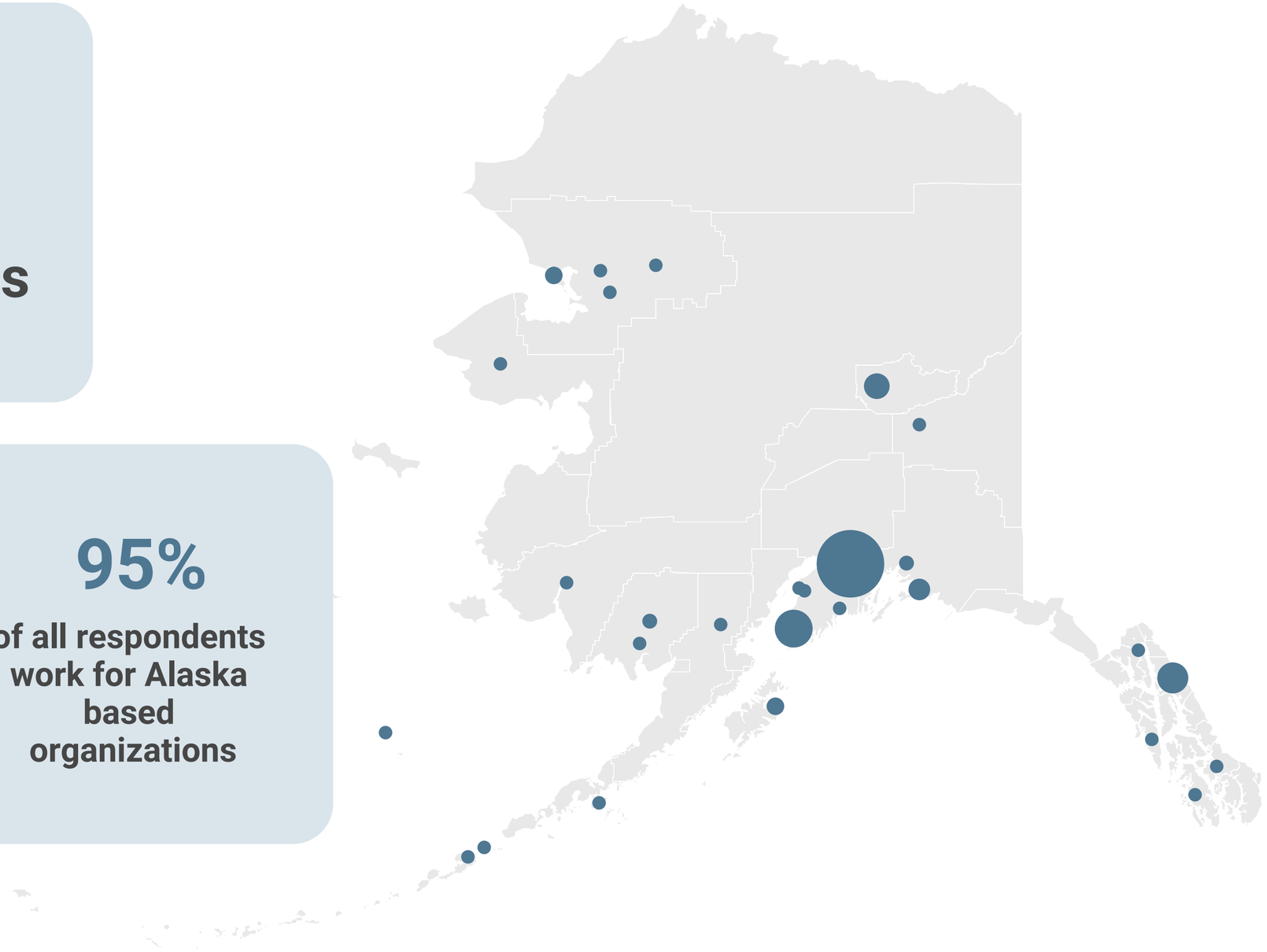
**Total Responses**

**91%**

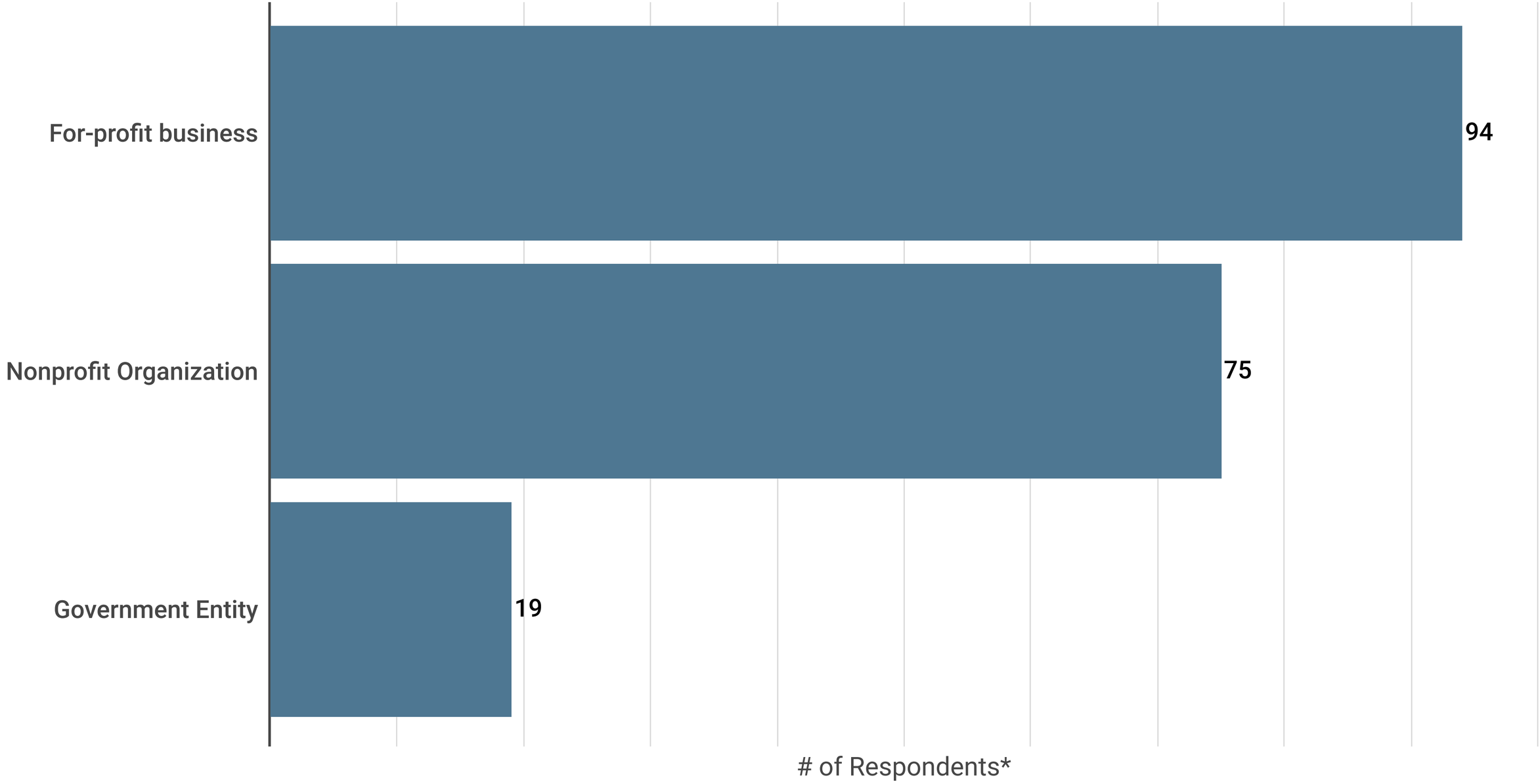
**of respondents working at for-profit organizations were based in Alaska**

**95%**

**of all respondents work for Alaska based organizations**

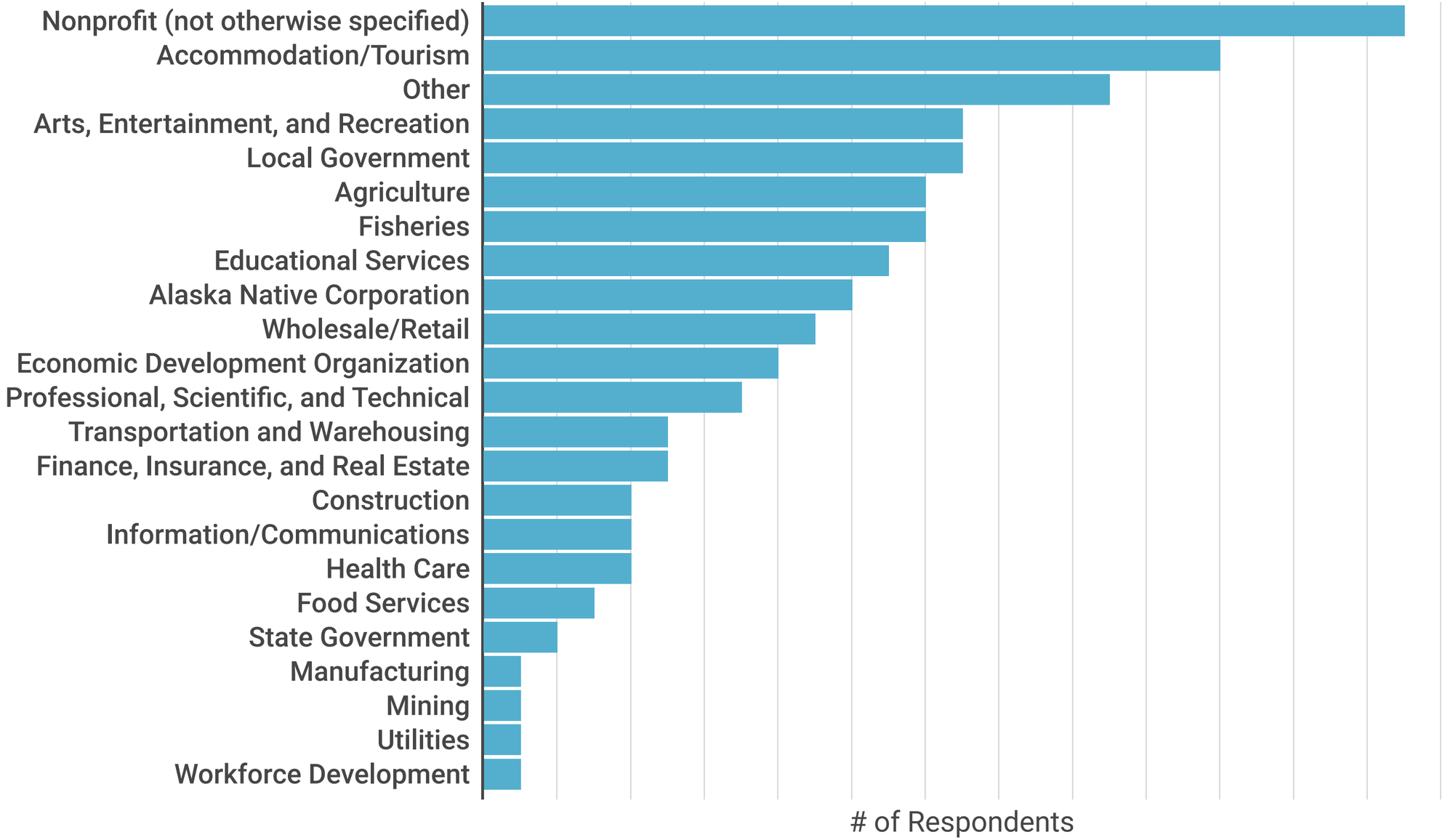


# Survey Respondent Organization Type




*Note: The total of all categories may not total to 201. Some survey respondents chose not to answer some questions.

# Survey Respondent Industries




**13%**

**classified themselves as nonprofits with no other industry specified**

**11%**

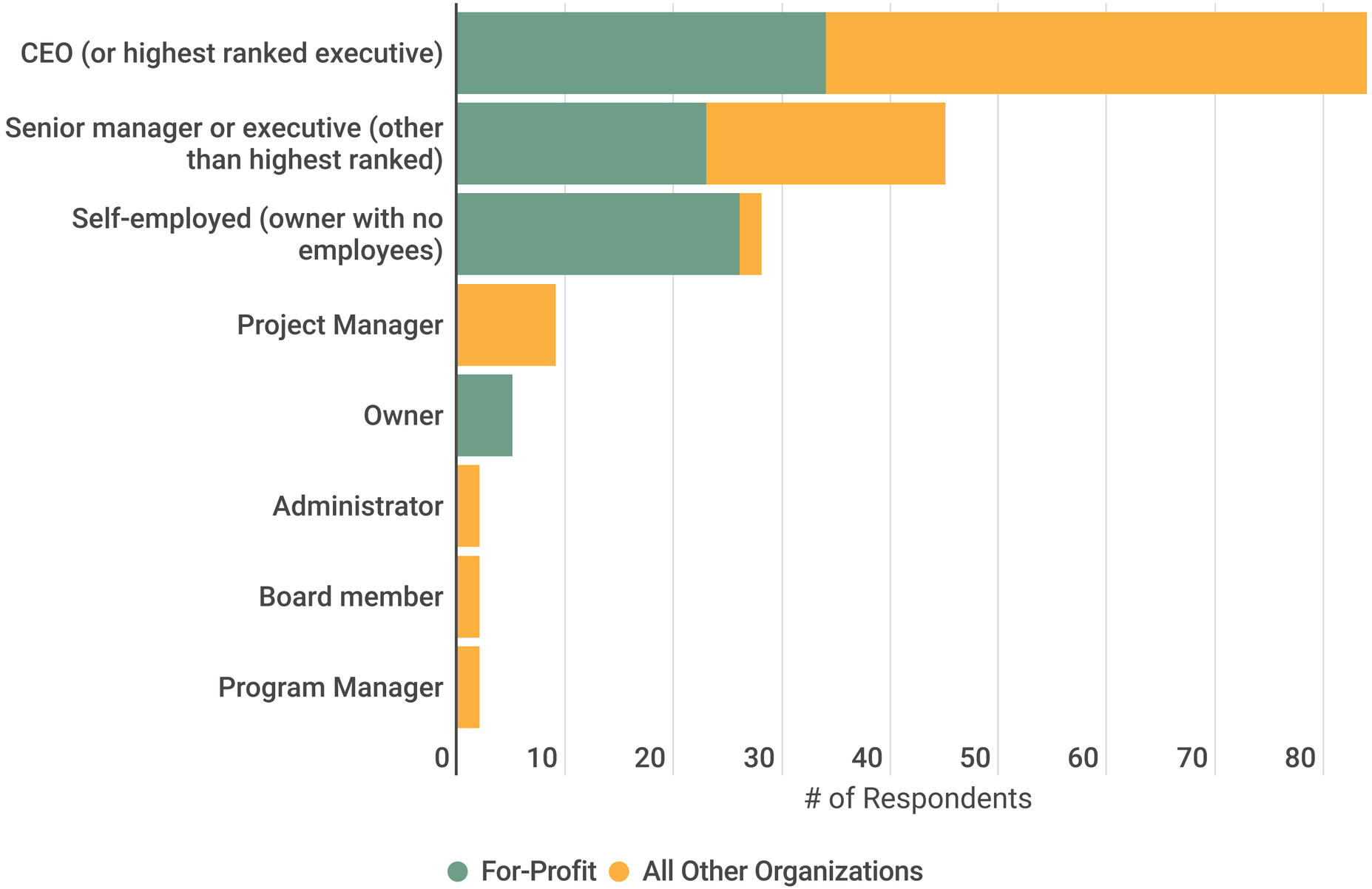
**of respondents were in accommodation/ tourism**

**6%**

**of respondents were in agriculture**

*Note: The total of all categories may not total to 201. Some survey respondents chose not to answer some questions.

# Position of Respondents within Organization



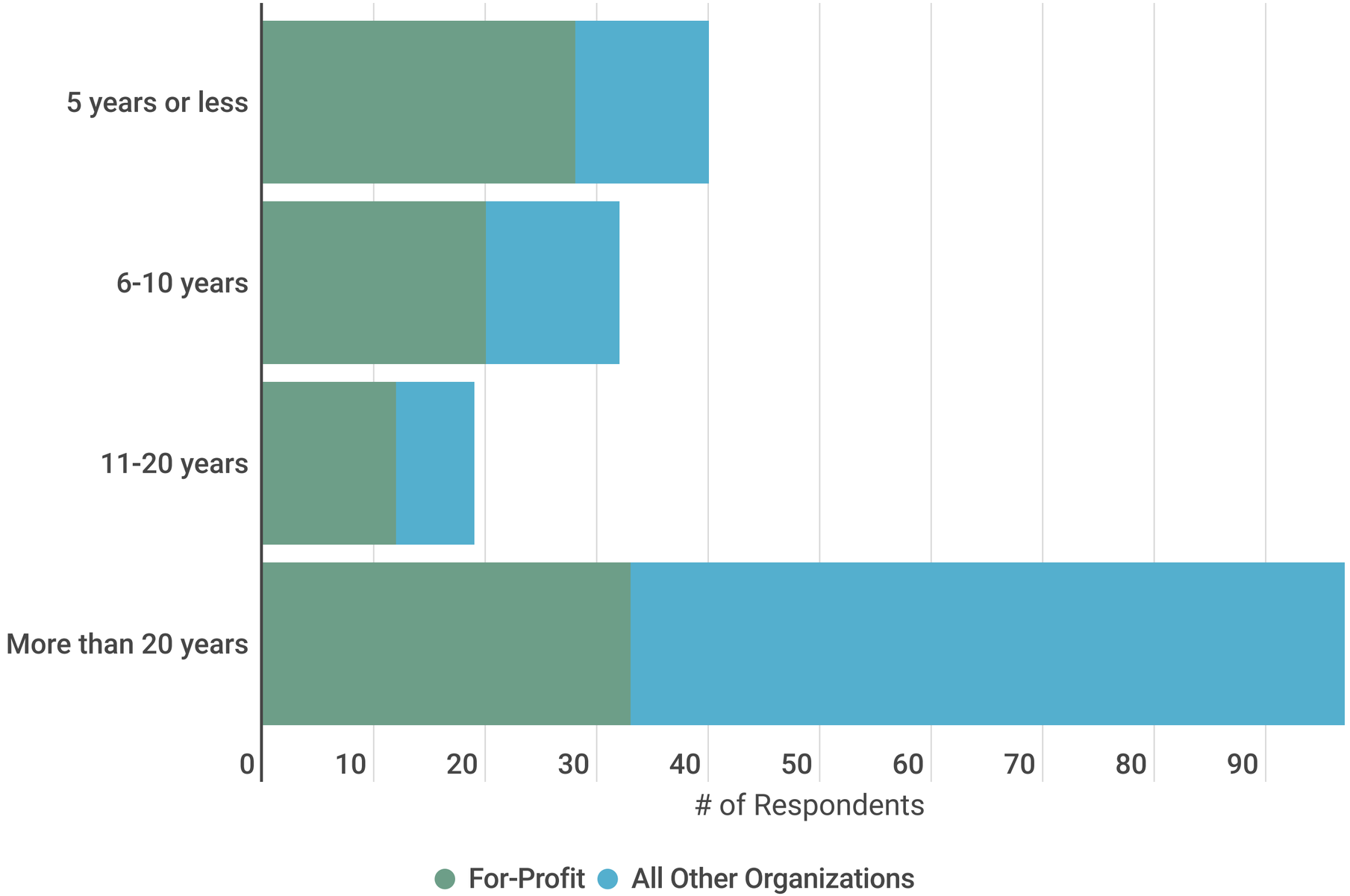

**89%**

**of respondents held senior positions at their organizations, either as CEO, a senior executive, or self employed**

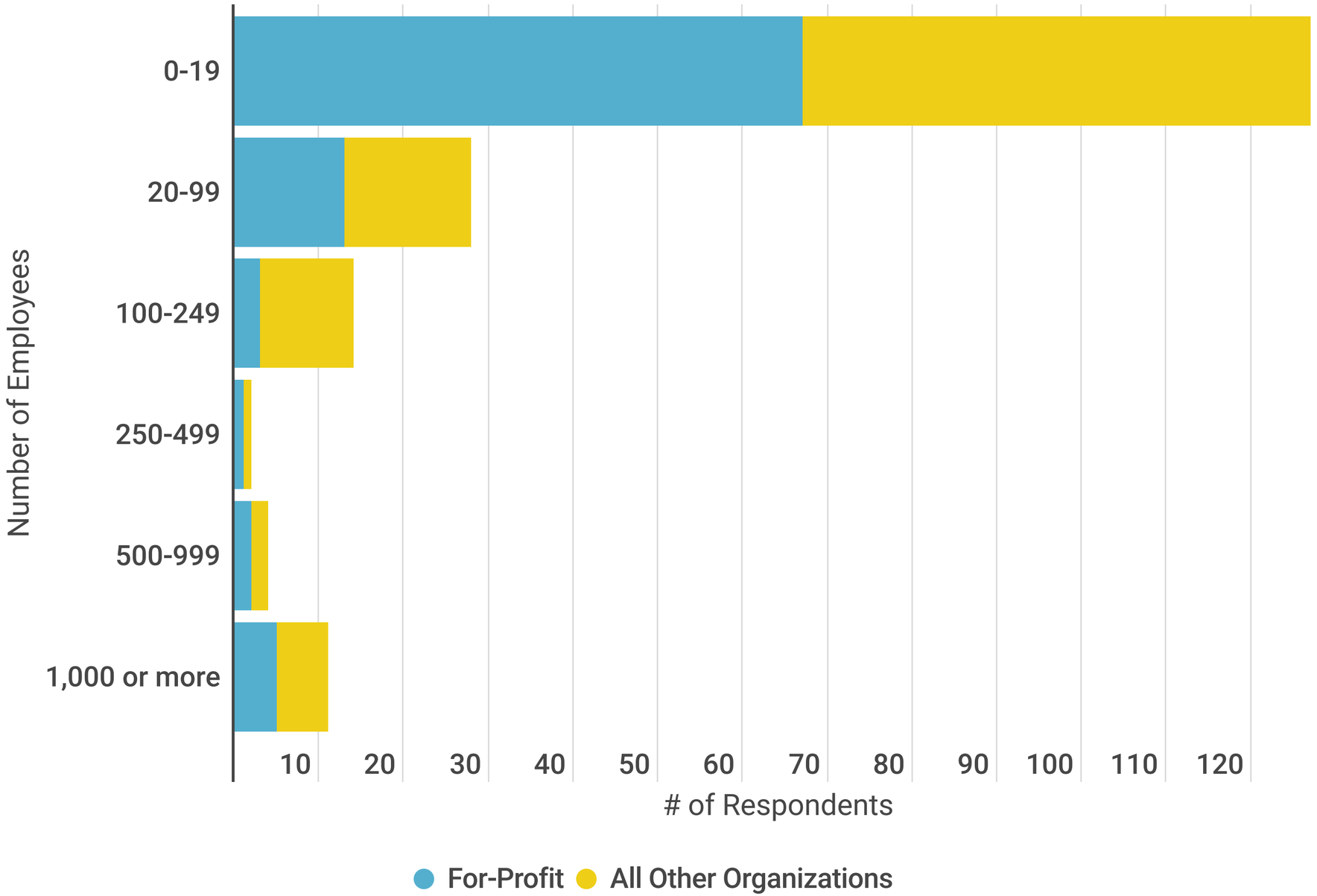
# Age of Respondents' Organizations

**52%**

**of respondents worked at organizations older than 20 years. However, more business respondents were from firms younger than 20 years**



# Size of Respondent Organizations

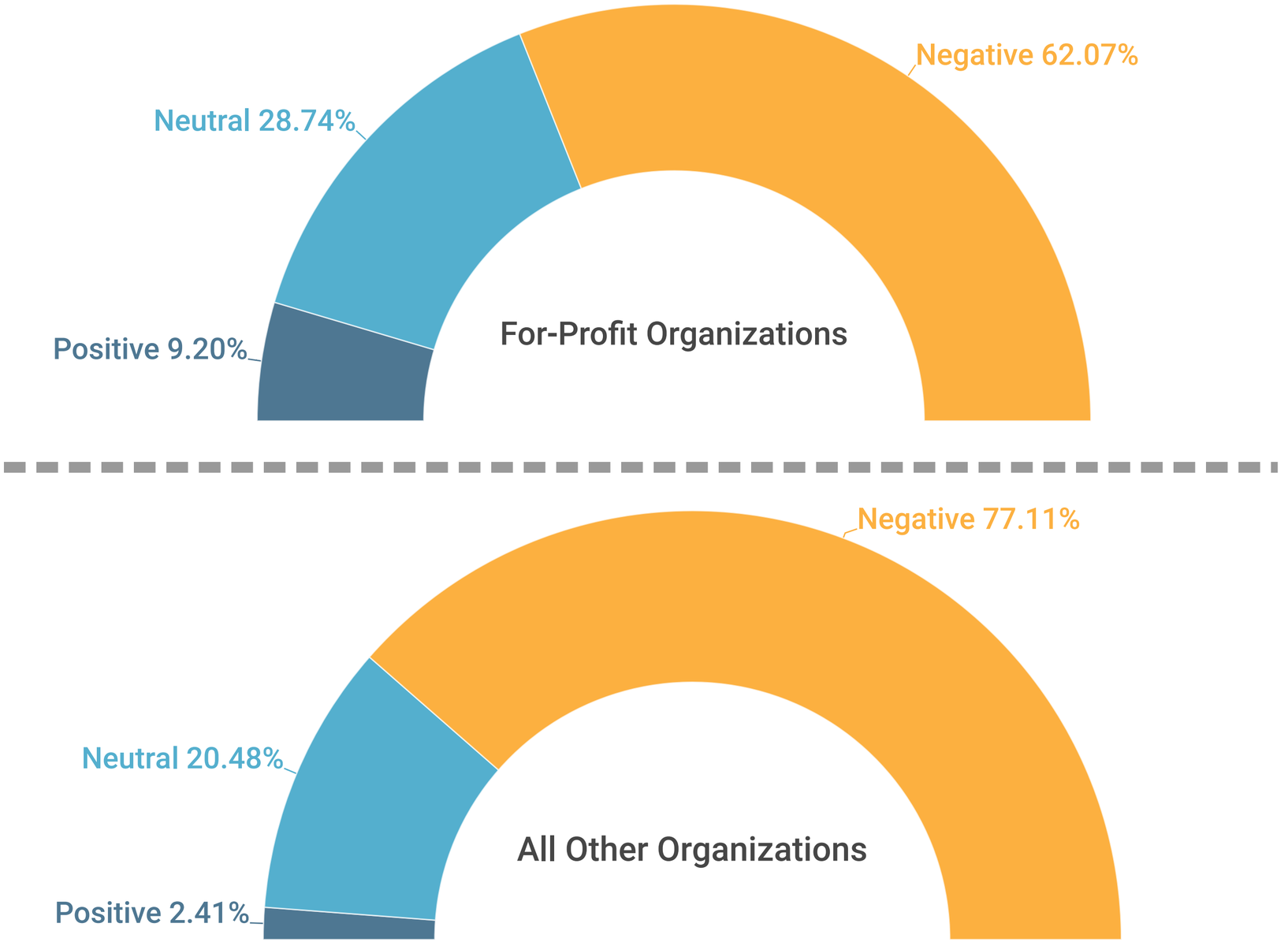



**83%**

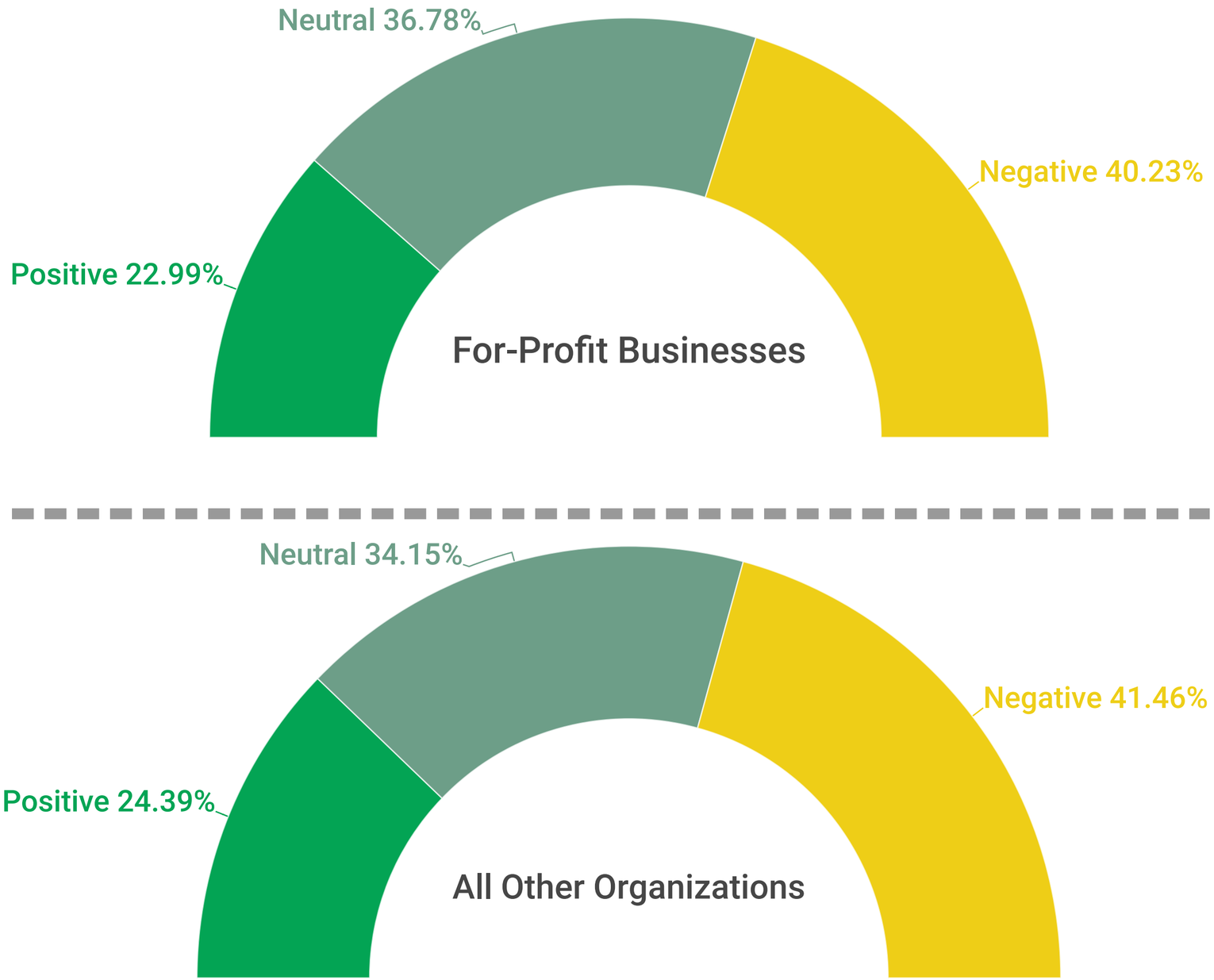
**of respondents were housed at organizations that employed fewer than 100 employees**

# How do Respondents Feel About the State's Economic Future?

Attitudes toward Alaska's economic future were predominantly negative, both from respondents at for-profit businesses, and nonprofits and government organizations



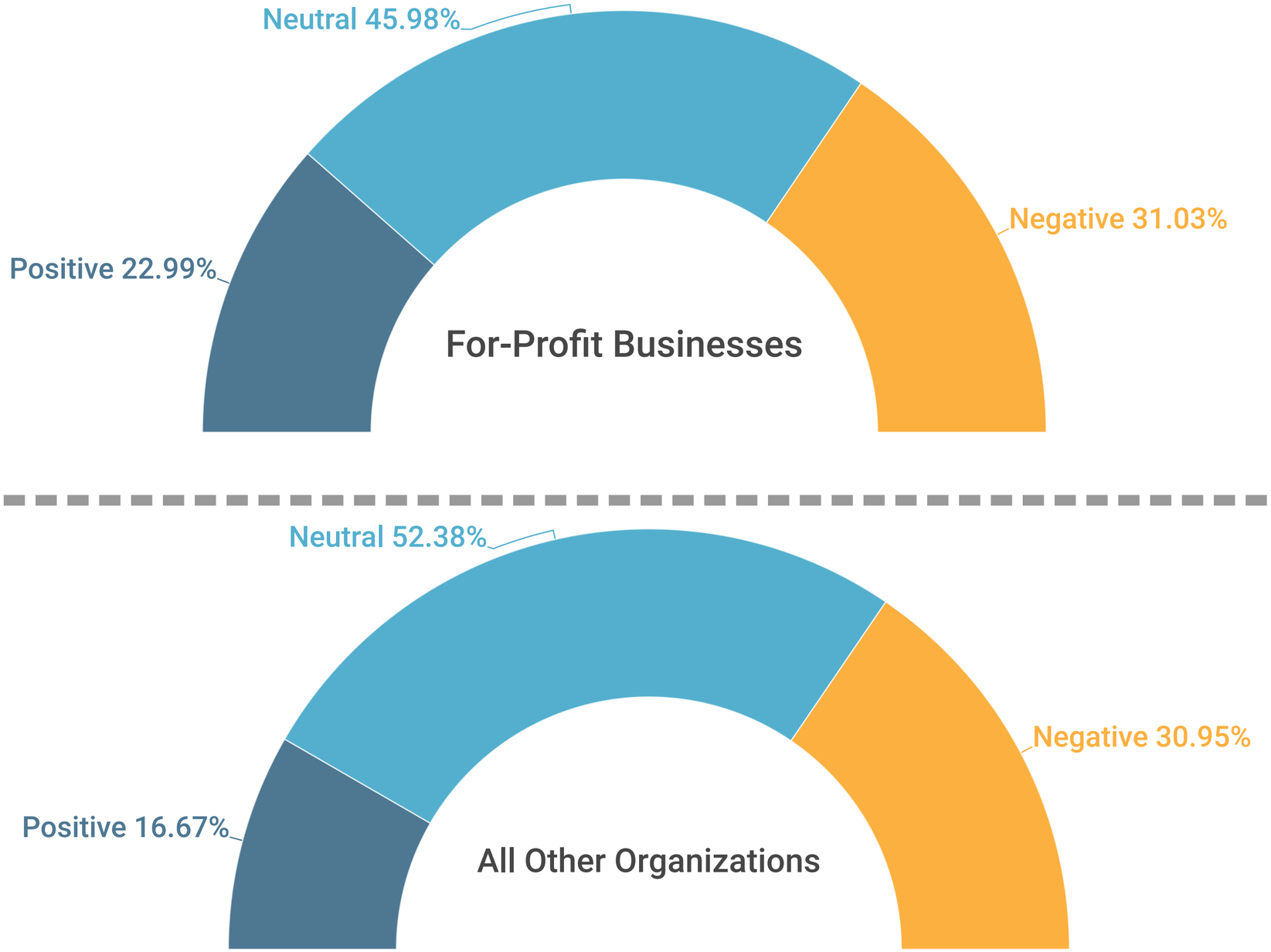
# How do Respondents Feel About their Industry's Outlook in the Next Year?



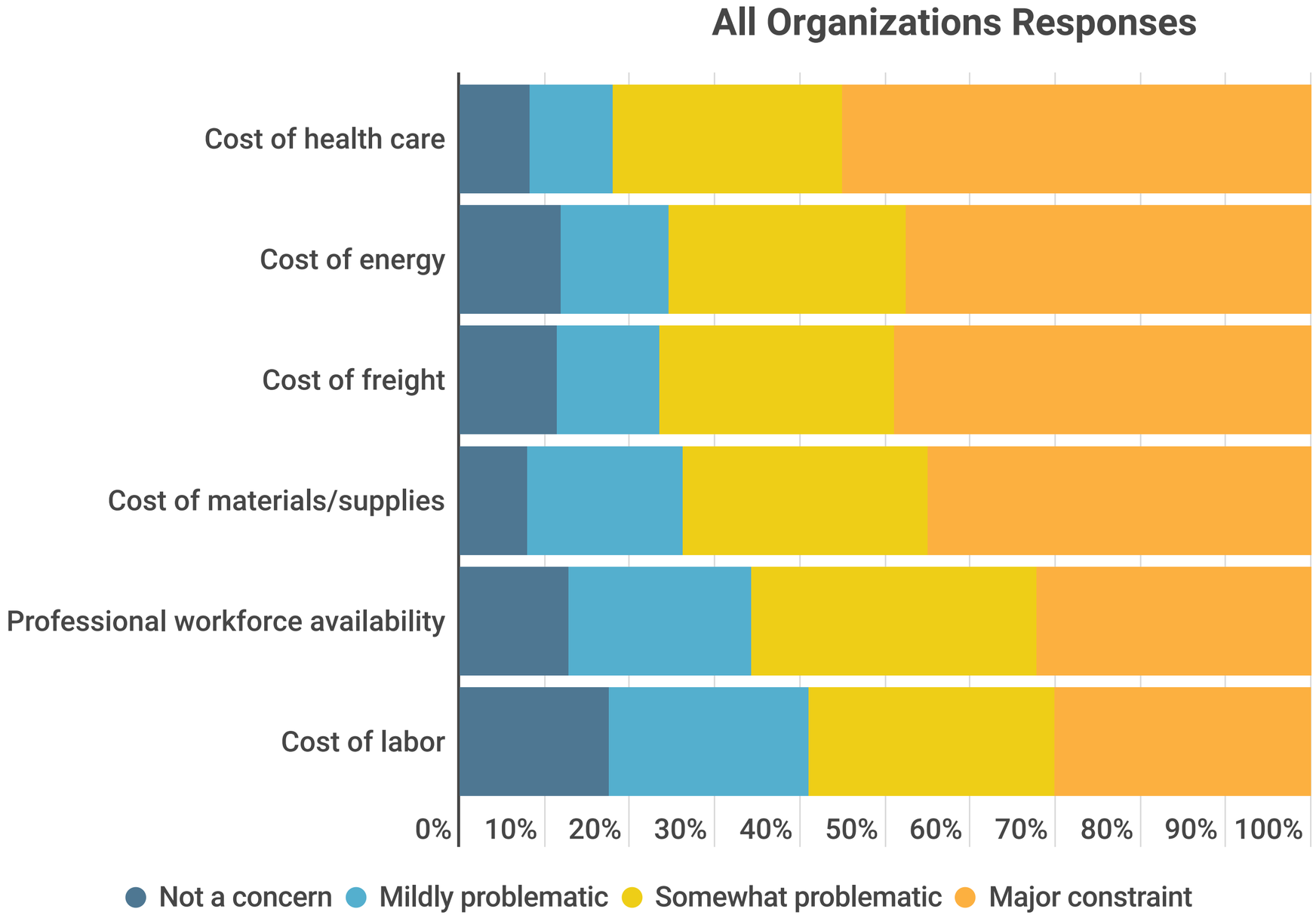

While slightly better than the outlook on the overall economy, respondents report negative attitudes toward their industry's outlook.

# How do Respondents Feel About Quality of Life in Alaska?

The largest amount of respondents, from both businesses and other organizations, reported feeling neutral about quality of life in Alaska



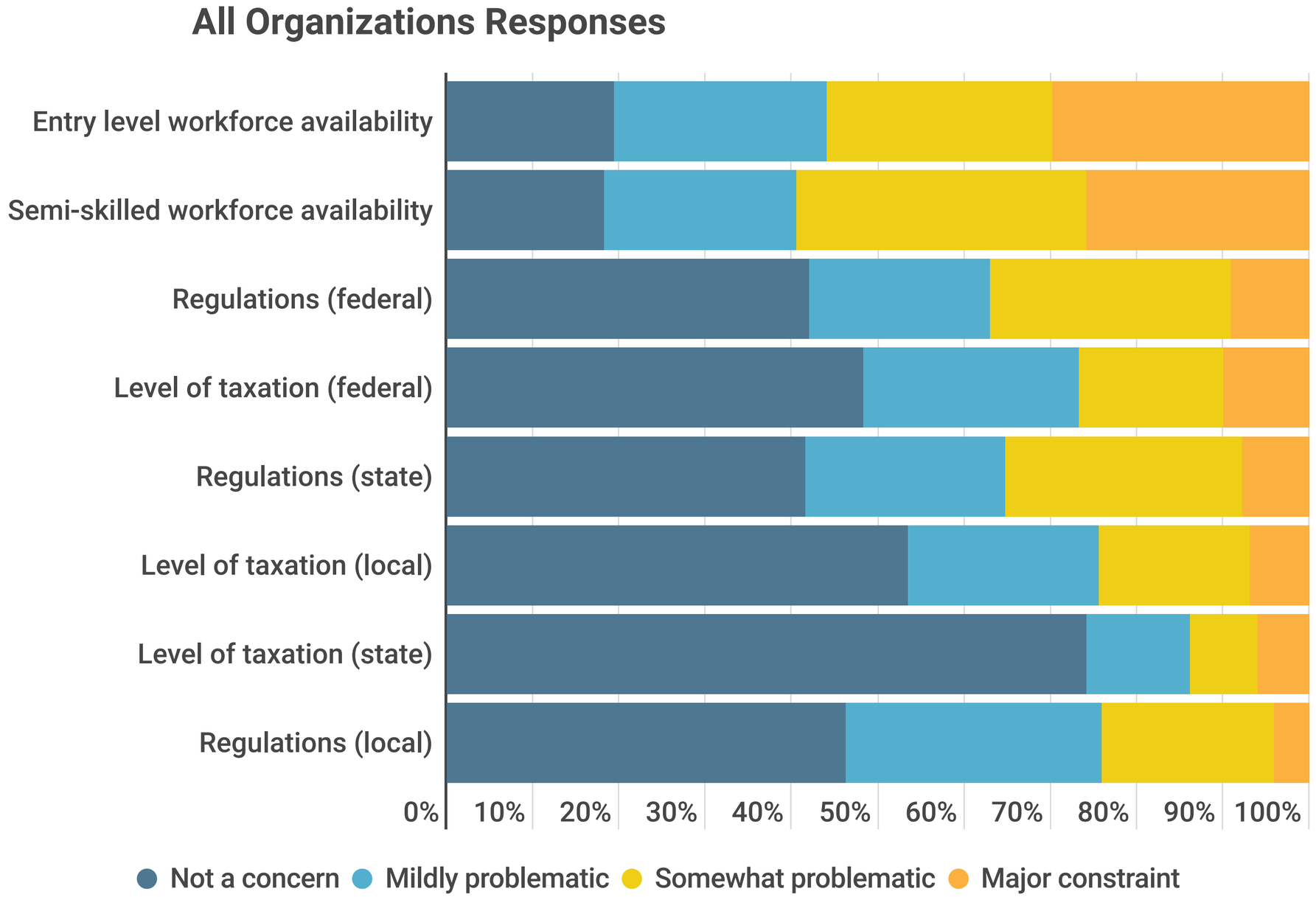
# What Barriers do Respondents See for their Organizations?



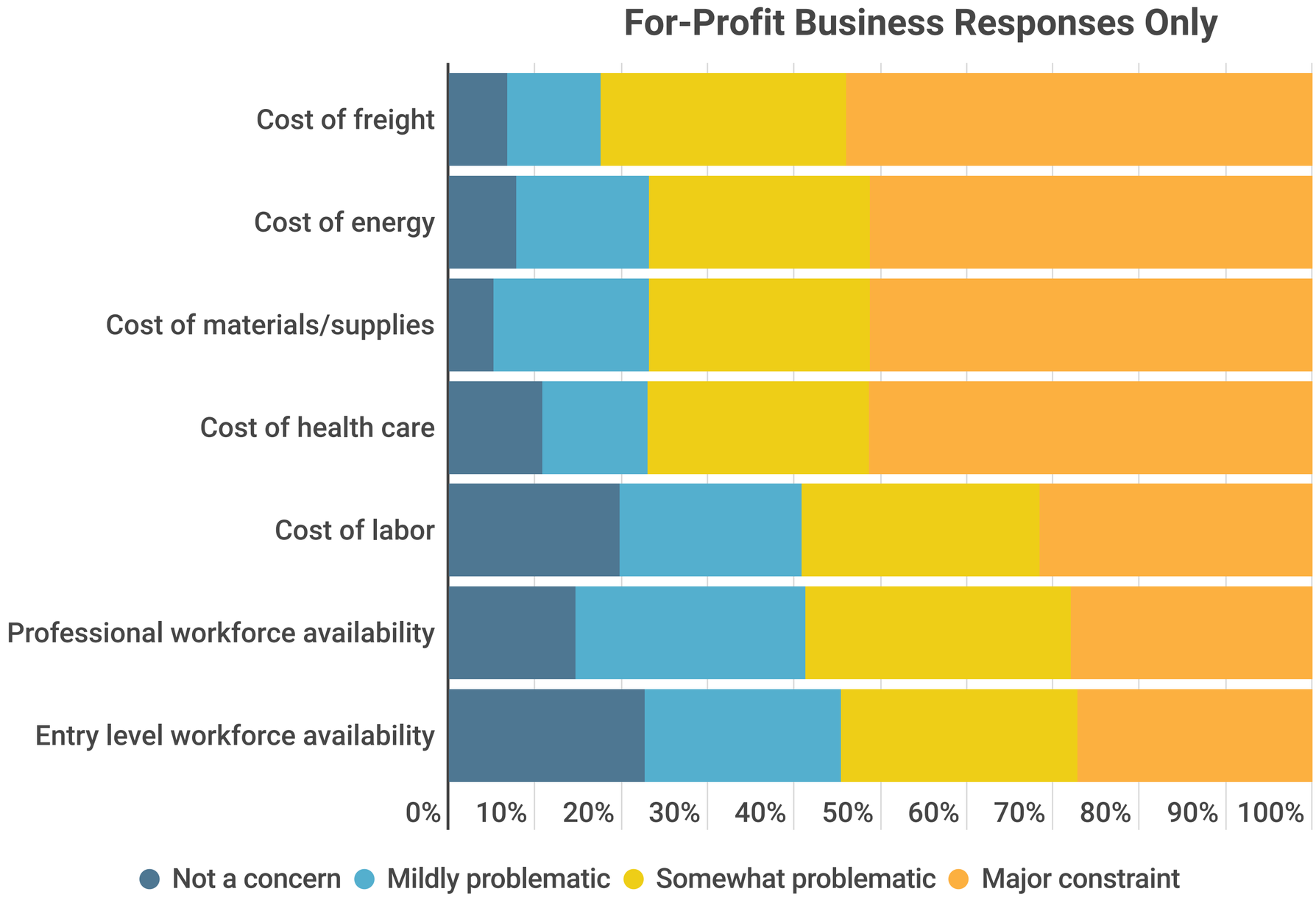

All types of organizations found the cost of doing business (healthcare, energy, freight, materials/supplies, and labor) to be a constraint for their organization.

# Continued...What Barriers do Respondents See for their Organizations?

Overall, respondents found regulations and taxes (local, state, and federal) to be the least problematic in Alaska, with the majority of respondents ranking them either "mildly problematic" or "not a concern."



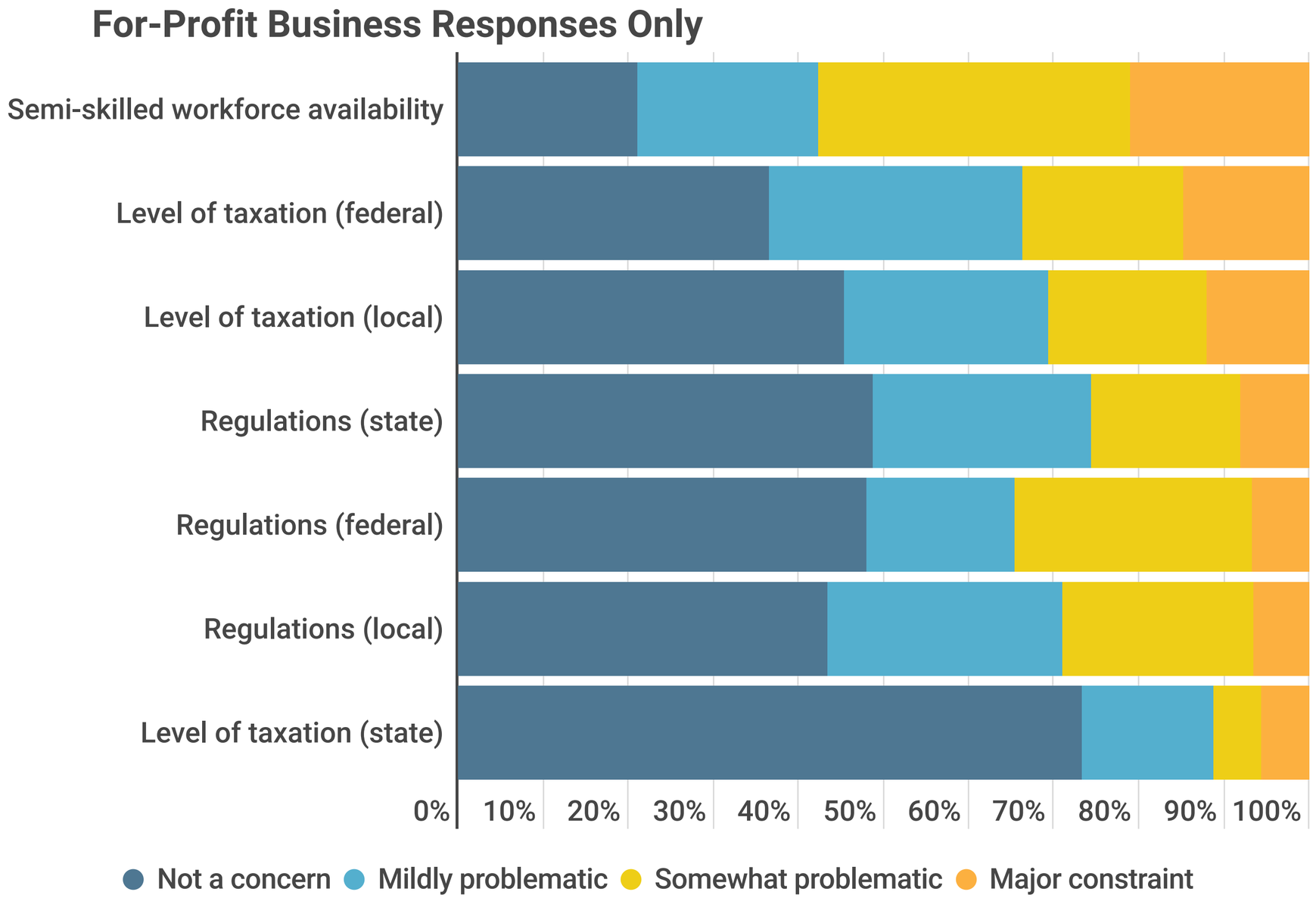
# Continued...What Barriers do Respondents See for their Organizations?



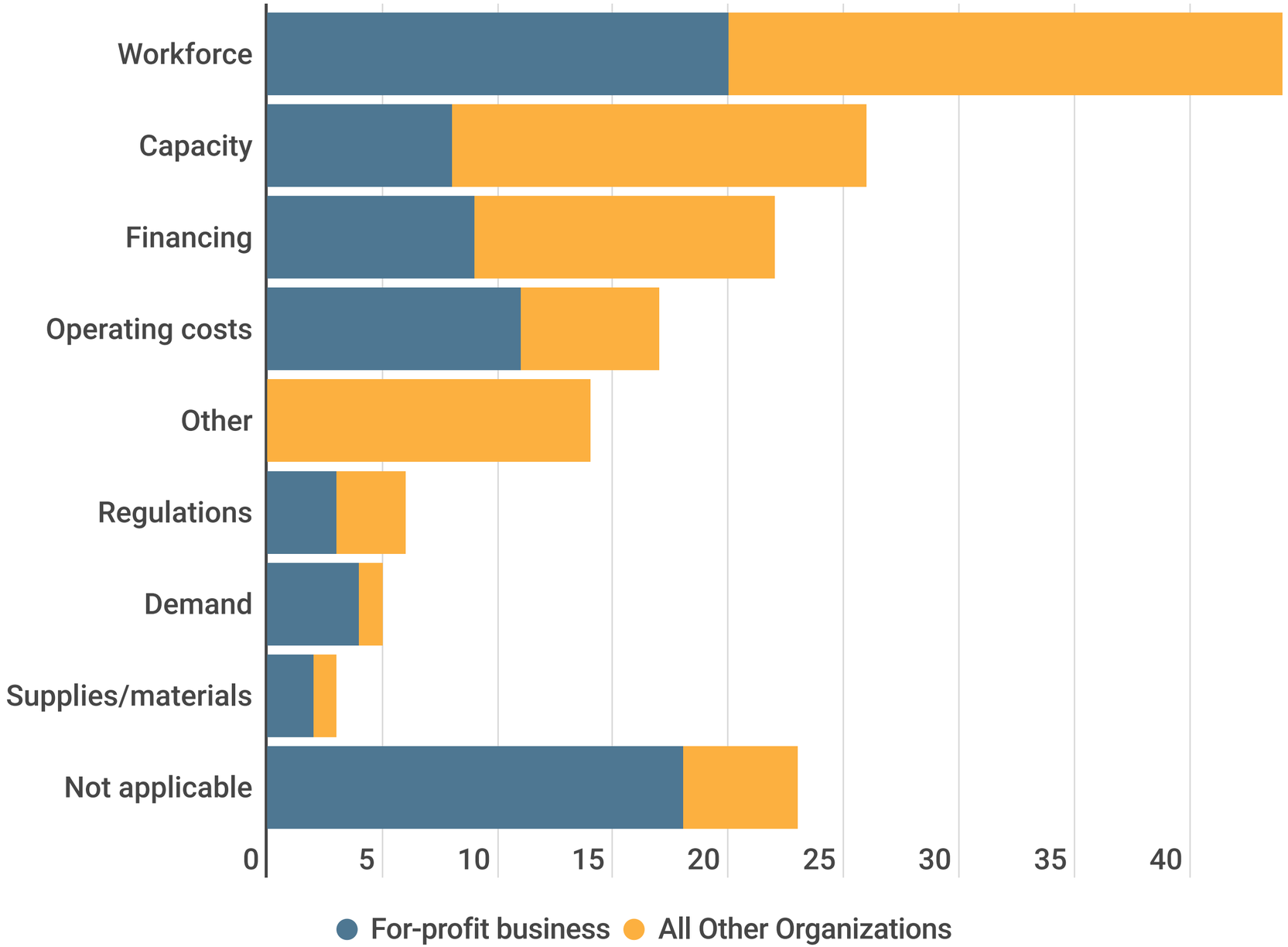

Looking at the responses of for-profit businesses on their own, the results are nearly identical. With variable associated with the cost of doing business and workforce availability listed as constraints.

# Continued...What Barriers do Respondents See for their Organizations?

Similar to the overall responses, for-profit businesses found regulations and taxation to not be a constraint. However, differing from the overall results, businesses listed federal regulations as a larger constraint.

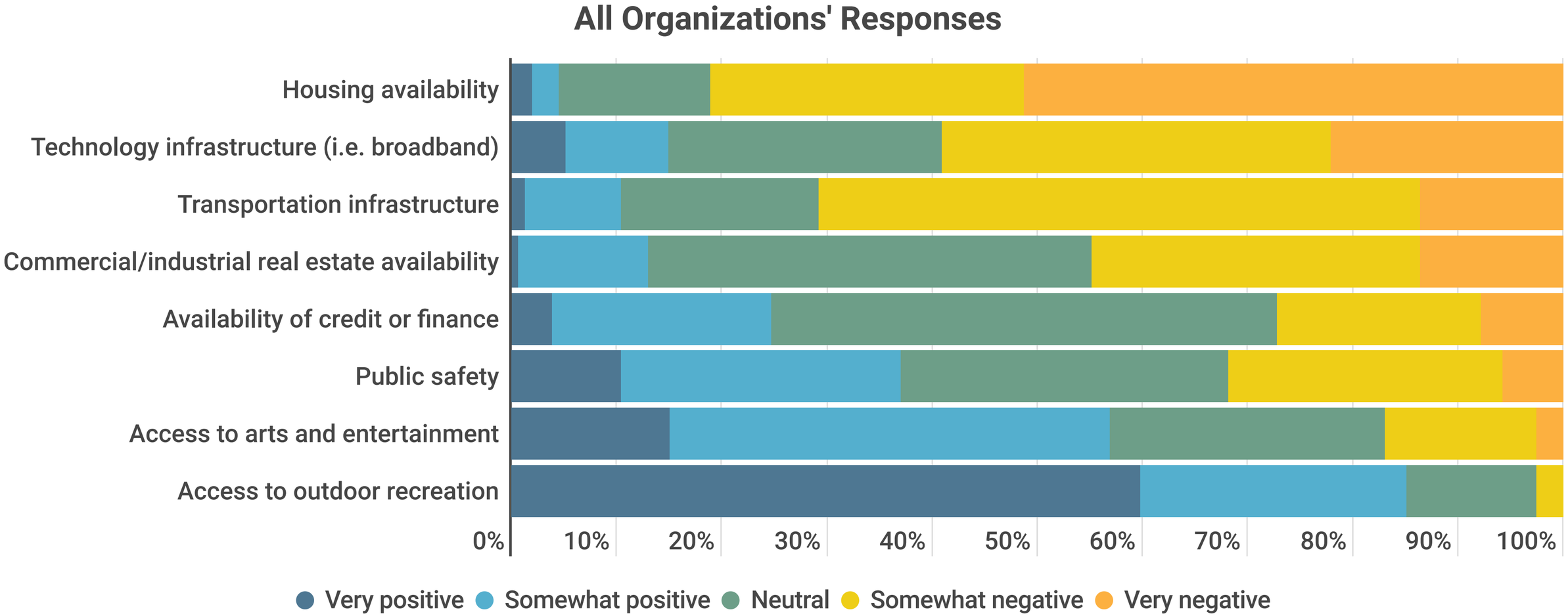


# What is the Most Limiting Factor for Respondents' Organizations?




Workforce was cited as the top limiting factor by all organization types. However, after that results diverge. Operating costs are among the top constraints cited by businesses, while capacity and financing ranked high among nonprofit and government respondents.

# How do Respondents Percieve the Impact of Various Economic "Enablers"?

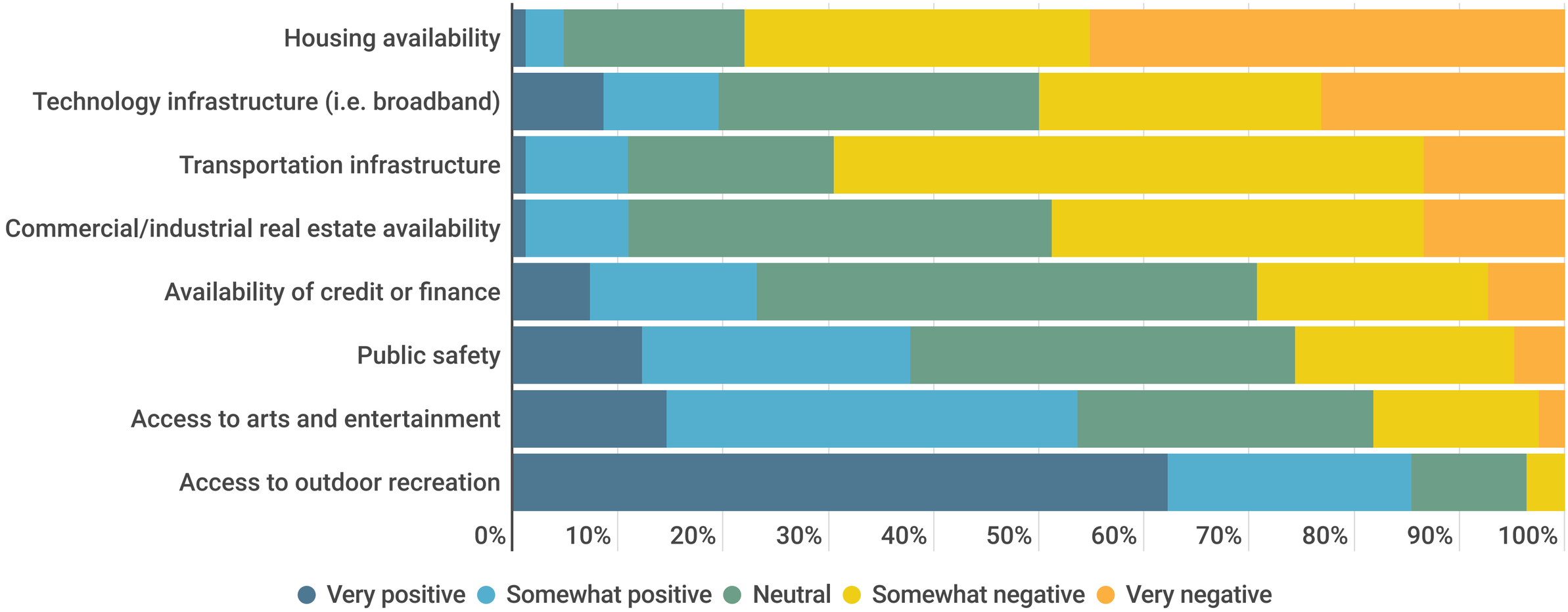



Respondents cite predominately negative perceptions of housing availability and transportation infrastructure as economic enablers. Perception of access to arts and entertainment and access to outdoor recreation were ranked among the most positive.

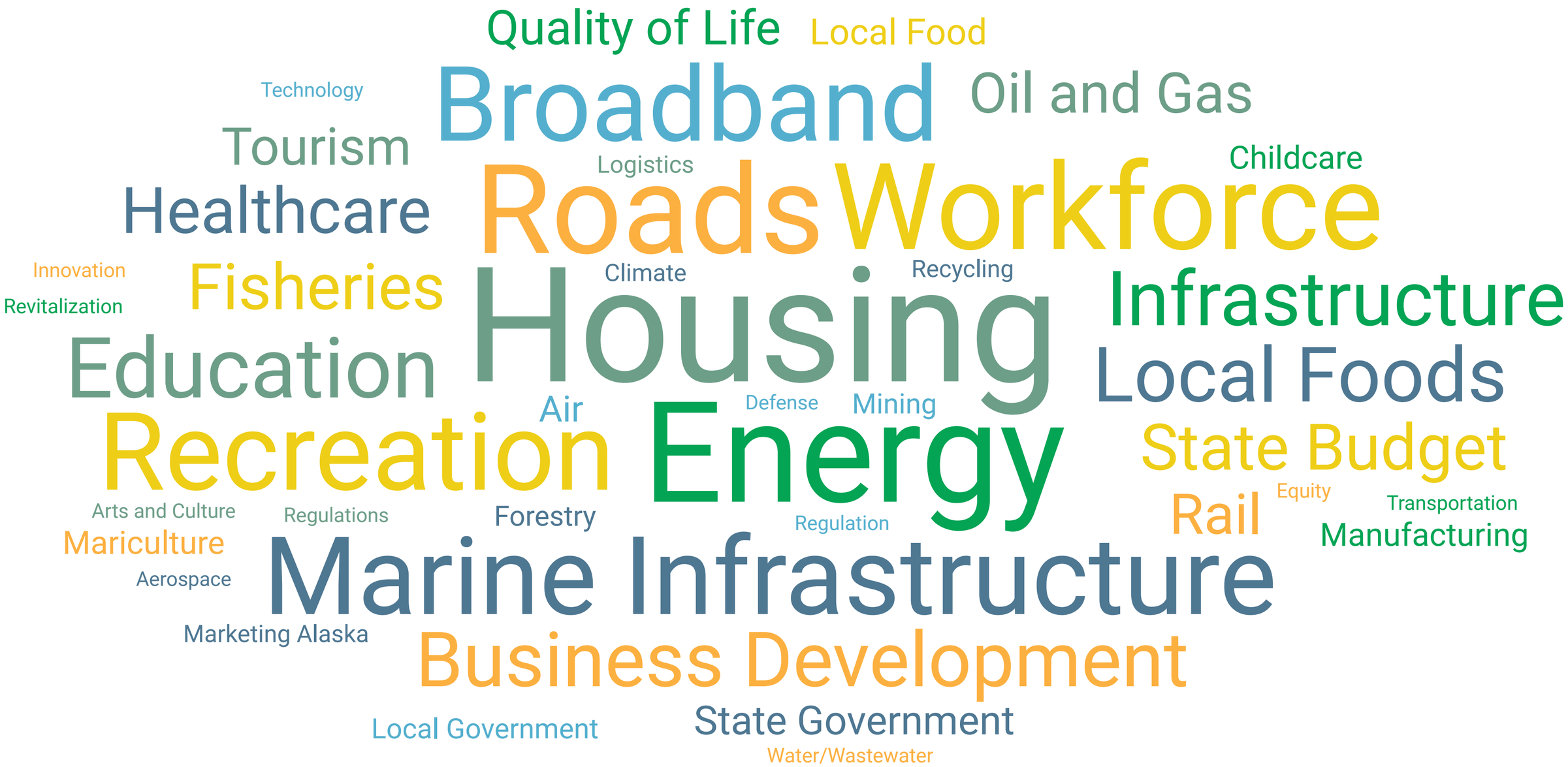
# How do Respondents Percieve the Impact of Various Economic "Enablers"?

## For-Profit Business Responses

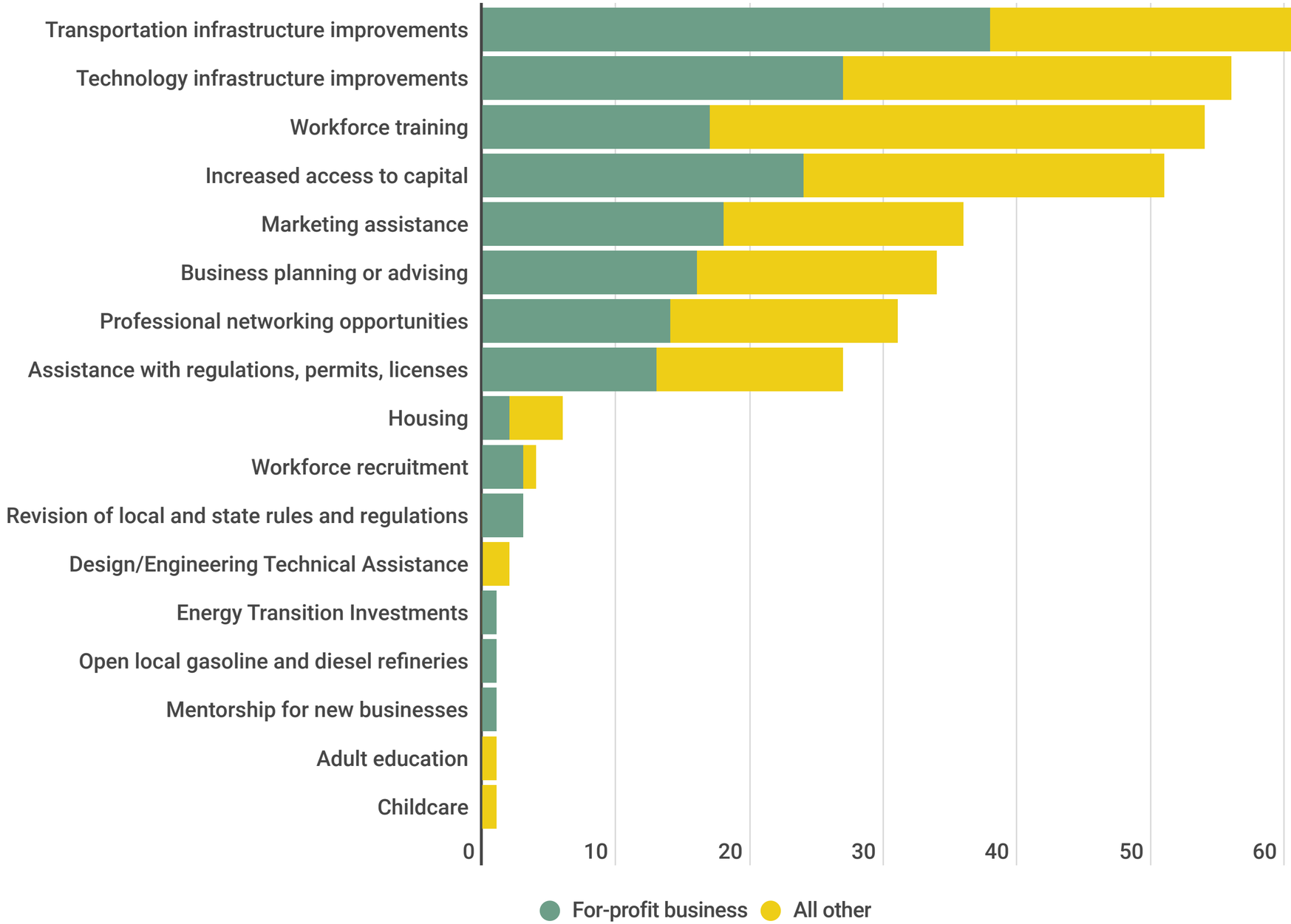
Among for-profit business respondents, as a sub population of survey responses, perceptions of economic enablers were largely similar.



# What Types of Projects do Respondents Think will Boost the Economy?



# Which Services do Respondents Think will Help their Organizations Expand?




With a relatively similar opinions between for-profit businesses and other organizations, infrastructure improvements rank the highest for services to improve organizational expansion. Workforce training and increased access to capital also ranked among the top four.

# Other Commentary from Survey Respondents

Kotzebue - "I truly believe in developing the small business sector. More work needs to focus on economic development in our villages. Each village in Alaska should be known for one product or activity they produce. Continue support programs for commercial fishermen and small farmers."

Fairbanks - "Focus on wind-solar-battery energy, blue economy, better housing design, and leveraging government-industry-academia nexus."

Juneau - "Affordable housing needs to be at the top of the list - my business is losing employees (both staff leaving town due to lack of housing, and applicants who accept employment then withdraw due to lack of housing); workforce shortages directly related to lack of affordable housing has led my business to reduce the work we do and use waitlists for critical healthcare services due to lack of staff."

Anchorage - "There needs to be collaborative work between industries, government and the legislature to develop strategic policies to create economic expansion"

Unalaska - "The state could expand marketing and investment for, Study in Alaska programs, Live and Work in Alaska Programs, Alaska travel and tourism programs, in order to encourage more people outside of the state to know about the opportunities, as well as keep the brain drain as minimal as possible."

# Appendix: 2022 Review of Comprehensive Economic Development  Strategies Across Alaska

# Areas of Alaska with Active Regional or Local CEDS

Most regions of Alaska are covered by established Comprehensive Economic Development Strategies (CEDS). In some cases, like Saint Paul Island, local communities may choose to establish a more defined CEDS specific to their community.

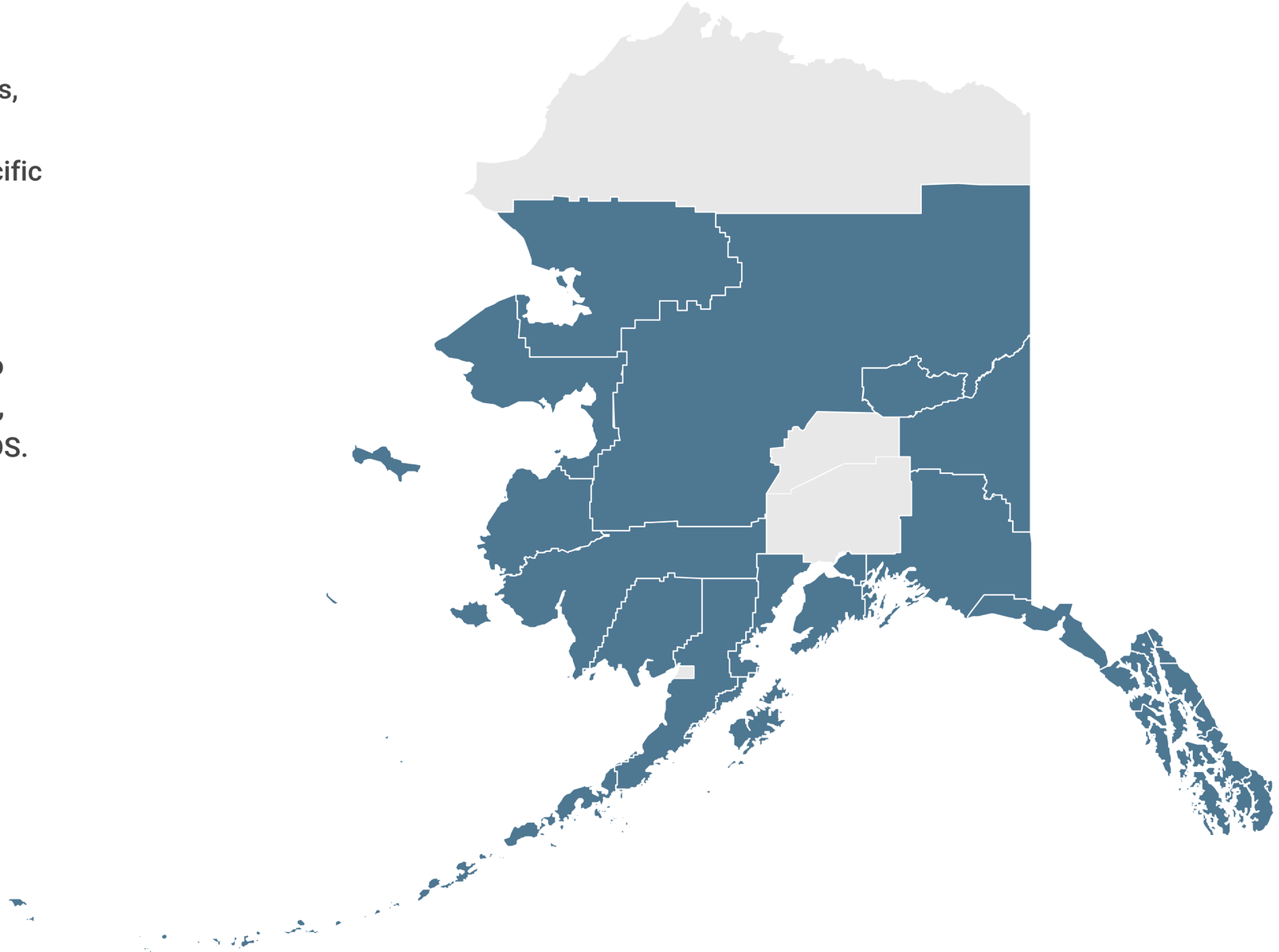
Some regions of Alaska - the North Slope Borough, Copper Valley Census Area, Denali Borough, and Matanuska-Susitna Borough - do not currently have established CEDS. However, these region are covered by the Statewide CEDS.

**13**

Active, established statewide, regional, and local CEDS in Alaska

**27**

Of Alaska's 31 boroughs and census areas are covered by a CEDS



*Note: The Valdez-Cordova Census Area was divided into two regions, the Chugach Census Area and Copper Valley Census Area, in 2019. That division is not reflected in this map. The Chugach Census Area has an established CEDS and the Copper Valley Census Area does not but is in the process of drafting one.

# Strategic Direction Across Alaska

**Among CEDS documents from regions and localities across the state, there are:**

**69**

**unique goals**

**243**

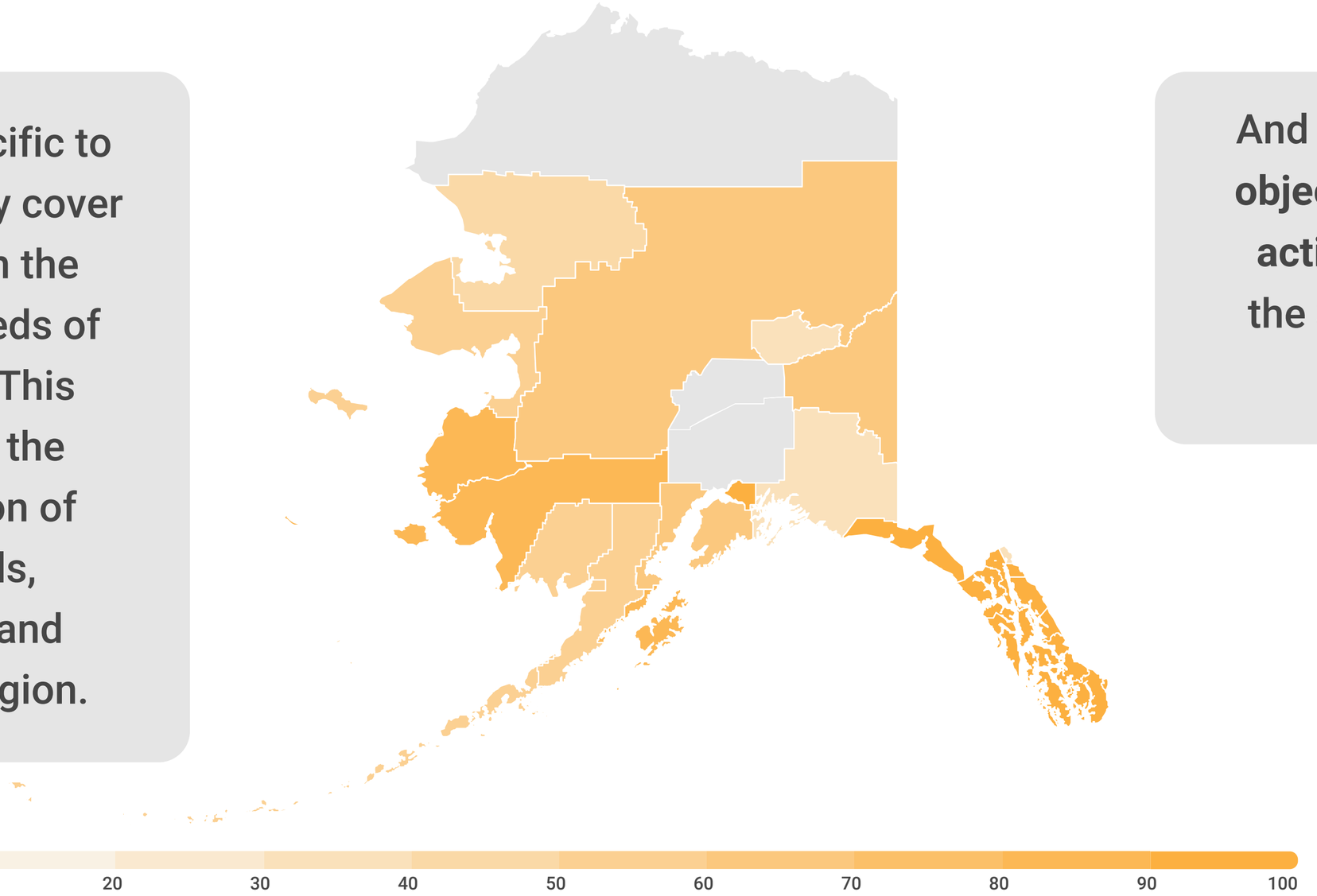
**individual objectives**

**739**

**specific actions**

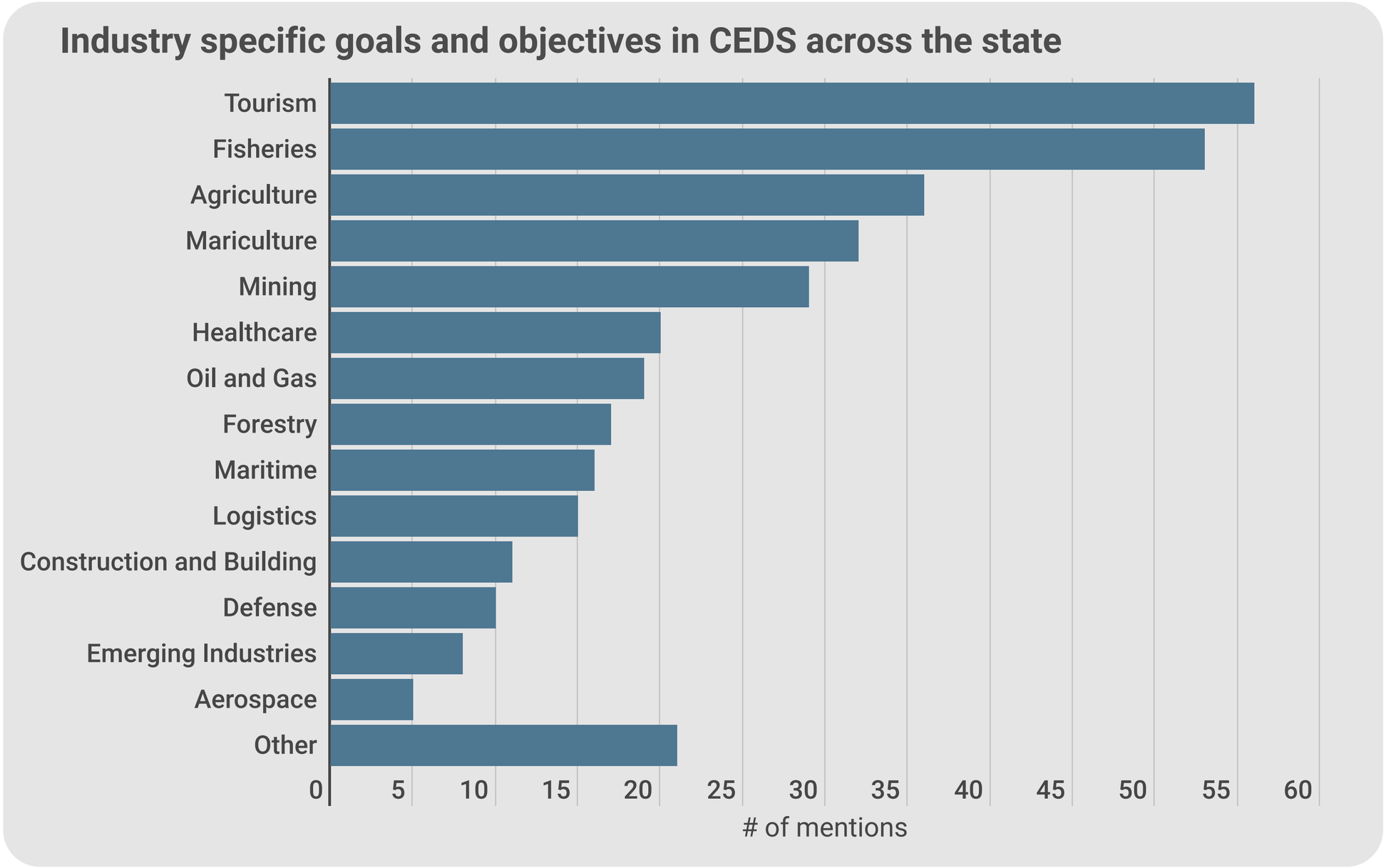
# Where do those Goals and Objectives Come From?

CEDS are specific to the region they cover and focus on the economic needs of that region. This map shows the concentration of CEDS goals, objectives, and actions by region.




**And 113 goals, objectives, and actions from the Statewide CEDS**

# What Industries do the CEDS Focus On?




An additional 566 goals and objectives were not specific to any industry or applied to all industries.

# What Topics do Alaska's CEDS cover?

# CEDS Goals Around Alaska

Northwest Arctic - "Develop natural resources, such as minerals, fisheries, agriculture, oil & gas, and tourism to increase economic diversity while preserving subsistence resources. Promote revenue diversification and stability, broaden business development opportunities, and enhance employment potential in a culturally appropriate way."

Rural Interior - "Develop tools to assess and communicate the economic value of subsistence harvesting and other traditional cultural practices."

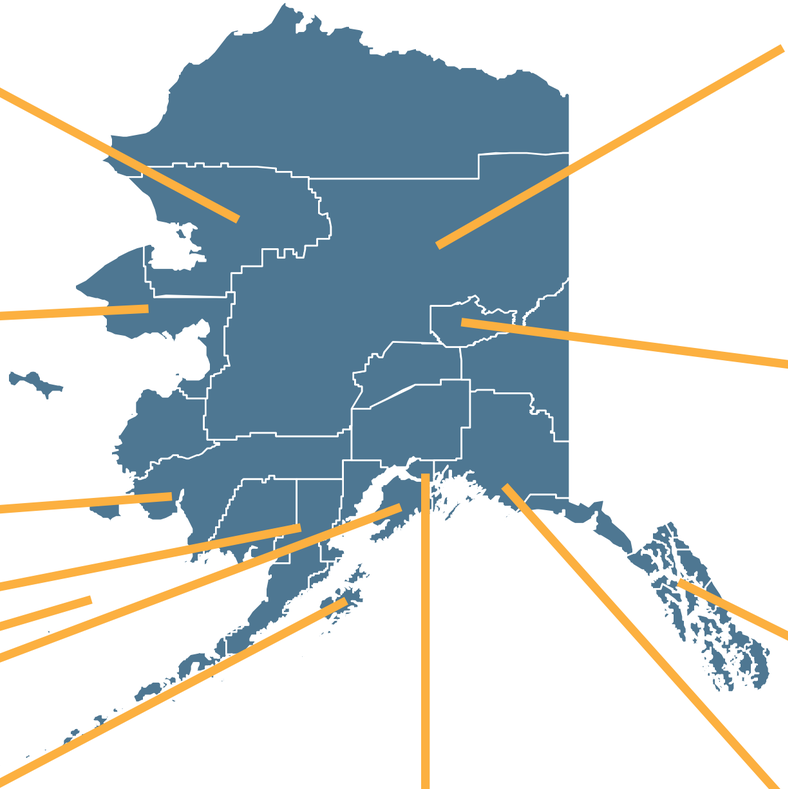
Bering Straits - "Educate and train residents for employment in growing industries: explore and promote collaboration on apprenticeship and technical-level type programs for priority industries."

FNSB - "Increase winter tourism through improved transportation service, attractions, and enhanced marketing efforts."

Y-K Delta - "Create micro-lending opportunities to support startups, entrepreneurs, and commercial fishers."

Southeast - "Partner with UAS and K-12 school districts to build career pathways and meet employer needs for a skilled workforce."

Southwest - "Promote fisheries issues that provide a sustainable income base to the communities, businesses, and residents of Southwest Alaska."



St. Paul Island - "Increase the range and quality of recreation and tourism activities for visitors."

Kenai Peninsula - "Support emerging sectors with high growth potential: initiate a pilot project to develop seafood byproducts into marketable products."

Rural Kodiak - "Establish a sustainable, regional network of tribally owned farms and ranches that provide for year-round food security, healthier food, and sustainable economic development opportunities for the region's Alaska Natives, the rural communities, and the entire region."

Anchorage - "Create an entrepreneurial ecosystem to nurture and support visionary and committed entrepreneurs with business counseling and a shared network of services."

Prince William Sound - "Continue to support commercial fishing industry with infrastructure, climate change research, habitat research, and in-season management tools."