



2023

# The Alaska Standard

Inaugural Sustainability Report





The following report was prepared in partnership with Bridge House Advisors, an ESG & Sustainability consulting firm, headquartered in Chicago, Illinois. Founded in 2017, Bridge House’s workforce is comprised of 50+ technical experts from varied backgrounds with extensive environmental and sustainability experience. All facts and conclusions outlined in this report were tracked to public sources at the time of this report. Bridge House did not independently verify the information provided by these public sources referenced throughout the report.

# Table of Contents

- Message from the Governor ..... 1**
- Alaska’s Economic History Since Statehood..... 2**
  - A Legacy of Responsible Resource Development
- How Alaska is Aligned with the Sustainable Development Goals ..... 4**
- Environmental Stewardship ..... 6**
  - Alaska’s Approach to Energy Solutions & Innovation
  - Responsible Resource Development
- Social Impact through Resource Development ..... 10**
  - Role of Alaska Natives in the State’s Resource Development
  - Red Dog Mine & NANA Corporation
  - Advancing Access to Education for Alaska Natives: ANSEP Program
  - The Voice of the Arctic: Balancing Resource Development with Traditional Native Practices
- Alleviating Poverty Through Economic Equity ..... 18**
  - Permanent Fund Dividend
- Supporting Domestic and Global Sustainability Goals..... 20**
  - The Alaska LNG Project
- “North to the Future” ..... 25**
- Appendix ..... 27**

# Message from the Governor



Dear Reader,

As the Governor of Alaska, my first responsibility is to fulfill my solemn oath to uphold our state and federal constitutions. Compared to my fellow governors who swear this same oath, my job is a little different here in Alaska. In Alaska, our resources collectively belong to the people in an arrangement unlike any other state, and as Governor, I am required under our constitution to ensure these resources are developed for the maximum benefit of our people.

Our state constitution also guarantees the right to education and to provide for the promotion and protection of public health and welfare. Providing for these rights has gone hand-in-hand with resource development since the discovery of the Prudhoe Bay oil field in 1968, the passage of the Alaska Native Claims Settlement Act in 1971, and the creation of the Permanent Fund by the people in 1976. The voters who created the Permanent Fund wisely recognized they had an obligation not just to themselves, but to future generations, to protect and utilize our shared resources.

Alaska is a vast, diverse, and young state with a population smaller than many counties. We have made tremendous progress over the past several decades in building infrastructure, improving health and quality of life outcomes, and creating good-paying jobs for our people.

This progress has happened in no small part thanks to the development of our resources, but we still have much work to do. Like it has for the past 50 years, continuing to build our state for the next 50 years will depend on our ability to sustainably develop the resources owned by our people.

The purpose of this report is not to declare that Alaska is formally adopting what are now known as ESG standards or policies. Rather, the purpose of this report is to demonstrate that the principles enshrined by our people in our constitution in 1959 have created an Alaska where the environment is protected, where the benefits of resource development are distributed to the people, and where the public interest is guarded. The purpose of this report is to share our story with the people who believe in these same Alaskan principles whether they are making policy or investment decisions that can impact our ability to develop our resources.

The State of Alaska does not use ESG standards when making our investment decisions, nor does it prohibit doing business with companies who use ESG standards. State fiduciaries are instead bound by the Alaska Constitutional mandate to manage all resources — financial or natural — for the maximum benefit of our people, as well as statutory mandates to manage funds in the sole best interest of beneficiaries. Our focus is pecuniary in nature — if it makes money and benefits Alaskans, then we will look to invest in it or develop it.

We want the world to know that if you care about environmental and social justice, protecting the public interest, and enriching people over dictators and other bad actors, there is no better place than Alaska to help achieve these goals.

On the other hand, preventing Alaskans from developing our resources doesn't just hurt the people I serve and rob them of the opportunities available to their fellow Americans. Preventing development of resources in Alaska works in opposition to the very ESG principles that are being widely adopted by private companies or in some cases being required through government mandates.

My hope is for you to read this report with an open mind and that you may learn something new about resource development of all kinds in Alaska. Our Alaskan principles that long predate the current ESG movement will continue to guide every decision we make.

Sincerely,

**Mike Dunleavy**

*Governor*

# Alaska's Economic History Since Statehood



*“The legislature shall provide for the utilization, development, and conservation of all natural resources belonging to the State, including land and water, for the maximum benefit of its people.”*

**Article 8, Section 2 of the Alaskan Constitution**

**The state of Alaska is a vast, resource-rich land spanning 663,267 square miles in the northwest corner of North America.**

Its geography comprises more total area than the next three largest states—Texas, California, and Montana—combined. Despite its size, Alaska’s total population barely surpasses 730,000 residents, making it the third-least populous with just more than one person per square mile. As the 49th state to join the United States of America in 1959, the State has just recently exceeded 60 years of age. These unique traits — young, vast, resource rich, sparsely populated — offer innovative opportunities and unique challenges to bring economic and social benefits to Alaskans, fellow Americans, and our trading partners for generations to come.

For thousands of years, the indigenous peoples of Alaska harnessed the State’s rich natural resources, from water and land, to support themselves and their communities. Alaska Natives’ small population, coupled with extreme weather conditions and harsh terrain, over time, equipped the tribes with expert knowledge in subsistence practices and resource management long before Alaska’s statehood. The State’s founding documents — the Statehood Compact and the Alaska Constitution — integrated these early learnings and set the foundation for establishing itself as a resource development state and incorporating this as a core tenet to its statehood.<sup>1</sup> For example, **the “sustained yield principle,” the practice of managing the harvesting or consumption of a natural resource to sustain and enhance its use for future generations, is explicitly outlined in Article 8, Section 4 of the Alaska Constitution.** The codification of this principle into Alaska’s founding documents is one of many examples that the concept of sustainability and responsible resource development has long been embedded into the practices of Alaskans.

Alaska’s population prior to statehood was less than a quarter-million people, and many in Congress at the time doubted the State could support itself without a large tax base and would require substantial federal support. However, Alaskan statehood was built on the premise that the state would have access to its own sustainable and long-term resource developments to achieve economic independence rather than reliance on the federal government. This tenant was further propelled by the discovery of oil reserves on the Kenai Peninsula at Swanson River in 1957. This discovery convinced skeptics in Congress that Alaska would be able to support itself by developing its natural resources, which were collectively allocated to the state to be managed for the benefit of its people.

For Alaskans, another driving motivation for statehood was a desire to manage their own resources. Under federal territorial control prior to statehood, the practices of foreign fishing fleets offshore and in-river salmon fish traps were leading to overfishing; on the North Slope, after the Navy conducted oil exploration at Umiat in the 1950s, it dug a large hole near the Colville River and then dumped a large volume of 55-gallon drums filled with unknown pollutants that have been revealed through subsequent erosion.<sup>2</sup>

To this day, “legacy wells” on the North Slope drilled by the federal government have yet to be remediated or are out of compliance with state regulations;<sup>3</sup> separately, the State of Alaska filed a lawsuit in July 2022 in an attempt to compel the Department of Interior to clean up thousands of other polluted sites on lands conveyed to Alaska Native Corporations.<sup>4</sup>

The additional discovery of the Prudhoe Bay oil field on Alaska’s North Slope in 1968 pushed the state into new territory by establishing itself as a potential world-class oil and gas province. Since discovery, Alaska’s North Slope has produced more than 18 billion barrels of oil.<sup>5</sup> With this output, Alaska’s oil industry now accounts for one-quarter of the state’s employment (approximately 78,000 direct and indirect jobs) and \$4.8 billion in Alaska wages.<sup>6</sup>

**Tax and royalty income from the oil and gas industry has accounted for up to 90 percent of the state’s Unrestricted General Fund revenues in most years prior to the use of Permanent Fund earnings starting in Fiscal Year 2019, and has totaled over \$155 billion in state revenue since statehood.<sup>7</sup> Payments of Permanent Fund Dividends to Alaskans funded through royalty and investment income have totaled \$29.4 billion<sup>8</sup> in distributions since 1982.** Much like today, there was significant opposition to developing Prudhoe Bay and building the Trans Alaska Pipeline System (TAPS), but Alaska has proven that resource development can coexist with our environment. The Central Arctic Caribou Herd, whose range is bisected by TAPS, increased from fewer than 3,000 animals in 1976, to a peak of 68,000 in 2010. The herd decreased since to about 30,000 in 2020, but is considered healthy and slightly increasing in population.<sup>9</sup>

Alaska’s geologic and economic potential has been and continues to be immense. Responsible resource development is a driver of economic and social benefits, but also offers Alaska and its strategic partners opportunities for achieving broader energy goals by playing a critical role in what will be a decades-long energy transition towards a cleaner, and greener economy.

## A LEGACY OF RESPONSIBLE RESOURCE DEVELOPMENT

Beginning in 1957 with the historic oil discoveries at Swanson River, and the Prudhoe Bay discovery following shortly thereafter in 1968, Alaska established itself as the petrostate it is known for today. **Alaska has managed its resource development processes responsibly through strict environmental regulations and the proactive implementation of anti-waste statutes prohibiting natural gas flaring or venting during full-scale operations.** These practices contribute to the State of Alaska being ranked the lowest in carbon emissions from a petrostate and ranking as the 10th lowest US state in carbon emissions from human activities.<sup>10</sup>

However, despite the petrostate label, which many might equate to Alaska being a dominant global producer of oil and gas and a secure and affordable source of energy for its citizens, the realities are actually quite different. While Alaska's proven crude oil reserves of 2.4 billion barrels are the fourth largest of any U.S. state, oil production averaged only 448,000 barrels per day in 2020, down from a peak of 2.1 million barrels per day in 1988, when Alaska accounted for 20 percent of U.S. production.<sup>11</sup> Further, while the State's total energy consumption may be one of the lowest across the United States, its per capita energy consumption is one of the highest, which is in large part due to its harsh terrain, extreme weather, and disparate population. The energy infrastructure that exists in the lower 48 states simply does not exist in Alaska. As a result, many rural communities must still rely on diesel fuel for the local generation of electricity.<sup>12</sup>

While the State has been successful in harnessing its natural resources for the economic and social benefit of its people, the subsistence lifestyle of many Alaskans across the State is being impacted. The impacts of global climate change are evident – average temperatures across Alaska have increased by approximately 3 degrees Fahrenheit over the past 60 years, twice than that of the rest of the United States.<sup>13</sup> Alaska is now faced with changing ecosystems through the thawing of permafrost, sustained warmth, and reductions in Arctic sea ice, all of which are creating new challenges for Alaska Natives who have historically relied upon Alaska's natural resources to support their subsistence lifestyles.<sup>14</sup>

In light of these realities, Alaska recognizes that the status quo of resource development that began in the late '50s must continue to evolve. Presented throughout this report, Alaska's regional and global vision for the energy transition, from Bradley Lake to the Alaska LNG Project, offer lower-carbon opportunities to not only reduce its reliance on diesel generated power in rural communities, but deliver more affordable energy solutions across the State with the goal of improving the quality of life for all Alaskans. **As public and private investments increase around low or no carbon energy sources, Alaska is well positioned to be a global leader and proving ground for renewables, new forms of power, hydrogen, carbon capture, and more.**

This commitment is reinforced by current Governor Mike Dunleavy's recent decision to implement a dedicated Office of Energy Innovation, which is chartered to build a holistic approach to its energy solutions.<sup>15,16</sup> To this end, the State is expanding established renewable energy sources like wind and solar both in urban and rural Alaska, as well as supporting emerging sources of energy generation such as tidal, geothermal and micronuclear,

which all have the potential to further reduce reliance on natural gas and diesel for power generation. Further, to support the electrification of our economy, critical minerals including copper, cobalt, lithium, and rare earth elements are an essential component, of which Alaska has an abundance, from [Red Dog Mine](#), to the Ambler Mining District for cobalt and copper, to the Graphite Creek deposit north of Nome and rare earth deposits on Prince of Wales Island.<sup>17</sup> **Alaska is enriched with the minerals needed to support the global transition to clean energy and electrification both for the United States and globally.**

However, modern day crises, such as the Russian invasion of Ukraine and subsequent sanctions on Russian energy exports, and barriers to accessing critical minerals to support the development of clean energy technologies,<sup>18</sup> have forced the world to rethink not only of the pace of the energy transition, but also the consideration of the sourcing of traditional fuels like oil and gas. **Major players in the oil and gas industry, such as Alaska, play a fundamental role in ensuring continued access to resilient and secure energy for both its residents and internationally while the transition towards a low-carbon economy progresses.**

Alaska's unique proximity to Asia also enables it to play a role in supporting not only its own, but other countries' sustainability goals. One such example is the [Alaska Liquefied Natural Gas Project](#), Alaska's priority energy infrastructure project that will supply low-cost energy and improve air quality in-state, convert a portion of stranded natural gas to liquefied natural gas for commercialization in international markets, and which will support nations in reaching their reduced carbon emissions goals during the energy transition. The State is in the process of advancing this project by soliciting private sector partners and customers to reach a final investment decision.

With Alaska's abundance of natural gas, critical minerals, and access to oil that can be produced with a lower carbon footprint given its prohibitions on flaring, Alaska is positioned to continue producing traditional sources of energy, while decreasing its carbon footprint through innovative technologies, and simultaneously supporting global sustainability goals through carbon dioxide sequestration, as well as hydrogen and ammonia development opportunities. **Alaska represents not only a secure, stable, and tightly regulated market for the world's energy solutions, but a frontier of untapped opportunities for renewable energy and energy innovation.**

*"Alaska stands ready to lead the energy transition."*

**Governor Mike Dunleavy, 2022 Alaska Sustainable Energy Conference**



# How Alaska is Aligned with the Sustainable Development Goals

## SUSTAINABLE DEVELOPMENT GOALS

The Sustainable Development Goals (SDG), created by the United Nations, offer a shared blueprint for peace, prosperity, people, and the planet. The SDG framework is built upon 17 goals that emphasize the interconnectedness of ending poverty, improving health and education, reducing inequality, and tackling climate change to preserve the earth as we know it for future generations. The State of Alaska aligns with the SDGs across its array of environmental programs, social impacts, and governance practices, which are reflected below:





This report was informed by the Global Reporting Initiative (GRI), one of the most widely adopted sustainability reporting standards in the world, representing global best practices for reporting publicly on a range of economic, environmental, and social impacts.<sup>19</sup>

Alaska’s environmental regulatory requirements, investments in alternative forms of energy, and unique social landscape demonstrate environmental, social, and governance (ESG) considerations for entities operating in the resource development sector. While these practices are not new to Alaska, the formal explanation of how these practices align with GRI and the UN

Sustainable Development Goals (SDGs) is important to enhance communication between our key stakeholders and demonstrate that Alaska meets or exceeds the standards now being applied to investment decisions involving resource development and management. Some of the key issues that are relevant for the State, but not limited to, include:



## ENVIRONMENTAL

- Regulatory and Compliance Oversight
- Greenhouse Gas (GHG) and Other Air Emissions
- Safety
- Waste Management
- Water Management
- Biodiversity

**What this looks like:** Alaska has strict regulations and extensive oversight for the protection of its environment around methane emissions — demonstrated by the banning of natural gas venting and restricted flaring during operations and strict environmental permitting standards — as well as spill prevention and response, dam safety, contaminated site cleanup, and fish habitat protections.



## SOCIAL

- Employment Practices
- Community Engagement
- Community Health & Wellness
- Economic Development
- Education

**What this looks like:** Alaska’s approach to regulation aims to protect Alaskan residents at the local level and focus on their priorities. Through a multitude of channels, the state maintains constant communication with local authorities and its residents to ensure public involvement and engagement. While the state recognizes inequalities persist, particularly for more isolated regions across Alaska, the state seeks to provide abundant social benefits from resource development including job creation, support for social programs and charities, infrastructure development, and support for education.



## GOVERNANCE

- Fair & Ethical Governing Bodies
- Transparency
- Compliance
- Stakeholder Communication

**What this looks like:** Any company operating in Alaska is expected to meet all regulatory requirements and demonstrate transparency, accountability, and opportunity for public input. This includes embracing practices that respect and protect subsistence rights of Alaska Natives, and proactively working in good faith with local stakeholders. Many of Alaska’s resource development projects are on lands owned by Alaska Native Corporations, which require support and participation in resource development to ensure environmental and subsistence protections. These developments provide benefits to Native shareholders through jobs, services and revenues.

# Environmental Stewardship



## ALASKA'S APPROACH TO ENERGY SOLUTIONS & INNOVATION



Alaska acknowledges the impacts of global climate change and embraces the energy transition, harnessing its natural resources to reduce energy costs while simultaneously reducing environmental impacts. As a commitment to this, in May 2022, Governor Mike Dunleavy hosted the first Alaska Sustainable Energy Conference, bringing together energy experts, researchers, policymakers, and investors to explore sustainable technologies and sustainable energy development projects within the state. In September 2022, Governor Dunleavy established the Office of Energy Innovation to coordinate the pursuit of sustainable, affordable, and reliable energy to capitalize on Alaska's capacity for energy generation while simultaneously driving economic growth and job creation.

**Today, 30% of Alaska's power is generated from utility-scale wind, solar, and hydroelectric projects and the State is actively expanding the scale and reach of these systems.** At the same time, the State has been supporting research and development of emerging renewable energy sources, such as tidal and micronuclear power, providing funding for these initiatives through the Renewable Energy Fund, Power Project Fund, Bulk Fuel Upgrade Program, Diesel Emission Reduction Act Program, and the Rural Power System Upgrade Program, all of which are managed and administered through the Alaska Energy Authority (AEA).

AEA was chartered 46 years ago as a State-owned public corporation, which oversees statewide energy policy and program development, with the mission of reducing the cost of energy in Alaska. AEA partners with communities and stakeholders to provide technical, financial, and community assistance in support of the development of energy technologies.

### BRADLEY LAKE

Alaska's largest source of renewable energy is hydroelectric power, accounting for more than 27% of the State's electrical energy generation in an average year.<sup>20</sup> There are roughly 51 utility-scale hydroelectric projects in the state, with 476 megawatts (MW) of energy-generation capacity.<sup>21</sup> The Bradley Lake Hydroelectric Project, owned by the AEA, is located on the Kenai Peninsula, and is the largest hydroelectric facility in Alaska, at 120 MW of capacity.<sup>22</sup> Bradley Lake supplies 10% of the total annual power for the electrical grid along Alaska's Railbelt, which stretches from Fairbanks to the Kenai Peninsula, at only \$0.04 per kilowatt-hour (kWh), as compared to the average of \$0.07 per kWh for natural gas, and roughly \$0.09 per kWh for wind energy.

In 2020, AEA completed the construction of the \$47 million West Fork Upper Battle Creek Diversion expansion, which increased Bradley Lake's annual energy production by 10%, providing an additional 37,000-megawatt hours (MWh) of renewable energy, annually—enough to electrify approximately 5,000 homes. After the West Fork project's completion, the AEA announced the Dixon Diversion project, which will be the largest renewable project in the state in the past 30 years. The Dixon Diversion will provide a 50% increase in the annual energy production capacity of the Bradley Lake facility; enough to electrify an additional 24,000 to 30,000 homes.

In May 2022, AEA in partnership with the Railbelt utilities announced plans to upgrade the decades-old transmission line serving Bradley Lake and the Railbelt region, in what will be the most significant improvement to the Railbelt electrical grid in the state's history. In November 2022, AEA and the Railbelt utilities closed on \$166 million in bond financing to help improve the efficiency and capacity of power from Bradley Lake. Improvements include upgrading three transmission lines on the Kenai Peninsula and installing a battery storage system to help stabilize power fluctuations, which will allow increased levels of power to flow along the transmission system more efficiently and reliably. These upgrades will enhance the value of the Bradley Lake Project and will enable the integration of future renewable energy projects being considered along the Railbelt region. Additionally, these



projects will bring jobs and economic development opportunities to communities along the Railbelt.<sup>23</sup> In addition to the Bradley Lake Project, the AEA manages 16 hydroelectric projects throughout the State, the majority of which are located in the Aleutian Islands and Southeast Alaska.<sup>24</sup>

There are several additional large-scale hydroelectric projects within the state, beyond the projects operated by the AEA. Electricity for the City and Borough of Juneau is generated by the Snettisham Hydroelectric Project, which is operated by Alaska Electric Light and Power, and provides 78.2 MW of nameplate power capacity.<sup>25</sup> Additionally, Juneau Hydropower and J-POWER plan to begin construction on the Sweetheart Lake hydroelectric facility in 2023, which will provide an additional 19.8 MW of low-cost hydropower to Juneau.<sup>26</sup>

## RENEWABLE ENERGY FUND

Alaska's Renewable Energy Fund (REF) is managed by AEA and provides financial assistance to renewable energy projects in all regions of the state. Since 2008, REF has provided funding for over 100 operational projects, and 44 additional projects in development, and has distributed approximately \$300 million in grants.<sup>27</sup> The most recent funding rounds (Rounds 13 and 14) awarded 38 grants totaling \$19.75 million in support of projects developing hydroelectric, wind, biomass, and solar energy, as well as heat recovery and energy storage. Over 80% of REF projects are located in rural Alaska, with a significant number located along the Railbelt.<sup>28</sup>

**Collectively, projects funded to date through the REF have displaced 30 million gallons of diesel fuel usage annually.**<sup>29</sup>

## POWER PROJECT FUND

Through the Power Project Fund (PPF), AEA provides affordable loans for pre-construction and late-stage renewable energy and diesel powerhouse upgrade projects. PPF has awarded \$4.5 million in loans to fund six urban and rural projects, including the Willow Solar Farm, the state's first utility-scale solar farm. The facility was developed by Alaska-based Renewable IPP and has been operational since 2019. The solar farm in Willow generates 1.2 MW of electricity, enough to power roughly 200 homes.<sup>30</sup>

In the summer of 2022, CleanCapital, a minority owner of Renewable IPP, broke ground in Houston, Alaska, on what will become the state's largest solar farm. The project is expected to be completed in the summer of 2023 and will generate 8.5 MW-DC of electricity, or enough to power 1,400 homes, with potential to add an additional 40–60 MW at a later date. Construction will require minimal tree-clearing, as the development site was burned during the 1996 Miller's Reach Fire, and the project is expected to generate 35 construction jobs and 15 part-time maintenance jobs. The entirety of the energy generated at the site will be sold to the Matanuska Electric Association via a Regulatory Commission of Alaska approved Power Purchase Agreement beginning at \$0.067 per kWh, with small price increases scheduled annually.<sup>31</sup>

## ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

In 2016, Volkswagen (VW) settled charges brought by the United States and the State of California, alleging that the company's diesel cars contained emission control systems designed to provide false responses to emissions tests, allowing the vehicles to emit levels of nitrogen oxide (NOx) that were significantly above the permissible threshold outlined under the Clean Air Act.<sup>32</sup> Following the settlement, Alaska became the beneficiary of \$8.125 million in settlement funds through the VW Diesel Emissions Environmental Mitigation Trust, which was established to fund mitigation projects to reduce NOx emissions levels. The State allocated 15%, \$1.25 million, of these funds to the development of electric vehicle (EV) charging infrastructure. AEA served as the lead State agency in this development project, which resulted in the installation of 15 Fast Chargers and eight Level 2 chargers at nine sites across Alaska: Homer, Soldotna, Cooper Landing, Seward, Anchorage, Chugiak, Trapper Creek, Cantwell, and Healy.<sup>33</sup>

The expansion of Alaska's EV charging infrastructure is essential as EV use increases across the State. However, cold temperatures negatively impact the performance of the Lithium-Ion batteries used to power EVs, resulting in up to a 20% decrease in range in winter conditions.<sup>34</sup> While the battery technology is improving rapidly, Alaska's cold winters and long distances between major population centers necessitate increased charging infrastructure to support reduced range capacities and ease range anxiety on the part of drivers.

As such, in addition to the VW funds, plans are underway to invest \$52 million in federal funds provided by the Federal Highway Administration (FHWA) through the Alaska Department of Transportation and Public Facilities (DOT&PF) over the next five years to further develop Alaska's EV fast-charging network and expand its urban and rural community-based charging sites. AEA is again serving as the primary state agency in this project, partnering with the DOT&PF who is the responsible recipient of FHWA Title 23 funds. The project will focus on expanding the availability of EV charging stations along the Alaska Highway System and Alaska Marine Highway System. Charging stations will be spaced 50 miles apart where applicable to account for the increased charging needs of Alaska's EV drivers during winter months.<sup>35</sup>

**476 mWh**

generated by hydroelectric projects annually

**1.2 MW**

in existing solar capacity

**8.5 MW**

additional solar capacity coming online in 2023

**\$50 million**

in federal funds allocated to improving EV infrastructure

## RESPONSIBLE RESOURCE DEVELOPMENT

Alaska’s comprehensive set of environmental regulations, coupled with supporting regulatory bodies including the Alaska Department of Natural Resources (ADNR), the Alaska Department of Fish and Game (ADF&G), the Alaska Oil and Gas Conservation Commission (AOGCC), and the Alaska Department of Environmental Conservation (ADEC), work to ensure proper and responsible resource development across the state.



## ECOSYSTEM OF ENVIRONMENTAL REGULATORY AGENCIES

<p><b>ADNR</b> The ADNR’s mission is to develop, conserve and maximize the use of Alaska’s natural resources consistent with the public interest.<sup>36</sup></p>	<p><b>ADEC</b> The ADEC’s mission is conserving, improving and protecting Alaska’s natural resources and environment to enhance Alaskans’ health, safety, and economic and social well-being.<sup>37</sup></p>
<p><b>ADF&amp;G</b> The ADF&amp;G’s mission is to protect, maintain, and improve the fish, game, and aquatic plant resources of the state, and manage their use and development in the best interest of the economy and the well-being of the people of the state, consistent with the sustained yield principle.<sup>38</sup></p>	<p><b>AOGCC</b> The AOGCC’s mission is to protect the public interest in exploration and development of Alaska’s valuable oil, gas, and geothermal resources through the application of conservation practices designed to ensure greater ultimate recovery and the protection of health, safety, fresh ground waters and the rights of all owners to recover their share of the resource.<sup>39</sup></p>

In 1989, an oil tanker named Exxon Valdez, ran aground in the Prince William Sound near the city of Valdez, spilling approximately 11 million gallons of oil. Human error and negligence were determined to be the cause of the accident, with the captain being found to have been drinking before helming the ship out of Valdez.<sup>40</sup> Nevertheless, the spill highlighted the need for greater oversight in the industry; since 1989, both the Federal and State legislators have enacted several new regulations and additional oversight to prevent another major spill from occurring, such as the 1990 Oil Pollution Act, which expanded the Federal government’s ability to prevent and respond to oil spills by providing the necessary money and resources, along with the creation of the Ship Escort/Response Vessel System (SERVS) to help tankers navigate waters and prevent future spills, additional training for tanker officers, tug officers, and a marine safety committee, and upgraded information systems on ships to avoid ice navigation hazards.<sup>41,42</sup>

### STRICT OVERSIGHT

Another example of leading environmental regulations is the AOGCC’s anti-flaring regulations. Flaring is described as the burning of natural gas associated with oil and gas exploration and production.<sup>43</sup> In 1971, Alaska became the first state to regulate and prohibit natural gas flaring from operating oil and gas production wells (e.g., Anti-Flaring Orders). **Since 1971, Alaska has reduced the amount of natural gas released through flaring from 34,808 thousand cubic feet (mcf) in 1970 to 15,966 mcf in 2021.**<sup>44</sup>

Once an oil and gas well is fully operational, the AOGCC requires all oil and gas operators to maintain and submit monthly natural gas disposition reports that provide information on the amount of flare or venting events. If a flare event lasts longer than an hour, operators are required to submit more detailed information on the event including what caused the event, corrective actions, and steps taken to minimize the flared volume. The AOGCC reviews all flare events that last more than an hour to determine if the natural gas waste is allowable. During oil and gas exploration and development, natural gas can be flared for several reasons, such as an unexpected pressure build up that needs to be relieved in order to prevent equipment failure or planned maintenance that can’t be performed unless pressure in the system is relieved first.

Additionally, while flaring events for wells in full operation are heavily regulated by the State, Alaska does permit the flaring of gas during the exploration phases of new oil and gas projects to test its production capacity – a crucial step for ensuring the safety of its employees and Alaskan residents.<sup>45</sup> Monthly project updates are required by the oil and gas operator to the AOGCC to mitigate flaring throughout the testing period.<sup>46</sup> While preliminary flaring events can last approximately 6 – 9 months, Alaska still ranks the lowest out of any state for natural gas flared during production.<sup>47</sup>

Approximately 144 billion cubic feet (bcf) of natural gas are flared globally annually; the same amount could provide energy to approximately 999,000 homes for a full year.<sup>48</sup> **From 2017 to 2020, natural gas flaring rose in the United States by 64%. During the same period, Alaska’s flaring decreased by 25%.**<sup>49</sup>

## REINJECTION IN PRACTICE IN ALASKA

After the Anti-Flaring orders became effective in 1972, oil and gas companies operating in Alaska started to reinject natural gas into oil reservoirs to maximize oil recovery and reuse. Reinjection of natural gas maintains pressure in an oil reservoir and can also be used to sweep oil to a production well, allowing greater ultimate recovery of the oil. When natural gas is reinjected, it can extend oilfield life through enhanced oil recovery all while keeping GHGs from being emitted into the atmosphere.<sup>50</sup> Reinjection and capture practices can be seen at the Cook Inlet oil field, a key resource of energy for the state, where over 77 bcf is produced annually, 10.6 bcf is injected into storage reservoirs, and 3.5 bcf is reinjected. The rest of the natural gas not reinjected is sold to utilities or consumers. This practice ensures beneficial reuse of natural gas, generates more income, and extends gas availability.

The impacts of Alaska’s anti-flaring regulations span back to Prudhoe Bay in 1977 when the famous oilfield was originally estimated to have an ultimate recovery of nine billion barrels; however, since the practices of reinjection began, Prudhoe’s ultimate recovery is now estimated at fifteen billion barrels.<sup>51</sup> At Prudhoe, approximately 8 bcf of natural gas is produced daily, of which 7.2 bcf is reinjected for pressure maintenance and miscible injectant enhanced oil recovery (EOR) processes, for enhanced recovery.<sup>52</sup> The remaining gas is used for fuel in the field or to create Natural Gas Liquids (NGLs) or natural gas to be sold. Dry natural gas is sold to Norgasco, the local utility provider, which supplies gas to businesses in the Deadhorse area of Prudhoe. NGLs are blended with crude oil and shipped via the Trans Alaska Pipeline System (TAPS) to Valdez to sell.

Regulation	ADEC	Federal
Spill Control Times	Within 72 hours	Within 30 days
Spill Prevention	Required spill prevention and contingency plans, as well as unannounced spill drills	Conduct unannounced spill drills
Oil Discharge Contingency Plan	Required for all oil storage facilities	Only required for oil storage facilities with no secondary containment system <sup>56</sup>
Spill Reporting Requirement in Water	Any amount	1,000 gallons in a single navigable water system or 42 gallons into two or more navigable water systems
Spill Reporting Requirements on Land	1 gallon	Do not need to report unless it reaches water

## GOING BEYOND FEDERAL REGULATIONS

The AOGCC is not the only regulatory agency that oversees Alaska’s oil and gas industry. The ADEC has stringent regulations for spills and releases from industrial activities for the State. The federal Bureau of Ocean Energy and Management (BOEM) and Bureau of Safety and Environmental Enforcement (BSEE) have spill prevention and response procedures for federal waters. In federally regulated waters, operators are only required to respond to spills and support operations for a blowout or spill lasting 30 days.<sup>53</sup> **In contrast, under ADEC, operators working in state waters are required to have prevention and contingency plans with specific procedures to contain, control, or clean up spills within 72 hours.**<sup>54</sup> Furthermore, the ADEC has regulations for spill responses in Arctic conditions and conducts unannounced oil spill drills.

ADEC goes beyond the federal Spill Prevention, Control, and Countermeasure (SPCC) regulation for oil discharge contingency plans. The federal oil discharge reporting requirement is described as a “harmful quantity” if it violates state water quality standards, more than 1,000 gallons of oil discharged into a single navigable water system, or 42 gallons of oil into two navigable water systems.<sup>55</sup> Under the stricter ADEC regulations, any amount of oil that reaches water, no matter the quantity, must be reported to ADEC. **Furthermore, any release on land over 1 gallon of oil must be recorded and reported to ADEC. These rigid reporting requirements allow the ADEC to track any oil discharge.**

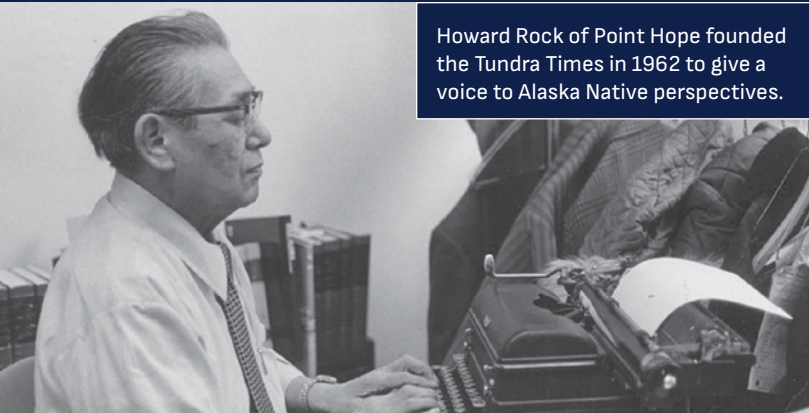
## AIR QUALITY

The ADEC Division of Air Quality has four programs that regulate and manage non-point mobile sources, stationary out-of-stack discharge, and field air monitoring. Alaska has developed a State Implementation Plan (SIP) through the Clean Air Act to establish limits on emissions and air pollutants and create standards to minimize emissions. The ADEC has also instituted regulations beyond the SIP through the Alaska Administrative Code, Environmental Conservation, Chapter 50. The ADEC has air quality permits that limit mining and oil & gas construction and also addresses natural gas flaring in their standard permit conditions.

**The enforcement of the environmental regulations described above is one way in which Alaska has been able to responsibly manage and utilize its natural resources.**



# Social Impact through Resource Development



Howard Rock of Point Hope founded the Tundra Times in 1962 to give a voice to Alaska Native perspectives.



## ROLE OF ALASKA NATIVES IN THE STATE'S RESOURCE DEVELOPMENT

It is impossible to discuss the evolution of resource development in Alaska without speaking to the critical voice Alaska Native people play in this story. Compared to just 2.9 percent of the U.S. population, Alaska Natives and American Indians make up 19.6 percent of the Alaska population, the highest rate of any state.<sup>57</sup>

In Alaska's year of statehood, 1959, the issues of Alaska Native land claims that dated to the U.S. purchase of the state from Russia in 1867 had not yet been addressed – a pressing issue at the same time, as there were more than 200 federally recognized Tribes across the state. Recognizing the opportunity to come together to address their aboriginal rights to their homelands, the **Alaska Federation of Natives (AFN)** was formed in 1966 to bring a unified voice for Alaska Native people. In order to unlock the oil discovery at Prudhoe Bay made in 1968, an 800-mile pipeline through the middle of the state would be necessary, but that would have been impossible without settling Alaska Native land claims on the proposed route. This intersection of interests—settling Native land claims and responsible resource development—was the catalyst to creating Alaska's economic engine that still drives the state to this day. This intersection of interests led to the passage of the **Alaska Native Claims Settlement Act in 1971**.

The **Alaska Native Claims Settlement Act**, commonly referred to as ANCSA, involved the creation of 12 distinct **regional corporations**, the boundaries of which were based upon heritage and shared interests, that would have ownership of the subsurface land rights; and over 200 private, for-profit **village corporations**

ANCSA regional and village corporations, and their business subsidiaries, comprise 18 of the top 20 Alaska-owned businesses listed on the 2020 Top 49ers – an annual list published each year by the Alaska Business Magazine that ranks Alaska-owned companies by gross revenue.

that would own surface rights. With the passing of ANCSA, 44 million acres of land (about 10% of the state) was returned to the Alaska Native people. Additionally, the newly formed Alaska Native Corporations were compensated a total of \$962.5 million (\$7.3 billion in today's dollars) for land that could not be returned in the settlement agreement. The ANCSA model extinguished aboriginal land claims and, rather, put in place a for-profit structure with land title under Native ownership, enabling greater opportunity of self-determination for Alaska Native people. Similar to other for-profit corporations, shareholders would be eligible for annual dividends; the Alaska Native Corporations also use their revenues to provide socially, culturally and economically for their shareholders, descendants and communities.

The economic benefits of the ANCSA landscape in part are measured by jobs, dividends, scholarships, elder dividends, burial assistance, culture camps, language revitalization and more.



**60,000+**

individual scholarships awarded



**\$4 billion+**

distributed to shareholders in dividends since inception



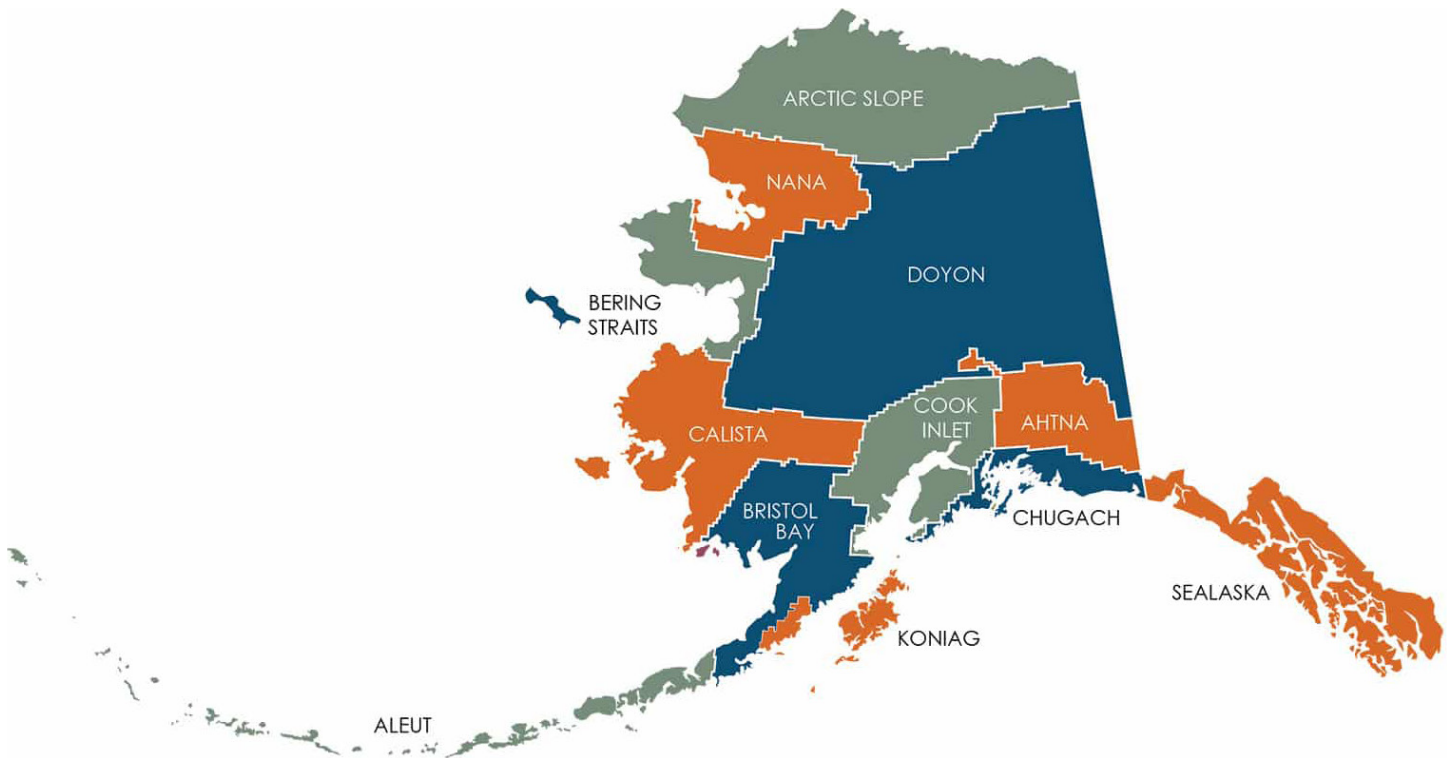
**35%**

Percent of Regional Corporation employees who are Alaska Native, as of 2016



**\$210 million+**

Five-year average paid out in 7(i) distributions



Regional Corporations	Village Corporations	Regional Nonprofits	Tribes	Statewide Native Organizations
-----------------------	----------------------	---------------------	--------	--------------------------------

The constellation of entities representing and serving Alaska Native people each play a pivotal role in developing resources, protecting land, enhancing the lives of their people, all while maintaining cultural values that have existed for thousands of years. These cultural practices have allowed Alaska Native people to become experts in environmental stewardship, and maximizing benefits for their people, thereby being an important voice to the ongoing resource development that occurs today.

Embedded in ANCSA was the recognition that some regions were richer in natural resources than others, therefore giving greater potential for economic development. The **Section 7(i) and 7(j) provisions of ANCSA** are intended to balance the natural inequity that would come from the disparity in natural resource wealth between differing regions. These provisions that reflect the Alaska Native culture of sharing resources, also referred to as the revenue sharing program, would allow all the regional corporations to benefit from this revenue, where 70% of profits would be shared between the other regional corporations, and the remaining 30% would be kept by the Alaska Native Corporation that developed the natural resource. Section 7(j) takes the revenue sharing one step further distributing 50% of the 7(i) revenues they receive to the village corporations within their region.

**SECTION 7(I) AND 7(J)**

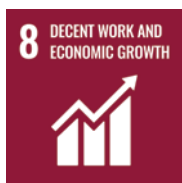
This reallocation means that 70% of revenue would be dispersed to other Alaska Native Regional Corporations and the remaining 30% of the revenue would be kept by the Alaska Native Regional Corporation that developed the natural resource.



Willie Hensley was a co-chair of the first Alaska Federation of Natives convention and his seminal paper on Native land rights helped lead to the passage of ANCSA.



## RED DOG MINE & NANA CORPORATION



### BACKGROUND

Located in the DeLong Mountains in the Northwest Arctic Borough of Alaska, the Red Dog Mine is an illustration of the success that stems from the delicate interplay of Alaska Native people and resource development. Operated by Teck, and in partnership with the NANA Regional Corporation (one of the 12 companies formed under the Alaska Native Claims Settlement Act), Red Dog Mine began its operations in 1989 and is known as the second largest producer of zinc and the fourth largest producer of lead in the world. The Mine now contributes 5% of total zinc production and 3% of total lead production across the globe. The deposit is so rich that Red Dog Creek was naturally toxic before the mine was developed. Today, because of mine operations and discharge controls, Red Dog Creek is healthy and supports aquatic life.

The region of the Northwest Arctic Borough sits more than 1,000 miles away from Juneau, a distance farther than that from Washington D.C. to Oklahoma, and approximately 400 miles from Alaska's road system.<sup>58</sup> To further contextualize the remote nature of the region, each of the 11 villages located in the Northwest Arctic Borough is completely unconnected by roads, where all inbound goods must be transferred by small planes or barge, causing a significant inflation of prices for basic necessities such as groceries, fuel, heating, and housing. Further, the largely subsistence lifestyle of its residents requires additional cash for access to modernized boats, snowmachines, and other equipment needed to uphold the traditional practices of the subsistence lifestyle. For a variety of reasons, the economy of northwest Alaska historically offered limited opportunities for well-paying jobs, inhibiting socioeconomic development of the region until the development of Red Dog Mine.

### A UNIQUE PARTNERSHIP

While the agreement between NANA Regional Corporation and Teck Cominco was not signed until 1982, the Iñupiat people had long been aware of the natural resources that sat below them. In 1979, a poll among NANA shareholders revealed the majority

believed the Mine could be developed in a way that would bring both economic prosperity and responsibly protect the subsistence lifestyle. In this 1982 agreement, the NANA Regional Corporation allowed Teck access to its lands and, in return, Teck would share its profits from mineral sales to the NANA people and further offer jobs for NANA shareholders. The State-owned Alaska Industrial Development and Export Authority (AIDEA) also played a crucial role in developing the mine by financing the 60-mile road from the mine to the port backed through tolls paid by Teck. Since the Mine became fully operational in 1989, the known success of this engagement is demonstrated by the continued steady source of jobs and flowing cash in a place that is otherwise difficult to find.

The NANA/Teck agreement included a provision that stated Teck would preference the hiring of NANA shareholders to optimize economic growth for individuals in its surrounding villages. **As of 2021, 61% of the workforce were Alaska Native.** Implementation of the mine expanded greater knowledge of business expertise and career development opportunities that may not have been there without the mine such as DeLong Mountain Logistics, a partnership between NANA Regional Corporation and Lynden, that operates the fleet of trucks for transportation from the mine to the port site, and NANA Management Services, the housekeeping and catering firm. Approximately 90 percent of the Northwest Arctic Borough's budget is funded by revenue from the Red Dog Mine. Further, following the NANA/Teck agreement was the development of the Northwest Arctic Borough School District in 1986 to expand education opportunities for the local residents. Additionally, the mine advanced engagement from local universities, scholarship offerings and advocacy work to provide local residents with recruitment and retention of Alaska Native and NANA shareholder hires. This agreement was particularly essential for residents of the region where the cost of basic necessities, such as groceries and gas, which can reach up to 26% higher than the national average.<sup>59</sup> **Economic development boosted average salary up to approximately \$99,000 for those working at the mine, nearly twice the average annual private sector wage in Alaska (about \$50,340) or elsewhere in the Northwest Arctic Borough (\$51,360).**<sup>60</sup> The revenues reaped from Red Dog Mine operations have enabled the region to invest in infrastructure development and social programs, and bring job opportunities to increase access to basic necessities among the NANA region. **As a demonstration of this, poverty rates for the region went from 75.5% in 1960 to 20.5% in 2020 for the Northwest Arctic Borough, relative to 10.5% for the State.**<sup>61</sup> **Simultaneously lifespan increased from 65 years old in 1980 to about 77 years old in 2014,**<sup>62</sup> **while the population has increased over 225% since 1960.**<sup>63</sup>

<b>60%</b> of workforce are NANA shareholders	<b>\$2.8+ million</b> in community investments & donations
<b>~\$75 million</b> in wages annually	<b>\$100,000</b> average annual salary
<b>\$160+ million</b> spent annually on Alaska goods and supplies	<b>715</b> jobs in the Northwest Arctic Borough connected to Red Dog Mine

### STAKEHOLDER AND COMMUNITY ENGAGEMENT

From a regulatory perspective, Red Dog Mine has more than 70 permits, and an additional 40 work plans and agreements to protect the environment, including annual TRI reporting. Kivalina region, a region 60 miles downstream from Red Dog, has previously been negatively impacted by Red Dog operations. In 2006, Teck was required to pay \$8 million after Iñupiat Eskimo villages accused the company of violating the Clean Water Act’s water discharge standards, impacting the drinking water of the tribes among the region. In addition to the \$8 million, Teck agreed to pay penalties of \$625–\$12,500 for any future violations of wastewater discharge limits.<sup>64</sup> A Subsistence Advisory Committee, comprised of elders from two neighboring communities, Noatak and Kivalina, was created to provide a mechanism for employees and the broader community to work out environmental impacts, wildlife concerns, and subsistence issues related to the mine. Additionally, a 12-person committee comprised of NANA and Teck representatives was created to oversee regional activities and operational decisions.

The Subsistence Advisory Committee provided input during the design of the proposed Ambler Access Road, also being led by AIDEA, a private industrial access road to the Ambler Mining District that would facilitate mine development of deposits rich in copper, cobalt, lead, zinc, and silver to provide critical minerals for the development of renewable energy projects, battery storage, and transmission.

**The incorporation of key learnings from Red Dog Mine included requiring all drivers to halt driving during caribou migration, ensuring the design does not impede upon access to subsistence resources, enhancing operational accountability through the use of sealed trailers and dust mitigation, and using state of the art fish passage culverts that go beyond US Fish and Wildlife Service standards.**

### ENVIRONMENTAL IMPACTS

Mined metal production is predicted to jump 250% by 2030 to satisfy the rise in demand for critical minerals to support the development of lower carbon energy sources, thereby heightening the importance of responsible extraction practices and waste management. Red Dog Mine is annually listed on the Toxic Release Inventory (TRI), an annual report published by Environmental Protection Agency’s (EPA) that discloses the volume of certain toxic chemicals that may pose a threat to the environment and human health.<sup>65</sup> Currently, 770 individually listed chemicals are covered by the TRI – while this is not an exhaustive list of all toxic chemicals, the Mine is required to report to TRI given the natural high ore-grade minerals that exist in the waste rock. Despite the Mine’s placement on the EPAs TRI, Red Dog follows the stringent environmental

regulations set by the Department of Environmental Conservation (DEC), which are discussed in additional detail in the Responsible Resource Development section. In 2021, 99.96% of reported releases remained on site, with a discharge rate of 0.04%.

Air quality performance is periodically monitored by Red Dog and Teck – since 1989, Red Dog has invested more than \$25 million in its Fugitive Dust Management Program to reduce fugitive dust emissions associated with its business operations, including the following projects:<sup>66</sup>

- Implementing a new fill station water source near the pit entrance to allow greater effectiveness of the road watering truck
- Completing project planning to replace a concentrate storage building’s roof at Red Dog’s port site to replace part of the exterior ship loader conveyor enclosure system with more robust and durable structures
- Evaluating and developing a protocol for delaying blasts during windy conditions
- Procured a new haul truck fleet that eliminates potential for leakage during transport

Treatment and discharge processes of the Mine meet the strict requirements of the Department of Environmental Conservation discharge permit. Finally, thawing permafrost linked to climate change have pushed the Mine to invest in a new \$20 million water storage and discharge management system.

For additional detail on Teck’s efforts to mitigate its environmental impacts, please visit their [2021 Sustainability Report](#).

### SHARED PROFITS AMONG 7(I) AND 7(J) PROVISIONS:

- Due to the 70/30 split outlined in the 7(i) and 7(j) provisions of ANCSA, \$93.5 million of the \$143 million total revenue received by Red Dog Mine was shared with the 11 other corporations across the State in 2013.
- Since inception, over \$1 billion has been paid out to NANA, of which \$617 million has been shared with other regions as of 2018.

# ADVANCING ACCESS TO EDUCATION FOR ALASKA NATIVES



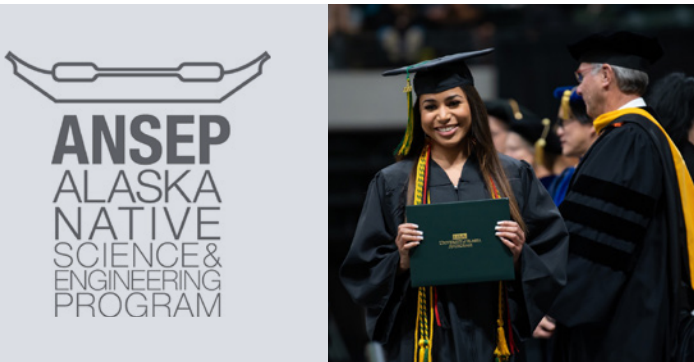
## PROGRAMS

For students in kindergarten through fifth grade, ANSEP's primary focus is on increasing awareness of STEM subjects by engaging in hands-on projects and learning opportunities, both in person and remotely. Students in sixth, seventh, and eighth grades are eligible for seven- and five-day ANSEP opportunities at the UAA campus led by industry professionals, UAA staff, and ANSEP staff. These opportunities are designed to socialize students to the university campus, inspire students to pursue STEM education by showing students the possibilities for their lives, with a specific goal of increasing the number of students who complete Algebra I by the end of eighth grade.

Current and incoming high school students are eligible for multiple ANSEP opportunities designed to foster success in STEM education and prepare the students for college and future careers in STEM. In the ANSEP Acceleration Academy high school, beginning in ninth grade, students take college classes from university faculty on university campuses around the state. Those students who live in communities without access to a university campus can choose to live in an ANSEP dorm on the UAA campus during the school year or attend summer sessions. Participating students obtain an average of 77 university credits that may be counted toward baccalaureate degrees.

After high school graduation, students apply for the ANSEP Summer Bridge opportunity. In Summer Bridge, students work eight-week professional internships with the ANSEP partner organizations around Alaska and the nation.

ANSEP also offers programs for university and graduate students through its University Success and Graduate Success opportunities. These opportunities provide students with academic, personal, and professional development resources, internship opportunities, scholarships, and fellowships.



Article 7, Section 1 of Alaska's constitution guarantees the right to public education for all children within the State, however, Alaska lags behind nearly all other states in the quality of its K-12 education, ranking number 49 out of 50 in U.S. News and World Report's education ratings.<sup>67</sup>

The Alaska Native student population in particular is falling behind its peers. The State's 2021 - 2022 education report card showed that 64.86% of Alaska Native and American Indian students received a score of "Needs Support" on the Alaska Science Assessment, and 71.99% scored "Needs Support" on the Alaska System of Academic Readiness Assessment. For both assessments, these scores were the lowest of any demographic group in the State.<sup>68, 69</sup>

In an effort to address this gap, the Alaska Native Science & Engineering Program (ANSEP) was established in 1995 at the University of Alaska's Anchorage (UAA) campus. ANSEP provides educational resources to Alaska Native students in elementary, middle, and high school, as well as college and graduate school, with the goal of increasing representation of Alaska Natives studying and working in science, technology, engineering, and math (STEM) fields.

ANSEP received initial funding from the Alyeska Pipeline Service Company, which operates the Trans Alaska Pipeline System and is owned by the North Slope producers, and today counts several oil and gas companies among its donor base, alongside local, national, and international businesses, foundations, nonprofits, and individual private donors.

This funding allows ANSEP to offer multi-stage programs for over three thousand students at no cost to the students or their families. For students demonstrating financial need, ANSEP provides tablets, laptops, and additional technical assistance to ensure the program's widespread accessibility. **In the fifteen years leading up to ANSEP's founding, only three Alaska Natives had graduated from UAA; however, from 2001 to May 2021, 1,300 minority students, including 829 Alaska Natives, have graduated from the University.**





**OUTCOMES**

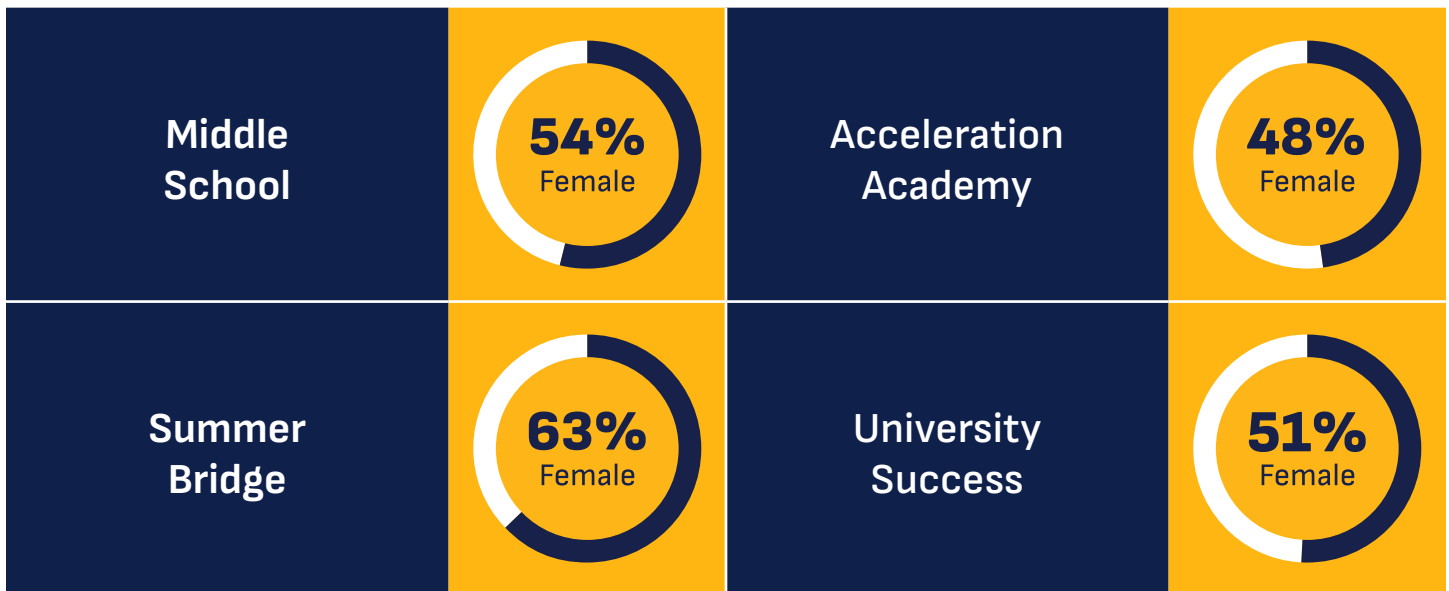
The success of ANSEP can be seen in the outcomes and success of the programs' graduates. According to the 2015 Urban Institute evaluation of ANSEP, from 1998 to 2013, 98.7% of students who participated in ANSEP's Summer Bridge opportunity and applied to the University of Alaska were admitted, and of those students, 76.7% enrolled in STEM majors. The Urban Institute evaluation reported increased retention rates among ANSEP students enrolled at UAA as compared to Alaska Native students who did not participate in ANSEP programs. This was coupled with higher average GPAs and lower time to graduation for University Success students as compared to their peers, saving the students and their families money in tuition and fees. Graduate Success students were similarly successful, with 88.9% of students completing or actively pursuing STEM degrees at the time of the report.<sup>70</sup>

By reducing the time to receive a degree, ANSEP Acceleration Academy high schools reduce the expected tuition costs to

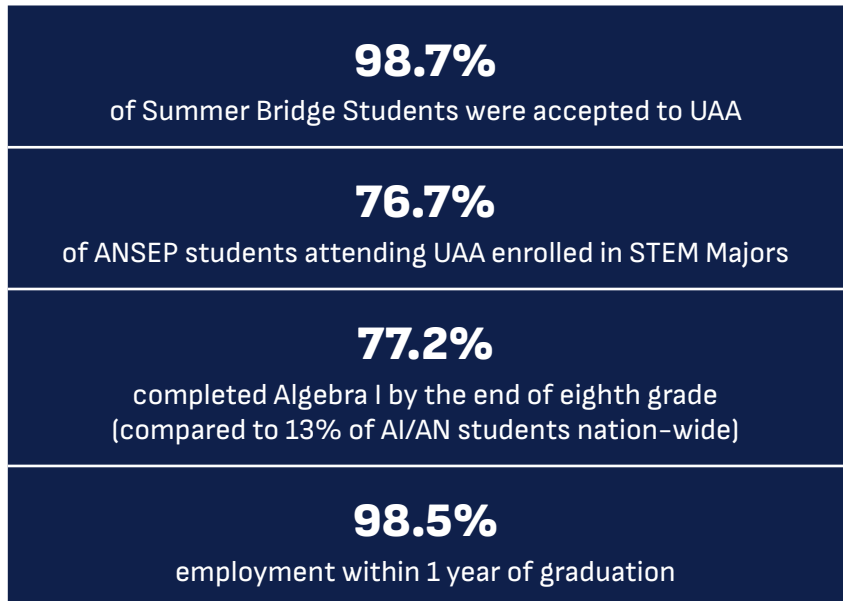
government and families for a baccalaureate degree at UAA. This opportunity also increases university enrollment and eliminates the need for remediation after high school graduation.

Among Middle School Academy participants between 2010 and 2014, 77.2% successfully completed Algebra I by the end of eighth grade,<sup>71</sup> as compared to only 13% of American Indian and Alaskan Native students nation-wide.<sup>72</sup>

While only the Middle School Academy maintains a gender-specific recruitment goal, which requires that participants be equally split between male and female participants, ANSEP strives to ensure that female youth are well represented across all of its opportunities.<sup>73</sup> In 2022, ANSEP students maintained a nearly even split between male and female representation across all of the organization's different programs. Middle school participants were 54% female, Acceleration Academy students were 48% female, Summer Bridge students were 63% female, and University Success students were 51% female.



After graduation, ANSEP students enjoyed continued success, with 98.5% of University Success full participants reporting being employed within a year of graduation, the majority of whom were enrolled in STEM or STEM-related fields. The top employers of ANSEP graduates include the Alyeska Pipeline Service Company, multiple companies in the oil and gas industry, and the Alaska Native Tribal Health Consortium (ANTHC), and the vast majority of ANSEP graduates remain and work in Alaska after graduation. Additionally, ANSEP graduates enjoyed higher average salaries within one year of graduation, with roughly 44% of students reporting making \$60,000 or more per year, as compared to the national average of \$43,257 for American Indian/Alaska Native and Native Hawaiian/Pacific Islander college graduates within one year of graduation across all STEM fields.<sup>74</sup>



# THE VOICE OF THE ARCTIC: BALANCING RESOURCE DEVELOPMENT WITH TRADITIONAL NATIVE PRACTICES



## BACKGROUND

Since statehood, Alaska has made a conscious effort to capitalize on its abundant natural resources to support the economic and social development of its people. As a petrostate, Alaska relies on oil and gas development for economic prosperity and social benefits; however, the impacts of climate change are challenging these efforts and the subsistence lifestyles for many rural Alaskans. To ensure responsible resource development, mitigate the impacts of climate change in the Arctic region, and protect traditional native practices, the Arctic Slope communities formed The Voice of the Arctic Iñupiat (The Voice) in 2015. The Voice is comprised of the region's Iñupiat leadership, who collectively represent the Arctic Slope communities on issues that impact them, such as regional resource development, and subsistence hunting.

## THE VOICE OF THE ARCTIC

Today, The Voice is comprised of twenty-four member entities from communities across the Arctic Slope – including tribal councils, municipal governments, and Alaska Native Corporations. The Voice aims to ensure that traditional native practices are protected, and that the development of the Arctic Slope's natural resources is conducted in a safe and responsible manner and works with local authorities and regional, state, federal, and international stakeholders to protect the interests of Arctic Slope communities.<sup>75</sup> National and international regulations accommodate traditional practices, and local resource development projects need to be approved by local city, village, and tribal leadership before breaking ground.

In a recent example, President Biden approved the Willow project, an \$8 billion plan to extract 600 million barrels of oil from federal land up in Alaska's North Slope. This oil field, with an anticipated project life of 30 years, is expected to produce up to 180,000 barrels of oil per day at peak production.<sup>76</sup> The decision was met with opposition from environmental groups largely based outside of Alaska; however, Alaska Native leaders, Alaska politicians, and business groups lobbied for approval of the project, indicating that it would provide much needed revenues to support North Slope villages and help Alaska's economy. The Voice stated that the project is critical to Alaska Native self-determination, and that it will assist villages in carrying on support for traditional activities, such as whaling. **Further, it will provide contracting opportunities for Native-owned businesses, create local job opportunities, increase property tax revenue to the North Slope by more than \$1 billion, and add about \$2.5 billion to the NPR-A Impact Mitigation Fund. Fifty percent of the royalty income from the Willow project will go into this fund that is directed to the North Slope Borough and its seven communities.**

## NATIONAL & INTERNATIONAL ACCOMMODATION

In the Arctic Slope region, hunting for bowhead whales has been a tradition held among Alaska Natives for thousands of years, and is a practice that is still relied upon today as part of its strong subsistence culture. Customary and traditional uses of fish and wildlife, including traditional subsistence hunting, are protected under the Marine Mammal Protection Act and the hunting of traditional subsistence foods, such as the bowhead whale, is allowed for registered members of the Alaska Eskimo Whaling Commission (AEWC). The International Whaling Commission (IWC) determines the number of strikes (whales that are successfully struck but not landed) and the number of takes (whales that are successfully landed) that can be shared between the 11 whaling communities for a five-year period. The harvest quota is based on the nutritional and cultural needs of Alaskan Natives in all 11 AEWC communities (i.e., Kaktovik, Nuiqsut, Utqiagvik, Wainwright, Point Lay, Point Hope, Kivalina, Little Diomed, Wales, Savoonga, and Gambell), and the size and growth of the bowhead whale population. The harvest level is about 0.1%-0.5% of the bowhead population, a sustainable allowance considering the bowhead whale population is estimated to grow about 3% annually.

*"Passed from generation to generation through repetition of observance and legend, subsistence living has sustained our people for thousands of years and we, in turn, have sustained the resource."*

**Eva Kinneeveauk, President, Native Village of Point Hope**

## REGIONAL REPRESENTATION

Oil and gas developers engage with The Voice to ensure the interests of Arctic Slope communities are represented during the approval process for new projects and accommodated during ongoing operations. Oil and gas operations have direct impacts on the lifestyles of Arctic Slope communities, as the noises from offshore operations have the potential to scare whales away from hunting areas. To minimize this disruption, offshore oil and gas operations on the Arctic Slope shut down certain vessel activities during the whaling season, allowing for subsistence whaling. Subsistence whaling is important to the way of life of the Arctic Slope community, and a symbiotic relationship between the oil and gas companies and local communities allows for mutual benefit. In fact, after years of resource development in the Arctic Slope region, resource development and the community's subsistence lifestyles are not mutually exclusive. Modern technologies, such as snowmachines, four-wheelers, and boats, are utilized to support subsistence hunting, and are increasingly necessary with receding sea ice and eroding coastlines pushing more and more communities inland.<sup>77</sup> Economic development and job growth are two outcomes of the resource development projects that provide continued access to the modern technology that supports their subsistence whaling practices. Due in part to local resource development, the per capita income in the North Slope Borough was \$47,585 in 2021, enabling people's ability to afford snowmachines and four-wheelers, which cost, on average, \$13,500 and \$7,000, respectively.<sup>78</sup>

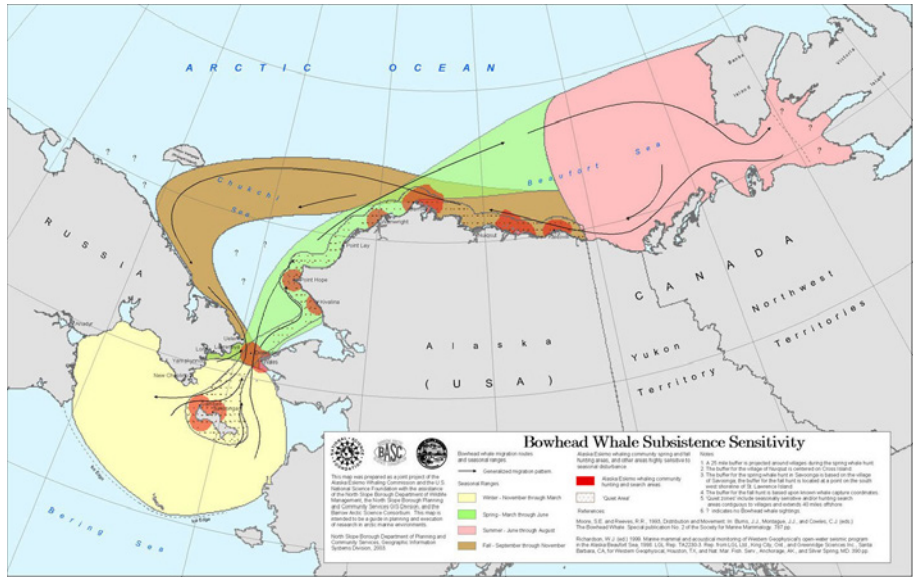


Residents of the North Slope prepare a bowhead whale harvest for community distribution in 2022.

### Bowhead Whale Seasonal Migratory Patterns

Note the “quiet areas” along the Alaskan coast. These quiet areas include seasonally sensitive and/or hunting search areas contiguous to Rural Native Alaskan villages. Quiet areas extend 40 miles offshore to accommodate subsistence hunting.

Source:  
[BCB bowhead population habitat – Marine Mammal Research Unit \(jbc.ca\)](https://www.jbc.org/doi/10.1111/jbc.12111)



### IMPACTS OF RESOURCE DEVELOPMENT

Rural Alaska Natives in the Arctic Slope region have benefitted from the resource development in their region through:

- **Community & Infrastructure Development**
  - Enhanced the livability of the local region, providing jobs and infrastructure that have helped to modernize the communities, such as underground water and sewer lines, electrical power, a regional hospital in Utqiagvik, roads, and community buildings.<sup>79</sup>
  - The population of the North Slope increased by 16.9% from 2010 to 2020.<sup>80</sup>
- **Economic Development**
  - Poverty rates declined from 49.6% in 1960 to 12.4% in 2021.<sup>81</sup>
  - The median household income in the North Slope Borough is over \$14,000 higher than that of the U.S.<sup>82</sup>
- **Enhanced Education**
  - High school education or higher has reached 87.7%, nearly as high as the U.S. overall at 88.9%.<sup>83</sup>
- **Improved Health**
  - Disability rates of people under 65 years is 1.5% lower than that of the broader U.S.<sup>84</sup>
  - Lifespans increased from 65 in 1980 to 77 in 2014<sup>85</sup>

The people of the Arctic Slope have learned to continually adapt to the changes in their climate and their local ecosystems, and The Voice has given them the ability to speak on issues that affect their well-being, ensuring that their views on issues related to the economic, ecological, and cultural sustainability of their communities will be heard.

*“We need the economy on the North Slope to be able to maintain the living conditions that we currently have. We need to fight for that economy. And that economy is based on, right now for the entire state, resource development.”*

**Nagruk Harcharek, President, Voice of the Arctic Iñupiat**

*“The world is changing around us and new activities are coming to the Arctic. We are used to adapting to the environment around us, but we need to have the ability and authority to manage our own resources.”*

**Harry Brower Jr, Mayor, North Slope Borough**

# Alleviating Poverty Through Economic Equity



## PERMANENT FUND DIVIDEND



### HISTORY

Revenue from the oil and gas industry has funded up to 90 percent of the state's unrestricted General Fund revenues in most years prior to the use of Permanent Fund earnings starting in Fiscal Year 2019, and has accounted for over \$180 billion in total revenue since statehood.<sup>86</sup> However, in 1976, voters in Alaska passed a constitutional amendment to establish the Permanent Fund, which would save 25% of the State's oil, gas, and mineral royalties and invest them to preserve the benefits of Alaska's resource wealth for future generations, turning non-renewable resource income into a renewable resource of funding for the benefit of all Alaskans.<sup>87</sup> The Permanent Fund started with \$734,000, and, over the years, has grown to nearly \$80 billion with the help of the Alaska Permanent Fund Corporation (APFC), a state-owned corporation that manages the assets of the Alaska Permanent Fund in an effort to ensure sufficient financial returns that will benefit both current and future generations of Alaskans.<sup>88</sup>

No other state has a sovereign wealth fund of this magnitude in the United States that is constructed to benefit both the state and individual Alaskans.

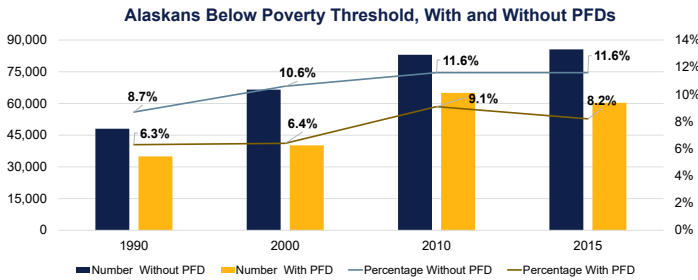
In 1982, Alaska legislature authorized equal dividend payments to residents, regardless of need, distributing the Permanent Fund Dividend (PFD) checks on June 14, 1982, for \$1,000 each.<sup>89</sup> In the ensuing years, the PFD was paid out according to a statutory formula calculated using a five-year average of the Fund's performance, with those earnings divided among all eligible Alaskans. This process endured until 2016 – during this time, the 75% of oil, in addition to production, property, corporate, and other taxes, were allocated towards funding state government and social programs, and enhancing infrastructure, which has resulted in significant societal impacts such as raising Alaskans above national poverty thresholds. It is worth noting the cost of living in rural Alaska is significantly higher than that of the continental U.S. Natural gas and electricity bills can reach up to 33% higher than the national average, and food for one person per month is over \$100 higher than the national average.<sup>90</sup>

A study by the Institute of Social and Economic Research (ISER) at the University of Alaska Anchorage in 2016 assesses the effect the PFD has had on alleviating poverty among the State's rural Alaska Native peoples. Alaska Natives have historically high poverty rates and live in regions with limited economic opportunities.<sup>91</sup> Official poverty statistics often fail to account for the PFD in household income, causing those statistics to misstate poverty levels in Alaska and effectively undervalue the effect of the PFD. ISER reconstructs household level data to estimate poverty rates without PFD income; the resulting estimated poverty rates show that the PFD has had a meaningful, yet diminishing, effect on alleviating poverty amongst rural indigenous families. The PFD has had more significant effects on children and elders than for the rest of the rural Alaska Native population.

## IMPACTS

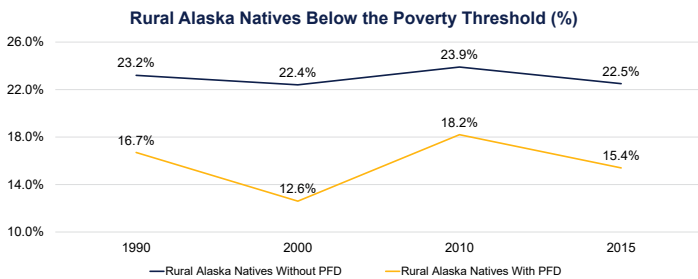
### Alaskans

The 2016 PFD study estimates that the PFD has raised up to 25,000 Alaskans out of poverty each year since its initiation, conditional on the amount of the payment and the posture of the economy that year.<sup>92</sup> Without the PFD, one-third more Alaska Natives would have been below the national poverty threshold. Additionally, without the PFD, poverty rates for Alaskan children and seniors would increase by one-third or more.<sup>93</sup>



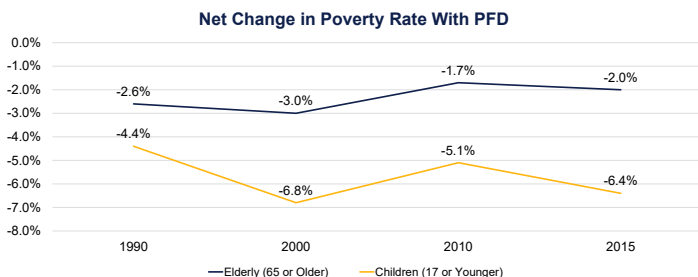
### Rural Alaska Natives

The PFD has had especially strong impacts on the livelihoods of rural Alaska Natives relative to the rest of the Alaskan population. Poverty rates among Alaska Natives are 2.5x higher than the poverty rate of non-Native Alaskans, and twice the poverty rate of the Alaska population overall. It is estimated that the PFD effectively reduced the poverty rate for rural Alaska Natives by 6% between 2011 and 2015.



### Children

The PFD has had pronounced impacts on children. Research has shown that an additional \$1,000 in PFD payments decreases the probability of obesity amongst Alaskan children by as much as 4.5%. This reduction could potentially avoid 500 cases of obesity, resulting in an estimated medical cost savings of \$2-\$10 million per year.<sup>94</sup>



### Elderly

Research suggests Alaska Native seniors have experienced a 59% reduction in poverty as a result of the PFD since 1990.<sup>95</sup>

### Deep Poverty

The effects of the PFD have been most noticeable for the most impoverished populations. Between 2011 and 2015, the PFD reduced deep poverty, defined as less than one-half the poverty threshold, from 13.1% to 8.1%. The PFD represents a larger portion of annual income for impoverished individuals; in the year 2000, it was estimated that without the PFD, 11.7% of Alaskan's would have been in deep poverty, compared to only 3.5% with the PFD.<sup>96</sup> Further, progressive federal income taxes recapture a portion of the PFD payment from more well-off individuals, enhancing the effects of the payments on the poor relative to the wealthy. While roughly 660,000 eligible Alaskans receive the PFD, its income maintenance properties strongly affect low-income households, especially those with children.

## THE FUTURE OF THE PFD

While the PFD has helped to alleviate poverty among Alaska peoples, there is growing debate around the size of the dividend, and the sustainability of the fund in the wake of declining production and prices for oil and gas.

In 2015, oil and gas prices declined, and with them, Alaska's state revenues. In 2016, former Alaska Governor Bill Walker vetoed half of the appropriation for the PFD. This was the first time the statutory PFD formula had not been followed, and a group of legislators and citizens sued. Eventually the Alaska Supreme Court ruled that the constitutional power to appropriate delegated to the Legislature and the veto power delegated to the Governor supersede any statute regarding appropriations such as the PFD formula. In 2018, Governor Bill Walker signed legislation allowing a percentage of the fund to be withdrawn each year to pay for state spending and the dividend, abandoning the statutory PFD formula. This withdrawal is now 5% of the Fund's market value per year, currently about \$3.4 billion for the 2024 fiscal year that starts on July 1, 2023. A new formula to calculate the PFD has yet to be agreed upon, which causes the ongoing debate over spending on state services versus the size of the PFD.

## PFD APPROPRIATIONS

# \$29.4 billion

Total in PFDs paid out since inception<sup>97</sup>

# Supporting Domestic and Global Sustainability Goals



## THE ALASKA LNG PROJECT

<b>9</b> INDUSTRY, INNOVATION AND INFRASTRUCTURE 	<b>11</b> SUSTAINABLE CITIES AND COMMUNITIES 	<b>12</b> RESPONSIBLE CONSUMPTION AND PRODUCTION 
---	---	---

The Alaska Liquefied Natural Gas (LNG) Project (the Alaska LNG Project) is Alaska’s priority energy infrastructure project to maximize the benefit of Alaska’s North Slope natural gas resources.

The Alaska LNG Project will use clean, energy-efficient, and safe production methods to provide existing, stranded natural gas to Alaskans and convert a portion of the gas to LNG for commercialization in international markets. Alaskans will gain a long-term source of natural gas for home heating, power generation, and industrial needs at affordable prices made possible by the LNG export infrastructure. Under development by the Alaska Gasline Development Corporation (AGDC), an independent, public corporation of the State of Alaska, the Alaska LNG Project has been widely studied by stakeholders, federal agencies, and

state regulators, and is the only LNG project that has been granted all major permits on the U.S. west coast.

Because gas is produced along with oil on the North Slope, and there is no existing gas pipeline to commercial markets, approximately 7.7 billion cubic feet (Bcf) of gas is currently being compressed and reinjected back into the producing formation at Prudhoe Bay gas management facilities each day. The Alaska LNG Project will use a portion of that existing, stranded gas, estimated at nearly 40 trillion cubic feet (Tcf) of proven natural gas reserves in the Prudhoe Bay Unit and Point Thomson Unit,<sup>98</sup> over the 30-year term<sup>99</sup> of the Alaska LNG Project. Approximately 75% of the gas feedstock for the Alaska LNG Project will be from Prudhoe Bay and 25% will be from Point Thomson.

The Alaska LNG Project’s Arctic Carbon Capture (ACC) plant will be located in Prudhoe Bay near existing oil and gas infrastructure and will condition the feed gas to meet pipeline and LNG specifications. The plant, with an average capacity of 3.5 Bcf of gas per day, will be comprised of three parallel treatment trains for the removal of carbon dioxide and hydrogen sulfide from the feed gas.<sup>100</sup>

By design, carbon dioxide from the feed gas for the Alaska LNG Project will not be vented. Byproduct carbon dioxide separated from the feed gas stream will be captured and placed back into the subsurface geologic formations, either for enhanced oil recovery (EOR) or sequestration. Over the term of the Alaska LNG Project,



approximately 3.84 Tcf, or 202 million metric tons (MMmt), of carbon dioxide will be available to be captured and used for EOR and sequestered on the North Slope.<sup>101</sup>

The backbone of the Alaska LNG Project is the 42-inch diameter mainline pipeline that will traverse 807 miles from the ACC plant in Prudhoe Bay through Interior Alaska before it crosses Cook Inlet and connects with the LNG Facility and marine terminal in Nikiski on the Kenai Peninsula. The pipeline will be buried with the exception of two planned aerial water crossings, aboveground crossings of active faults, and the underwater offshore pipeline section crossing Cook Inlet.

Interconnections along the pipeline route will provide Alaskans with access to natural gas for heating and electrical generation. The LNG Facility will produce up to 20 million metric tons of LNG per year for export.<sup>102</sup>

## REGULATORY PROCESS

There are more than 50 major federal, state, and local permits and authorizations required for the Alaska LNG Project. A comprehensive regulatory process was established for the Alaska LNG Project to ensure required permits were obtained and to maintain compliance with applicable legal requirements. The major permitting process was initiated in 2014 and was completed with all required federal permits in 2020. The Alaska LNG Project is permitted as an integrated project and has completed a full review under the National Environmental Policy Act (NEPA) by the Federal Energy Regulatory Commission (FERC) as the Lead Agency.<sup>103</sup>

As part of the initial FERC application process, 14 public open houses throughout Alaska were held for the Alaska LNG Project from October 2014 through January 2015 to provide the public with information and solicit comments from interested stakeholders and regulatory agencies. The FERC also conducted extensive public involvement activities by submitting the Notice of Intent to Prepare an Environmental Impact Statement (EIS) to over 1,850 interested parties that included Alaska Native tribes, holding 12 public scoping meetings in the fall of 2015, and providing a 90-day public review and comment period for the draft EIS starting in June 2019.<sup>104</sup> The FERC published its Final EIS (FEIS) in March 2020

*“No disposals or leases of state lands, or interests therein, shall be made without **prior public notice and other safeguards of the public interest** as may be prescribed by law.”*

**Alaska Constitution, Article 8, Section 10**

which assessed the potential environmental effects of the Alaska LNG Project's construction and operation activities in accordance with the requirements of NEPA.

The comprehensive, 5,000-page 2020 EIS concluded that the construction and operation of the Alaska LNG Project would result in temporary, long-term, and permanent impacts to the environment. While the EIS found some of these impacts could be significant, most impacts would not be significant or would be reduced to less than significant through the implementation of required avoidance, minimization, and mitigation measures proposed by AGDC and FERC. Based on their comprehensive analysis, FERC determined the Alaska LNG Project is consistent with the public interest and issued an order on May 21, 2020 granting AGDC authorization to site, construct, and operate the proposed Alaska LNG Project.

The Department of Energy (DOE), U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, U.S. Coast Guard, Bureau of Land Management, U.S. Fish and Wildlife Service, National Park Service, and National Marine Fisheries Service participated as cooperating agencies in FERC's review of the Alaska LNG Project and provided expert review, analysis, and input. Following issuance of the FEIS, each agency adopted the analysis and issued associated permits and approvals for the Alaska LNG Project. Permit and approval requirements include compliance with the 165 environmental conditions adopted in the FERC Order plus the requirements in Appendix X proactively agreed to by AGDC, as well as additional requirements and conditions specific to each of the permits and authorizations. AGDC has developed a comprehensive compliance assurance process to confirm compliance obligations from permits and authorizations are fully identified and addressed during construction and throughout operations.

DOE's authorization allowing the Alaska LNG Project to export LNG produced from the Alaska LNG Project to non-Free Trade Agreement countries was issued in August of 2020. On September 21, 2020, the Sierra Club (a nonprofit environmental organization) filed a request for rehearing of the DOE export authorization. The Sierra Club argued that DOE violated NEPA by relying on an EIS that did not examine all reasonably foreseeable impacts of the proposed Alaska LNG Project beyond the scope of FERC's jurisdiction. The DOE issued an order granting the Sierra Club's request for rehearing for the purpose of conducting two Alaska-specific environmental studies and related public process. One of the studies was for analysis of the potential environmental impacts of upstream production (i.e., impacts before gas is placed into the Alaska LNG Project) and a second to evaluate greenhouse gas (GHG) emissions associated with the full life cycle (i.e., conduct a life cycle analysis [LCA]) of the Alaska LNG Project including export and use of the gas in other countries.

On July 2, 2021, the DOE published its Notice of Intent in the Federal Register to prepare a Supplemental Environmental Impact Statement (SEIS) for the Alaska LNG Project.<sup>105</sup> The draft SEIS was published June 24, 2022 and was released for public comments until August 15, 2022. Of the more than 200 comments on the draft SEIS, 182 (91%) were positive comments supporting the Alaska LNG Project, including input from native corporations and organizations (Doyon, Salamatof Native Association, Arctic Slope Regional Corporation, Alaska Eskimo Whaling Commission, Nana Worley, ASRC Energy Services, etc.), residents, utilities, industry organizations, government organizations and representatives, the Governor of Alaska, the Alaska Delegation, and others. Three agencies provided technical comments.

On January 6, 2023, the DOE issued the Final SEIS, adding over 1,200 pages of analysis to the comprehensive environmental assessment of the Alaska LNG Project, responding to comments, and concluding:

- The Prudhoe Bay Unit and Point Thomson Unit have sufficient gas to supply the Alaska LNG Project for the entire 30-year term of the Alaska LNG Project;
- There is sufficient capacity at Prudhoe Bay for sequestration of carbon for the entire life of the Alaska LNG Project, as well as opportunities to enhance oil recovery at other North Slope fields to maximize use of existing infrastructure;
- Negligible,<sup>106</sup> negligible to less-than-significant, or less-than-significant impact assessment ratings were given for both construction and operations for most upstream resource categories because the upstream resources are existing, developed oil and gas fields;
- The results of the DOE life cycle GHG analysis demonstrated:
  - When Alaska LNG GHG emissions were compared on an energy-equivalent basis, the Alaska LNG Project had 7 to 16 percent lower GHG emissions than the ‘Business as Usual’ Scenario 1<sup>107</sup> (this range is with and without end use carbon capture and sequestration), supporting DOE’s statement that, *“In conclusion, exporting LNG from the North Slope of Alaska would not increase GHG emissions when providing the same services to society (through production of natural gas and crude oil) as the no action alternative.”*
  - When Alaska LNG GHG emissions were compared on a non-energy equivalent basis, Alaska LNG showed higher GHG emissions than the No Action Alternative 2,<sup>108</sup> supporting DOE’s statement that, *“Exporting LNG from the North Slope ... would increase GHG emissions as compared to the No Action Alternative 2, due to the difference in LNG volumes delivered to end-users.”*



## ALASKA LNG PROJECT TIMELINE

<b>2014</b>	<b>ALASKA LNG PROJECT PERMITTING PROCESS BEGINS</b>
<b>JUNE 2019</b>	<b>90-DAY DRAFT EIS PUBLIC REVIEW PERIOD</b>
<b>MARCH 6, 2020</b>	<b>FERC ISSUES FINAL EIS</b>
<b>MAY 21, 2020</b>	<b>FERC ISSUES AUTHORIZATION TO CONSTRUCT AND OPERATE THE ALASKA LNG PROJECT</b>
<b>JULY 10, 2020</b>	<b>US ARMY CORPS OF ENGINEERS ISSUES PERMIT UNDER SECTION 404 OF THE CWA AND SECTION 10 OF THE RIVERS AND HARBORS ACT</b>
<b>AUG. 20, 2020</b>	<b>US DOE ISSUES NATURAL GAS EXPORT AUTHORIZATION</b>
<b>JULY 2, 2021</b>	<b>NEPA SEIS PROCESS COMMENCES</b>
<b>JUNE 24, 2022</b>	<b>DRAFT DOE SEIS ISSUED FOR PUBLIC COMMENT</b>
<b>JULY 7, 2022</b>	<b>LIQUEFACTION FACILITY AIR PERMIT ISSUED</b>
<b>NOV. 14, 2022</b>	<b>FINAL DOE SEIS ISSUED</b>
<b>APRIL 13, 2023</b>	<b>DOE ORDER AFFIRMING AND AMENDING AUTHORIZATION FOR EXPORT TO NON-FREE TRADE AGREEMENT COUNTRIES ISSUED</b>

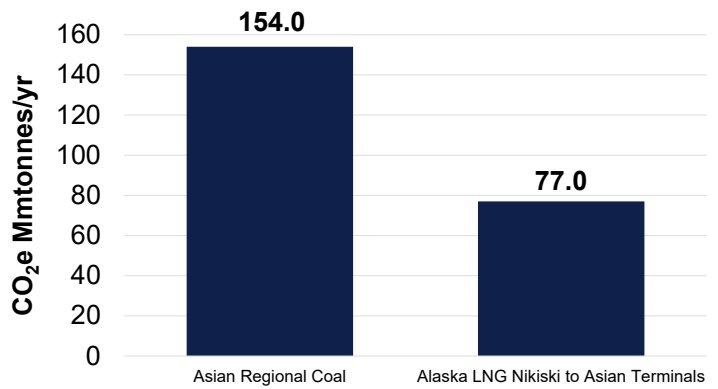


## GREENHOUSE GAS BENEFITS

In 2021 (prior to the DOE SEIS), AGDC commissioned a technical study which analyzed GHG emissions across the entire life cycle of the Alaska LNG Project. This LCA analyzed GHG emissions from initial upstream extraction on the North Slope through gas treatment, main pipeline transportation, liquefaction, marine transportation, re-gasification, and power generation/distribution using techniques established and published by the DOE's National Energy Technology Laboratory. Comparisons were then made to similar projects in the U.S. Gulf Coast and, due to the goals of commercialization in international markets, to Asian energy equivalents (e.g., Asian coal).


The conclusions of the LCA study were consistent with DOE's subsequent SEIS, noting the lower carbon intensity of Alaska LNG in comparison to coal and other LNG projects. The LCA concluded that the Alaska LNG Project emits about 50% less GHGs, shown as carbon dioxide equivalents (CO<sub>2</sub>-e), than the GHGs generated by a representative Asian regional coal supply chain.

## Asian Coal Comparison to Alaska LNG GHG Emissions




This translates to a reduction of more than 77 million metric tons of CO<sub>2</sub>-e annually due to use of Alaska LNG compared to Asian coal derived power.<sup>109</sup> Use of EPA's GHG equivalency calculator<sup>110</sup> provides an estimate of the impact of that level of global carbon reduction, as identified in the figure below.


GHG Benefits Equivalent To:




16.6 mill. cars eliminated per year



8.7 bill. gallons of gasoline eliminated per year



21 thousand wind turbines



1.3 bill. tree seedlings grown for 10 years

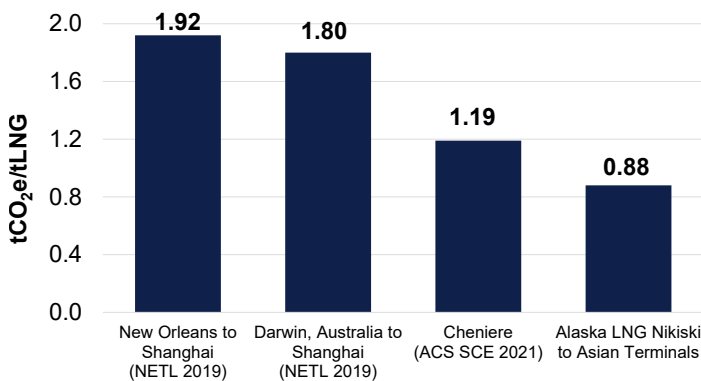
Coal is currently the largest source of energy for many Asian countries. Many of these countries have set net-zero GHG emissions goals and are trying to move away from coal fuel to meet those goals. For example, Japan, South Korea, and Singapore have set 2050 net-zero GHG emissions targets; China has set a 2060 net-zero GHG emission goal; Thailand aims to reach net-zero by 2065; and India plans to reach net-zero by 2070.<sup>111</sup>

The comparison of GHG emissions from coal versus LNG power production is important, as switching from coal to gas is a critical step in reducing global GHG emissions. The International Energy Agency found that in general, coal-to-gas switching reduces GHG emissions by about 50% when providing electricity and by 33% when providing heat.<sup>112</sup> Yet, despite lofty carbon zero goals, last

year (2022) was one of the largest coal-use years ever, with record coal output from China, India, and Indonesia.<sup>113</sup> European nations increased coal consumption for the second year in a row, and the U.S. used coal for about 22% of electric power generation. Carbon dioxide emissions from coal power plants hit record levels in 2022 and resulted in record high global GHG emissions.<sup>114</sup> LNG shipped from Alaska to replace Asian coal fueled power generation will help Asian countries meet their energy needs while decreasing global GHG emissions. Further, when compared to other LNG export supply chains, the Alaska LNG Project had a lower overall GHG intensity primarily due to lower upstream emissions, pipeline transmission, and ocean tanker transportation components.<sup>115</sup>

- **Lower Upstream Emissions** – Natural gas produced on the North Slope shares extraction and gathering and boosting emissions with that of the associated oil production.
- **Pipeline Transmission** – Carbon sequestration is proposed to occur at the point of production (North Slope), thereby lowering the opportunity for fugitive losses during pipeline transmission. Additionally, the Alaska LNG Project's mainline pipeline is one 807-mile single pipeline with only eight compressor stations, resulting in lower fugitive and compression combustion emissions compared to other projects with multiple pipelines and more combined compressor stations.
- **Ocean Tanker Transportation** – Shipping routes from Alaska to Asian markets are significantly shorter than those from the U.S. Gulf Coast.

## Natural Gas Life Cycle GHG Intensities Production through Regasification

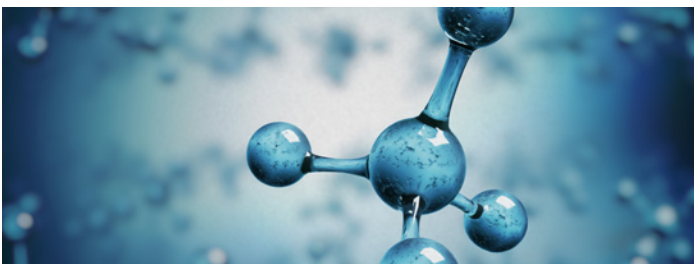




### IMPROVED AIR QUALITY IN INTERIOR ALASKA

The Alaska LNG Project will improve air quality and decrease air quality-related health hazards in the state, especially in Interior Alaska. Fairbanks, in the central Interior region of Alaska, does not meet EPA air quality standards and the EPA has determined it is a serious non-attainment area for particulate matter (PM 2.5) with pollution levels high enough to be a human health concern. The area currently lacks a direct-source gas transmission pipeline and depends instead on coal for generation of electricity, along with wood and oil for heat and some limited availability of gas transported by tanker/road from the Southcentral area. Recently, EPA rejected portions of Alaska’s State Implementation Plan that was put forward to help reduce PM2.5 emissions in Fairbanks, creating significant concern in the community about how to meet air quality goals given the lack of gas as an alternative to existing coal and wood/oil use.<sup>116</sup>

By creating a long-term, reliable, and low-cost supply of clean-burning natural gas for Fairbanks via a future interconnection from the main Project pipeline, human health and air quality would be significantly improved in the region.



### ALASKA CLEAN AMMONIA OPPORTUNITY

AGDC currently has a Memorandum of Understanding (MOU) with a Japanese-led team for evaluating the opportunity to use gas from the Alaska LNG Project for production of carbon-free ammonia for export. The carbon dioxide generated from this ammonia manufacturing process will be captured and sequestered in secure underground geologic formations, and Alaska’s Cook Inlet basin has been identified by scientists as having world-class carbon sequestration potential. This assessment will further define Cook Inlet’s sequestration potential and the economics for producing clean ammonia alongside LNG in Alaska.

Ammonia is central to the zero-carbon strategies of nations across the Pacific rim. In October 2020, Japan declared that it aims to achieve carbon neutrality by 2050 and developed the “Green Growth Strategy” that outlines 14 growth sectors including ammonia-fired power generation. Japan plans to grow ammonia use in energy production to 3 million tons per year by 2030 and 20 million tons in 2050, up from zero today.<sup>117</sup> Alaska is only seven

shipping days from Japan (6,000 miles shorter than from the U.S. Gulf Coast) with no canals or congested shipping lanes, thereby reducing costs and shipping emissions.<sup>118</sup> Alaska is uniquely able to offer long-term LNG supply security while also providing the option to transition to low-carbon fuels utilizing the same infrastructure. This provides Alaska LNG Project customers the flexibility to transition from LNG in response to the market and technology.



### ECONOMIC BENEFITS

The Alaska LNG Project has been termed ‘transformative’ for Alaska because of its job creation, long term state revenue generation, and stable low-cost energy supply.<sup>119</sup> Each of these issues is discussed below.

#### Jobs

As outlined in the socioeconomic portion of the Alaska LNG Project 2020 EIS, the eight-year construction phase of the Alaska LNG Project is expected to create up to 35,000 direct jobs with an average of 54% filled by Alaska residents. Additionally, there are approximately 1,000 direct operational jobs expected that would create a permanent increase in the economic activity around the North Slope Borough (ACC plant location) and the Kenai Peninsula (LNG facility location).<sup>120</sup>

#### State Revenue

Royalties gained from the Alaska LNG Project will be distributed into government programs including the Permanent Fund (approximate 12.5% allocation) to support the funding of state government operations and annual dividend payments for Alaska residents, and the Alaska Affordable Energy Fund (approximate 20% allocation) to support access to energy programs in communities without direct access to gas from the Alaska LNG Project.<sup>121</sup>

#### Lower Energy Costs

Natural gas from the mainline pipeline will cost approximately \$4-5 per MMBtu for utilities, a rate much lower than alternative sources such as a diesel/fuel oil equivalent at approximately \$30 per MMBtu,<sup>122</sup> or gas from Cook Inlet that has averaged approximately \$8.40 per MMBtu.<sup>123, 124</sup> Offering an alternative and lower cost energy source to Alaskans will result in significant savings for Alaskan households. To quantify that savings:

- The current total utility demand for natural gas in Southcentral Alaska is about 60 Bcf per year.<sup>125</sup>
- If the Alaska LNG Project saved \$4 per MMBtu/Mcf, that would equate to annual savings of \$240 million in total natural gas costs.
- With a combined population of Anchorage, the Mat-Su, and Kenai totaling approximately 460,000 residents, energy savings per capita could amount to about \$500 per person per year.

# “North to the Future”



As of 2019, approximately 1.5 billion people around the world were living on a daily basis with “broken” electricity grids, resulting in up to hundreds of thousands of blackouts annually.<sup>126</sup> This lack of access to a resilient supply of regionally supplied energy across a global population can result in a reliance on local solutions, such as diesel-powered generators, which is both costly for the consumer and can have greater negative impacts on the environment.<sup>127</sup> Our rural Alaskan people understand these challenges fully as approximately 82,000 Alaskans in 193 communities served by AEA’s Power Cost Equalization (PCE) program rely primarily on diesel fired power.<sup>128</sup> In these same communities, access to clean water is also a key concern – across the more than 200 remote communities in Alaska, approximately half have traditional piped water systems.<sup>129</sup> Even further, 32 communities in Alaska have zero piped water service and, rather, must solely rely upon trucking, hauling, and honey buckets. These conditions are unsustainable for many villages: the lack of sanitary water contributes to high rates of respiratory and skin diseases, it also adds unnecessary transportation related greenhouse gas emissions into the

atmosphere. The distribution of safe water is directly tied to the energy costs associated with delivering safe water to rural Alaskans — a November 2022 study conducted by the University of Alaska Fairbanks found energy costs are 12–16 times the national average for remote Alaskans.<sup>130</sup> For one small rural community of 142 Alaskans in Wales, the current estimate for installing a piped water and sewer system is predicted to amount to approximately \$47 million, resulting in a monthly water and sewer bill of \$380 for Wales residents. With the cost of energy being 5–10 times higher than the national average, that amounts to 60–260 times the national average just for providing water sourcing, treatment, and distribution across rural Alaska.

Through the State’s ongoing resource development efforts to drive lower energy costs for Alaskans through AEA’s programs, strict environmental standards, and extensive amounts of research, Alaska demonstrates its commitment to bringing lower cost, and more sustainable, energy security to those who previously did not have access, both in Alaska and abroad. While significant progress has been made in reducing poverty rates, and increasing life expectancy across the state, much work remains.

**The State of Alaska is committed to bringing affordable energy and safe water to every Alaskan, and we will continue this work through appropriately regulated and sustainable resource development that has become our hallmark.**

*“Alaska has the resources, creativity, and ability to achieve energy independence that will fuel a growing economy.”*

**Governor Mike Dunleavy**

These benefits from responsible resource development are well understood by Alaskans. While environmental activists outside Alaska protested the Willow project, it has widespread, bipartisan support inside Alaska from a host of stakeholders. There were unanimous resolutions of support in the Alaska House and Senate, Republican Senators Lisa Murkowski and Dan Sullivan and Democrat Representative Mary Peltola, and is further supported by labor unions, Arctic Slope Regional Corp (ASRC), and Kuukpiik, the Village Corporation for Nuiqsuit. It is expected that the \$8 billion investment will create 2,500 mostly union construction jobs, and hundreds more long-term positions and will generate as much as \$17 billion in new revenue for the federal government, the State of Alaska, and North Slope and Native communities.

**And while protesters of the project proclaim its potential negative environmental impacts, the Bureau of Land Management's analysis estimates Willow's average annual total domestic emissions will total a mere 0.3% of anticipated U.S. emissions levels in 2030. In the end, the oil not produced at Willow will be produced elsewhere, but without Alaska's strict environmental standards, respect for human rights, and societal benefits for our residents.**

In April 2023, Governor Dunleavy introduced legislation creating the Alaska Energy Independence Fund to increase Alaska's energy independence and security. Senate Bill 125 and House Bill 154 will allow the Alaska Housing Finance Corporation (AHFC) to create a nonprofit subsidiary that will provide financing for sustainable energy development projects in Alaska, also known as a "green bank." Examples of these projects include renewable energy generation, energy storage, energy efficiency improvements for commercial and residential buildings, and cleaner transportation.

Further, Alaska embraces the opportunity to be a proving ground for innovative technologies that have the potential to bring reliable energy with less environmental and climate impact to its people, as well as enable other nations to reach their climate goals by sharing

both our successes and challenges as we explore new solutions. Alaska is dedicated to the development of sustainable, affordable, and environmentally sound forms of energy including the low and no carbon sources of the future such as hydrogen, ammonia, and tidal. As discussed in this report, Alaska fully embraces the concepts, promise, and benefits of renewable energy. **Over the past 15 years, the AEA has funded more than \$300 million in renewable energy and efficiency projects, displacing as much as 60,000 cars off the road.**<sup>131</sup> Alaska can also untap potential with nearly 20% of identified tidal energy potential in Cook Inlet and additional utility-scale geothermal potential. A recent 2021 study on the importance of Alaska in stabilizing biodiversity conservation suggests Alaska could contribute over 50% of total carbon storage for the entire United States given its geographic size and expansive landscape.<sup>132</sup> To capitalize on the carbon market opportunity, Governor Dunleavy created the Office of Energy Innovation in the fall of 2022 to coordinate these efforts and has since introduced several new forms of legislation to offer on and offshore resources for carbon capturing, storage, and utilization (CCUS). Alaska has more than 50 gigatons of pore space available in Cook Inlet, which represents the largest carbon sequestration resource on the U.S. west coast – this amount of carbon equates to 50 years of carbon emissions from the entire nation of Japan. As of 2019, four Alaska Native Regional corporations and eight Village corporations had entered the forest carbon offsets with credits valued at \$370 million.<sup>133</sup>

Alaska will continue to invest in innovative technologies that will support the need for reliable, affordable, and sustainable energy both in Alaska and for the world, funded by responsible resource development. We hope you have enjoyed learning about all that the State of Alaska has to offer and come visit yourself to learn firsthand all the opportunities present here. We will periodically update this report to document our continued efforts to responsibly develop our resources under The Alaska Standard for the maximum benefit of our people.

## ACKNOWLEDGEMENTS

This report could not have been put together without the time, resources, and support from the following agencies and stakeholders:

- Alaska Energy Authority
- Alaska Oil and Gas Conservation Commission
- University of Alaska Anchorage Institute of Social and Economic Research
- Alaska Department of Environmental Conservation
- Alaska Gasline Development Corporation
- ANCSA Regional Association
- Teck Resources Limited
- Arctic Slope Regional Corporation
- Alaska Department of Natural Resources
- Alaska Permanent Fund Corporation
- NANA Regional Corporation
- UAA Alaska Native Science and Engineering Program
- Voice of the Arctic Iñupiat

# Appendix

- 1 [Article 8 Section 4, Management for Sustained Yield](#)
- 2 <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/alaska-legacy-wells>
- 3 <https://www.commerce.alaska.gov/web/Portals/18/Pub/LegacyNon-CompliWhiteP.pdf>
- 4 <https://www.ktoo.org/2022/07/23/alaska-sues-interior-department-over-contaminated-ancsa-lands/>
- 5 [Oil and Gas \(akrdc.org\)](#)
- 6 [The Role of the Oil & Gas Industry in Alaska's Economy](#)
- 7 <http://tax.alaska.gov/sourcesbook/gr.aspx?Chapter=16&FY=2022>
- 8 <https://pfd.alaska.gov/Division-Info/summary-of-dividend-applications-payments>
- 9 [https://www.adfg.alaska.gov/static/home/library/pdfs/wildlife/central\\_arctic\\_herd/cah\\_newsletter\\_summer\\_2020.pdf](https://www.adfg.alaska.gov/static/home/library/pdfs/wildlife/central_arctic_herd/cah_newsletter_summer_2020.pdf)
- 10 [State Carbon Dioxide Emissions Data - U.S. Energy Information Administration \(EIA\)](#)
- 11 [Alaska Profile \(eia.gov\)](#)
- 12 EIA, *ibid.*
- 13 USGCRP (2014). Chapin, F.S., S.F.Trainor, P. Cochran, H. Huntington, C. Markon, M. McCammon, A.D. McGuire, and M. Serreze, 2014: [Ch. 22: Alaska. Climate Change Impacts in the United States: The Third National Climate Assessment](#), J. M. Melillo, Terese (T.C.) Richmond, and G. W. Yohe, Eds, U.S. Global Change Research Program, 514-536.
- 14 [Alaskas-Changing-Environment\\_2019\\_WEB.pdf \(uaf-iarc.org\)](#)
- 15 *ibid.*
- 16 [Maximizing Alaska's Energy Resources - YouTube](#)
- 17 [Alaska sustainable energy key for mining - North of 60 Mining News \(miningnewsnorth.com\)](#)
- 18 [The Role of Critical Minerals in Clean Energy Transitions - Analysis - IEA](#)
- 19 [GRI - Home \(globalreporting.org\)](#), Oil & Gas Standards
- 20 [Alaska Energy Authority > What We Do > Alternative Energy and Energy Efficiency Programs > Hydroelectric \(akenergyauthority.org\)](#)
- 21 [Microsoft PowerPoint - Hydro.pptx \(akenergyauthority.org\)](#)
- 22 [Alaska Energy Authority > What We Do > Alternative Energy and Energy Efficiency Programs > Hydroelectric > Bradley Lake Hydroelectric Project \(akenergyauthority.org\)](#)
- 23 [Alaska Journal | Alaska utilities plan \\$200M investment in grid to boost renewable power, increase reliability](#)
- 24 [Alaska Energy Authority > What We Do > Alternative Energy and Energy Efficiency Programs > Hydroelectric > Hydro Projects \(akenergyauthority.org\)](#)
- 25 [Snettisham, US \(power-technology.com\)](#)
- 26 [Juneau Hydropower and J-POWER Advance Sweetheart Lake Hydroelectric \(akbizmag.com\)](#)
- 27 Financing Food Security in Alaska Presentation, Tim Sandstrom, Chief Operating Officer, November 2022.
- 28 [Renewable Energy Projects by Energy Region](#)
- 29 [Alaska Energy Authority > What We Do > Grants & Loans > Renewable Energy Fund \(akenergyauthority.org\)](#)
- 30 [Alaska's largest solar farm opens in Willow \(adn.com\)](#)
- 31 [Construction of Alaska's largest solar project gets underway in Houston \(adn.com\)](#)
- 32 [Alaska Energy Authority > What We Do > Grants & Loans > Volkswagen Diesel Settlement Grants > Background \(akenergyauthority.org\)](#)
- 33 Alaska Energy Authority, September 2022.
- 34 [20 popular EVs tested in Norwegian winter conditions | NAF](#)
- 35 [Alaskans Help State Officials Prepare for EV Charging | Transport Topics \(ttnews.com\)](#)
- 36 <http://dnr.alaska.gov/commis/pic/about.htm>
- 37 <https://dec.alaska.gov/>
- 38 <https://www.adfg.alaska.gov/index.cfm?adfg=about.mission>
- 39 <https://www.commerce.alaska.gov/web/aogcc/>
- 40 [Legally Drunk Ship's Captain Fired by Exxon - Los Angeles Times \(latimes.com\)](#)
- 41 [30 Years after the Exxon Valdez \(alaska.gov\)](#)
- 42 [Oil Pollution Act Overview | US Environmental Protection Agency \(epa.gov\)](#)
- 43 [What is Gas Flaring? \(worldbank.org\)](#)

- 44 [US Energy Information Administration Alaska Natural Gas Vented and Flared](#)
- 45 [What is Gas Flaring? \(worldbank.org\)](#)
- 46 [Admin Approval - Injector Integrity \(documentcloud.org\)](#)
- 47 [US Energy Information Administration - Natural Gas](#)
- 48 <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>
- 49 [US Energy Information Administration Alaska Natural Gas Vented and Flared](#)
- 50 <https://www.energy.gov/fecm/enhanced-oil-recovery>
- 51 [ConocoPhillips Alaska Great Prudhoe Bay](#)
- 52 [AOGCC Data Miner](#)
- 53 [Code of Federal Regulations Title 30 Part 254](#)
- 54 [Alaska Administrative Code 18 75.438](#)
- 55 [USEPA What are the oil discharge reporting requirements in the SPCC Rule?](#)
- 56 [USEPA Office of Emergency Management Oil Discharge Reporting Requirements, December 2006](#)
- 57 <https://www.acf.hhs.gov/ana/fact-sheet/american-indians-and-alaska-natives-numbers>
- 58 [2015-MiningAndSustainableCommunities.pdf \(alaskapublic.org\)](#)
- 59 [Cost of Living In Alaska in 2022 - All You Need To Know \(movingist.com\)](#)
- 60 [Microsoft Word - Red Dog information fact sheet - Final\\_jan\\_13\[4\].docx \(teck.com\)](#)
- 61 [Alaska Poverty Rates by Census Area 1960 - 2010.](#)
- 62 [Alaska sees the most dramatic increases in life expectancy in the nation, new study says \(adn.com\)](#)
- 63 [Trends in Population Summary 2019.pdf \(alaska.gov\)](#)
- 64 [Zinc producer settles suit over Alaskan mine waste | Reuters](#)
- 65 [What is the Toxics Release Inventory? | US EPA](#)
- 66 [2021-Sustainability-Report.pdf \(teck.com\)](#)
- 67 [Best States for Education | US News Best States](#)
- 68 [Statewide - State Report Card to the Public - DEED \(alaska.gov\)](#)
- 69 [Statewide - State Report Card to the Public - DEED \(alaska.gov\)](#)
- 70 [2000084-evaluation-of-the-alaska-native-science-and-engineering-program\\_1.pdf \(urban.org\)](#)
- 71 [2000084-evaluation-of-the-alaska-native-science-and-engineering-program\\_1.pdf \(urban.org\)](#)
- 72 [A Leak in the STEM Pipeline: Taking Algebra Early \(ed.gov\)](#)
- 73 [2000084-evaluation-of-the-alaska-native-science-and-engineering-program\\_1.pdf \(urban.org\)](#)
- 74 [2000084-evaluation-of-the-alaska-native-science-and-engineering-program\\_1.pdf \(urban.org\)](#)
- 75 [About - Voice of the Arctic Inupiat \(voiceofthearticinupiat.org\)](#)
- 76 [Anchorage Daily News \(newsmemory.com\)](#)
- 77 [Moving Alaskan Villages Away from Encroaching Sea : NPR](#)
- 78 [What is the Average Price of a Snowmobile? \[Price Chart and Videos\] - PowerSportsGuide, How Much Does An ATV Cost? Price Examples For The Popular Models - \(utvrive.com\)](#)
- 79 [Arctic Slope Native Association | Samuel Simmonds Memorial Hospital](#)
- 80 [U.S. Census Bureau QuickFacts: North Slope Borough, Alaska](#)
- 81 [Ibid.](#)
- 82 [Ibid.](#)
- 83 [Ibid.](#)
- 84 [Ibid.](#)
- 85 [Alaska sees the most dramatic increases in life expectancy in the nation, new study says \(adn.com\)](#)
- 86 <https://www.akrdc.org/oil-and-gas>
- 87 [2016\\_12-PFDandPoverty.pdf \(iseralaska.org\)](#)
- 88 [Swanson, Pauly; Director of Communications of Alaska Permanent Fund Corporation](#)
- 89 [Permanent Fund Dividend - Historical Timeline \(alaska.gov\)](#)
- 90 [The True Cost of Living in Alaska - SmartAsset](#)
- 91 [Resource rents, universal basic income, and poverty among Alaska's Indigenous peoples \(iseralaska.org\)](#)
- 92 [Ibid.](#)
- 93 [Ibid.](#)
- 94 [Publications - Institute of Social and Economic Research \(iseralaska.org\)](#)



- 95 Ibid.
- 96 Ibid.
- 97 <https://pfd.alaska.gov/Division-Info/summary-of-dividend-applications-payments>
- 98 [US DOE Final Supplemental EIS - January 2023 - Volume I](#)
- 99 [FERC Order Authorization](#)
- 100 [FERC Order Authorization](#)
- 101 [US DOE Final Supplemental EIS - January 2023 - Volume I](#)
- 102 [FERC Order Authorization](#)
- 103 The Energy Policy Act of 2005 mandated that FERC lead the siting analysis and approval of all LNG terminals proposed in the United States.
- 104 [FERC FEIS - March 2020 - Volume 1](#)
- 105 [US DOE Draft Supplemental EIS - July 2022 - Summary](#)
- 106 No apparent or measurable impacts are expected, and may also be described as “none,” if appropriate.
- 107 This scenario examined the remaining oil production potential from the Prudhoe Bay Unit without major gas sales and no Alaska LNG Project.
- 108 This alternative presents GHG emissions associated with the estimated production of oil from the North Slope and the associated emissions from the transport, refining, and use of oil. It accounts for only the life cycle GHG emissions directly attributed to the energy production from the North Slope that would be impacted by the Alaska LNG Project.
- 109 [GHG LCA - Alaska LNG Project](#)
- 110 [EPA's GHG Equivalencies Calculator](#)
- 111 <https://climateactiontracker.org/countries/>
- 112 <https://www.iea.org/reports/the-role-of-gas-in-todays-energy-transitions>
- 113 <https://www.iea.org/reports/coal-2022/executive-summary>
- 114 <https://www.progressivepolicy.org/publication/the-climate-case-for-expanding-us-natural-gas-exports/>
- 115 [Alaska LNG GHG LCA - October 2021](#)
- 116 <https://www.epa.gov/ak/fairbanks-air-quality-plan>
- 117 [METI - Hydrogen/Ammonia Fuel](#)
- 118 <https://agdc.us/wp-content/uploads/2022/10/2022-10-04-Ammonia-Assessment-Release.pdf>
- 119 Public Board meeting comments, Aaron Schutt, President and CEO of Doyon, Limited, an Alaska Native Regional Corporation, Fairbanks, Alaska, June 16, 2022
- 120 [FERC FEIS - March 2020 - Volume 2](#)
- 121 Alaska Statute 37.05.610
- 122 Approximate value when diesel/fuel oil cost an estimated \$4/gallon.
- 123 According to Enstar Natural Gas Company and the Energy Information Administration.
- 124 The stated energy costs reflect the anticipated amount to be charged directly to the utility company and are not necessarily reflective of customer rates.
- 125 [https://www.eia.gov/dnav/ng/ng\\_cons\\_sum\\_dcu\\_SAK\\_a.htm](https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SAK_a.htm)
- 126 [The Dirty Footprint of the Broken Grid](#)
- 127 Ibid.
- 128 Alaska Energy Authority's Power Cost Equalization Program Statistical Report, FY 2022
- 129 Rural Alaska water treatment and distribution systems incur high energy costs: identifying energy drivers using panel data, University of Alaska Fairbanks.
- 130 Ibid.
- 131 [Greenhouse Gas Equivalencies Calculator | US EPA](#)
- 132 [Frontiers | The Importance of Alaska for Climate Stabilization, Resilience, and Biodiversity Conservation \(frontiersin.org\)](#)
- 133 <https://www.akbizmag.com/industry/alaska-native/harvesting-carbon-credits/>

# 2023

## The Alaska Standard

### Inaugural Sustainability Report

