

OIL & GAS SECTOR

(draft overview Oct 9, 2018)

OIL & GAS BACKGROUND

Alaska is a resource development state.

For more than 10,000 years, Alaska Natives have used the natural resources of the state to sustain cultural lifestyles that are defined by activities like fishing, whaling, trapping, hunting, and many others. When Russians first came to Alaska, they established the state as a fur trading center. The Gold Rush precipitated the next burst of resource development, which dovetailed into a mining boom and then finally, developed into the oil boom which we live in today. Alaska continues to reap incredible benefits from the development of its natural resources, more than 40 years after production began at Prudhoe Bay.

While many in Alaska will tell you that first oil production began at the Swanson River oil field on the Kenai Peninsula around 1959, the story actually stretches back almost 60 years earlier. Alaska Natives have long known that oil seeps provided a valuable resource that could be used for light or heat. In 1896, a trapper and prospector found one of those seeps, some 50 miles from modern day Cordova, at Katalla.

The first well was spudded by 1901 and a year later, the New York Times hailed the discovery, proclaiming that “a gusher in Alaska shot 200 feet into the air.” Production commenced, and a small boomtown grew up around the project. A refinery was built in 1912 and lasted until 1933 when it was damaged by an explosion at the facility and the owners decided against rebuilding. It wasn’t until the discovery and development of the Swanson River oil field that oil production commenced once again.

The story of Prudhoe Bay nearly never was. In 1963, six wells were drilled and all came up dry. Another series of wells were drilled by a different set of companies, also dry. By 1967, exploration was slowing to a near halt and the final rig left on the North Slope was used to drill what was to be the final exploration well: Prudhoe Bay State Well No. 1.

When the well was tested, crew had to deal with huge amount of gas rushing up from the wellbore, forcing them to ignite a 50-foot flare that burned for more than eight hours. Initial estimates of the field showed 9.6 billion barrels of recoverable oil, then the largest field ever found in North America. The Alaska oil boom was ignited.

Ten years, two enormous pieces of federal legislation, countless state laws, millions of acres transferred, and a new pipeline later, in 1977, oil first flowed down the Trans-Alaska Pipeline System from the Slope to its terminus at Valdez where it was then shipped.

Since 1977, the state has seen more than 17 billion barrels produced across the North Slope. At various points in the state's history, oil has been up to 90% of the state's general fund revenue. Oil has grown Alaska into the modern state we know today. Royalties and taxes are paid directly to state because of a quirk in Alaska's Statehood Act. When the federal government welcomed Alaska into the Union, it wrote into law that the state could never sever itself from its mineral rights. That is, all Alaskans own the minerals beneath the surface, in common.

Alaska's production of crude oil represented approximately 6 percent of the U.S.'s total production in 2016. For the first time in 14 years, North Slope production increased slightly in 2016, growing 2.8 percent, or an average of nearly 14,000 barrels per day.

It can easily be said that oil is in Alaska's blood. Without it, our state wouldn't be the gem of the north it is today. Our roads, schools, police, firefighters; all of it has been funded by oil. Through continued responsible and efficient development, Alaska's resources will remain our bread and butter for many years to come.

As activity on the North Slope faces a resurgence, billions of dollars will flow into the state to facilitate development of large oil fields. That money will be used to pay for fleets of new employees, from engineers to secretaries, who will bring the Alaska oil, and now gas, boom into the future.

2016 OIL & GAS FACTS AND ECONOMIC IMPACT

4,275 Alaska residents earning \$749 million in wages.
6,095 Oil & Gas Support Services Resident Job
514,900 barrels per day in 2016
\$6.0 billion paid in wages in Alaska
\$1.6 billion in taxes and royalties to state government.
\$4.6 billion spent with Alaska vendors
\$176.8 million production tax
\$559 million in oil and gas property taxes

MAJOR OIL & GAS PRODUCTION

The **Prudhoe Bay** Unit continues to be the largest producer of oil in the state having produced more than 13 billion barrels of oil. The field was originally estimated to contain 9.6 billion barrels of recoverable oil. In 2017, 43%, or 228,600 barrels a day, of all North Slope oil came from Prudhoe Bay. Prudhoe Bay is also home to Deadhorse, an unincorporated community that houses many facilities for field operations and North Slope workers. A gravel spine road extends from Deadhorse west for 57 miles and connects to many ice roads during the winter

exploration season. X amount of gas is produced and reinjected daily at the Unit for enhanced oil recovery. Gas from the Prudhoe Bay Unit has also been committed to the Alaska LNG project.

Production from the **Kuparuk Unit** began on December 13, 1981 three months ahead of schedule. The area was originally expected to yield between 1.2 and 1.5 billion barrels of oil but in 2006, surpassed 2.19 billion barrels and has currently produced more than 2.7 billion barrels. The field was second only to Prudhoe Bay in size at the time of its discovery. Production from the Kuparuk River Unit is about 23% of total TAPS production.

The **Colville River Unit** was formed in 1998 and was the first unit that didn't include a majority of state-only leases. Production began to move closer to the NPR-A and ventured onto Alaska Native lands, prompting new land and royalty management questions between the state and other entities. Since 1998, the Colville River Unit has contributed X barrels in total production, and in 2017 produced 62,901 barrels a day. The CD-5 drill site required an incredible feat of engineering in building the Nigliq channel bridge. The bridge was ranked number two in the country in 2016 by Roads and Bridges top 10 Bridged. The bridge comprises eight spans up to 200 feet long and provides access for heavy oilfield service vehicles weighing up to 175 tons at cost of \$100 million.

The **Northstar Unit** formed in 1990 and presented a unique engineering challenge. In order to reach the reservoir, the well had to be drilled from a manmade island in the Beaufort Sea. More than 700,000 cubic yards of gravel was brought in to bring the island above sea level and a subsea oil pipeline was built to deliver production to TAPS. The field has produced more than 171 million barrels since coming online and cost about \$685 million to initially develop.

The **Badami Unit** formed in 1995 and has seen recent exceptional successes having completed drilling to their Starfish prospect and anticipating another exploration well and possibly a second. Badami has produced more than 8.3 million barrels and was initially developed with \$300 million.

The **Cook Inlet** region has provided a mostly stable source of natural gas for more than 50 years to Anchorage, the Kenai, and surrounding areas. There are X# of platforms operating in the Cook Inlet. Hilcorp recently became operator of many of the Cook Inlet fields, and is working to replace and install subsea gas pipelines. Activity in the Cook Inlet recently saw an uptick with Hilcorp taking over, ensuring a stable gas supply for years to come. Anchor customers, like the Donlin Mine, or the Pebble Mine, increase the economic opportunity in the Inlet because they can commit to long term contracts.

Oil and Gas Exploration and Development

The **Alaska LNG** is the state run natural gas pipeline project. The project includes an 803 mile pipeline, a gas treatment plant on the Slope and an LNG facility in Nikiski and is estimated to cost \$43 billion. It will be designed to move more than 20 million tons of natural gas per year to

Pacific markets. The project is estimated to create 12,000 direct jobs during construction and 1,000 long-term operation jobs once completed. The Alaska Department of Labor estimated that the project's long term impact will generate 6,000 indirect jobs during construction and 500 indirect jobs during operations.

The National Petroleum Reserve, Alaska (**NPR-A**) is on the precipice of lots of activity. Oil production on state lands primarily comes from the Kuparuk River, Prudhoe Bay, and Colville River oil fields. **GMT-1** will come online at the end of 2018, though, signifying the first production that will come from federally owned lands entirely in the NPR-A. The project itself is estimated to cost nearly a billion dollars and will produce up to 30,000 barrels a day at peak production. **GMT-2** will have a similar, though slightly higher cost profile, at around \$1.5 billion and the **Willow** project, expected to consist of several drill sites and a central processing facility, is estimated to cost around \$5 billion to develop. As these projects are developed, high-paying experienced engineers and other oil field service workers will be in high demand.

The **Pikka Unit** is a large find on state land, just east of the Colville River Unit. Oil Search, a gas producer from Papua New Guinea recently bought into the field becoming the operator. Oil Search continues to put together a team to develop the unit, estimated to cost up to \$4 billion and will generate a commensurate demand for engineers and workers. First oil is expected in 2024 or 2025 and production will peak between 100,000 and 120,000 barrels a day.

Hilcorp, the dominant player in Cook Inlet, has also been expanding its North Slope footprint. Hilcorp is pursuing the **Liberty** project, recently sanctioned by the federal government, in federal waters. Hilcorp will operate from a manmade island and anticipates the field will produce about 70,000 barrels a day at peak and cost around \$400 million to develop. Hilcorp is also close to switching on **Moose Pad**. Another \$400 million investment, the pad is expected to produce between 16,000 and 18,000 barrels a day at peak.

Multiple exploration opportunities are scheduled or already taking place on the North Slope. The **Putu/Stony Hill** and **Horseshoe** wells look to be delineations of the formation the Pikka Unit is attempting to develop and may lead to a discovery. The **Winx** prospect has secured a drilling contract and is raising capital to engage in exploration near that same formation this year. Eni has announced they will drill a horizontal well from state lands into federal waters at a project called **Nikaitsuq North**. And Conoco has announced several exploration opportunities within its already existing units like **Cairn, Tarn, and Fiord West**.