

# Statewide and Port of Alaska Long Range Fuel Forecast

## November 20, 2020

### Executive Summary

Alaska fuel consumption generally follows national trends and is likely to remain flat into the foreseeable future. The outlook for Port of Alaska (PoA) fuel throughput is, however, less predictable, depending upon Ted Stevens Anchorage International Airport (ANC) and Department of Defense (DoD) demand.

Alaska fuel users consume approximately 40 million barrels of refined petroleum annually. Jet fuel accounts for about 44% of this consumption, distillate fuel oil 28%, and gasoline approximately 17%. Alaska petroleum fuel consumption has steadily declined in recent years, falling 22% overall between 2010 and 2018. Distillate fuel oil and jet fuel consumption declined 18% and 23%, respectively, but gasoline consumption remained relatively flat.

Port of Alaska provides a critical link in Alaska's fuel transportation chain and handles more than 40% of all petroleum products consumed statewide, either over the dock (dockside, from fuel barges and tankers) or through its valve yard (shoreside, via pipeline). About half of all jet fuel used at ANC typically moves through PoA as does nearly all gasoline consumed in Alaska.

In 2019, PoA fuel volume totaled 17.5 million barrels, including 10.3 million barrels dockside. The volume of fuel transported through PoA has grown significantly over the past few years, including a sharp increase in 2020 (up 27% through August, including a 41% increase in dockside volume).

Recognizing that there will be year-to-year variation, PoA total fuel throughput is likely to increase about 1% average annually, including 1.4% rate of annual growth in dockside fuel. At this growth rate, annual dockside fuel would reach 13.3 million barrels in 2030, and total dockside and shoreside fuel would reach 18.6 million barrels. PoA's 3.1 million gallons of fuel storage capacity should continue to adequately meet storage-related needs associated with this annual volume of fuel.

### Scope of Work

This analysis describes past, present, and likely future refined petroleum product consumption and shipments into Alaska. It is high-level and based on historical and most-recently published data from sources including U.S. Army Corps of Engineers Waterborne Statistics (for inbound marine shipment of refined petroleum products), U.S. Energy Information Administration (for Alaska fuel production and consumption data), Port of Alaska (fuel volumes moving through the port), and Ted Stevens Anchorage International Airport (airport-related fuel consumption). These sources and other research provide the data used to project likely future PoA fuel volumes.

## Inbound Fuel

U.S. Army Corps of Engineers (USACE) Waterborne Statistics report that in 2018 (the most recent available data), the Port of Alaska (PoA) received almost 9 million barrels of petroleum products. Domestic sources accounted for 2.8 million barrels while foreign sources accounted for 6.1 million barrels in 2018. “Kerosene” accounted for 98% of fuel received at the Port. Prior to 2016, most fuel imports were classified as “gasoline.” It is likely that most of the kerosene and gasoline were actually jet fuel and simply classified as “kerosene” or “gasoline” by the USACE. Relatively small amounts of other fuels are imported into Anchorage.

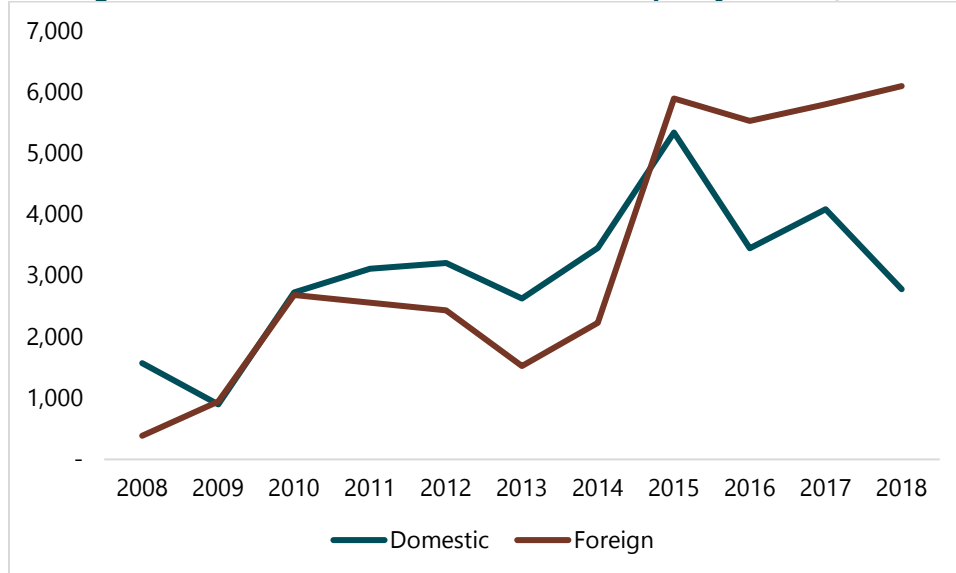
**Table 1. Anchorage Marine Inbound Petroleum Product Receipts by Type and Source  
(thousands of barrels)**

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Domestic</b>											
Gasoline	1,380	723	2,573	2,941	2,953	2,256	3,381	5,204	36	107	129
Kerosene	-	-	-	-	-	-	-	-	3,386	3,957	2,563
Distillate	44	1	-	0	59	81	24	95	-	-	62
Other	147	175	154	173	197	291	49	41	29	23	29
<b>Subtotal</b>	<b>1,571</b>	<b>899</b>	<b>2,727</b>	<b>3,115</b>	<b>3,208</b>	<b>2,628</b>	<b>3,454</b>	<b>5,340</b>	<b>3,451</b>	<b>4,087</b>	<b>2,782</b>
<b>Foreign</b>											
Gasoline	39	717	2,427	2,560	1,511	1,526	1,541	5,034	-	-	78
Kerosene	170	-	-	-	926	-	612	690	5,390	5,543	6,020
Distillate	177	230	259	-	-	-	78	172	136	257	-
Other	-	-	-	-	-	-	-	-	-	-	-
<b>Subtotal</b>	<b>386</b>	<b>948</b>	<b>2,686</b>	<b>2,560</b>	<b>2,437</b>	<b>1,526</b>	<b>2,231</b>	<b>5,896</b>	<b>5,527</b>	<b>5,800</b>	<b>6,098</b>
<b>Total</b>	<b>1,957</b>	<b>1,846</b>	<b>5,413</b>	<b>5,675</b>	<b>5,645</b>	<b>4,154</b>	<b>5,684</b>	<b>11,236</b>	<b>8,978</b>	<b>9,887</b>	<b>8,880</b>

Source: USACE Waterborne Statistics. Note: Data reflecting total inbound fuel differ from and are considered less reliable than data provided by PoA (see Table 4).

Petroleum product receipts at the Port dramatically increased in 2015 following the closure of the Flint Hills refinery in North Pole. That refinery had previously shipped significant quantities of jet fuel to Anchorage on the Alaska Railroad. Foreign fuel imports seem to have replaced most of the lost in-state fuel production from the refinery.

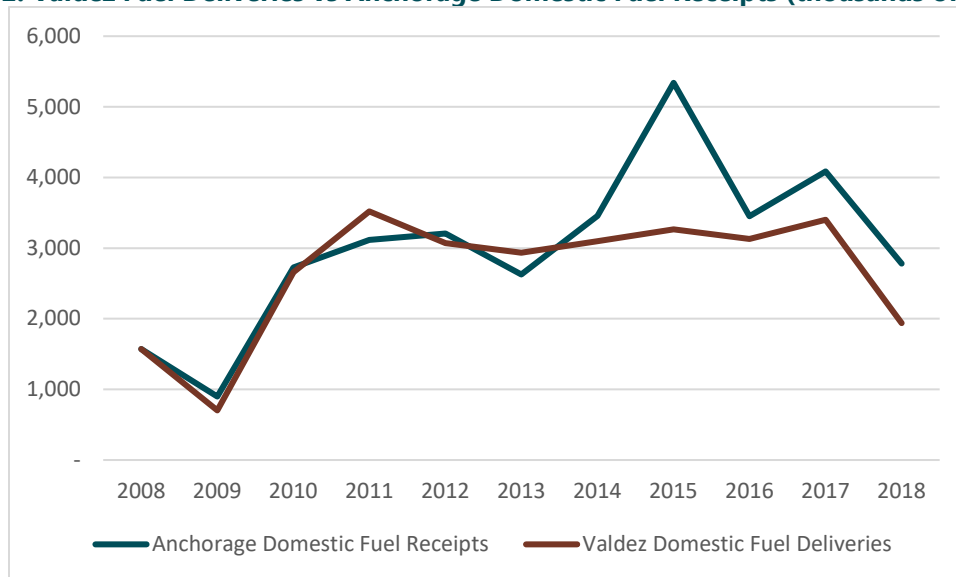
**Figure 1. Anchorage Marine Inbound Petroleum Product Receipts by Source (thousands of barrels)**



Source: USACE Waterborne Statistics

Most of the domestic petroleum product receipts at the PoA appear to be from Petro Star’s Valdez refinery. Petro Star leases tug and barge sets to transport refined product from its Valdez refinery to Anchorage and other Alaska markets. Petro Star recently entered a long-term lease with Crowley for a new tug and barge set with a 100,000-barrel capacity.

**Figure 2. Valdez Fuel Deliveries vs Anchorage Domestic Fuel Receipts (thousands of barrels)**



Source: USACE Waterborne Statistics

Each year since 2011, Alaska has been a net importer of refined petroleum product. This is likely the result of reduced product output and then the eventual closing of the Flint Hills refinery in North Pole in 2015. The table below excludes the flow of petroleum products between Alaska ports.

**Table 2. Alaska Petroleum Flows by Source/Destination (thousands of barrels)**

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Imports</b>											
California	85	83	-	135	150	111	-	-	-	-	77
Canada	182	167	255	280	203	283	240	243	360	264	303
Foreign	526	113	420	799	701	884	476	668	1,061	1,146	1,095
Other	-	-	-	70	92	-	-	-	-	-	-
Washington	291	255	267	370	408	546	461	684	523	665	419
<b>Subtotal</b>	<b>1,084</b>	<b>618</b>	<b>942</b>	<b>1,654</b>	<b>1,554</b>	<b>1,824</b>	<b>1,177</b>	<b>1,594</b>	<b>1,945</b>	<b>2,075</b>	<b>1,894</b>
<b>Exports</b>											
Foreign	1,493	1,205	704	769	500	527	397	576	745	444	569
Washington	862	803	550	399	362	283	436	424	386	462	367
<b>Subtotal</b>	<b>2,355</b>	<b>2,008</b>	<b>1,254</b>	<b>1,168</b>	<b>862</b>	<b>810</b>	<b>833</b>	<b>1,000</b>	<b>1,131</b>	<b>906</b>	<b>935</b>
<b>Net Exports (Imports)</b>	<b>1,271</b>	<b>1,391</b>	<b>312</b>	<b>(486)</b>	<b>(693)</b>	<b>(1,014)</b>	<b>(344)</b>	<b>(594)</b>	<b>(814)</b>	<b>(1,169)</b>	<b>(959)</b>

Source: USACE Waterborne Statistics, McDowell Group calculations

## Alaska Petroleum Consumption

Alaska consumed over 39 million barrels of petroleum products in 2018. This includes all refined petroleum products but excludes certain fuels such as ethanol, biodiesel, and still gas produced and used in refining. "Other Petroleum Products" include aviation gasoline, hydrocarbon gas liquids (including propane), kerosene, methanol, residual fuel oil, lubricants, asphalt, road oil, and probably unrefined hydrocarbons consumed by the oil and gas industry (see Table 3).

**Table 3. Alaska Petroleum Product Consumption by Type and Market (thousands of barrels)**

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Distillate</b>											
Commercial	1,226	1,093	1,924	1,743	1,481	1,170	1,264	1,520	1,034	1,141	1,289
Electric	651	594	489	568	510	560	507	581	807	880	844
Industrial	2,709	3,292	2,455	3,309	4,056	4,225	4,022	4,167	3,457	1,981	2,131
Residential	1,248	1,500	1,504	1,393	1,356	1,200	1,155	1,349	1,246	1,347	1,111
Transportation	7,186	7,987	7,388	7,643	6,375	5,550	5,738	5,949	4,618	4,908	5,952
<b>Subtotal</b>	<b>13,020</b>	<b>14,466</b>	<b>13,760</b>	<b>14,656</b>	<b>13,778</b>	<b>12,705</b>	<b>12,686</b>	<b>13,566</b>	<b>11,162</b>	<b>10,257</b>	<b>11,327</b>
<b>Jet Fuel</b>											
Transportation	23,817	18,746	22,726	20,851	19,966	18,931	16,932	18,148	18,491	17,725	17,539
<b>Subtotal</b>	<b>23,817</b>	<b>18,746</b>	<b>22,726</b>	<b>20,851</b>	<b>19,966</b>	<b>18,931</b>	<b>16,932</b>	<b>18,148</b>	<b>18,491</b>	<b>17,725</b>	<b>17,539</b>
<b>Gasoline</b>											
Commercial	116	64	157	128	95	85	72	300	153	104	104
Industrial	73	69	202	194	211	228	127	97	99	100	104
Transportation	6,518	6,575	6,518	6,321	6,355	6,169	6,564	6,481	6,715	6,575	6,485
<b>Subtotal</b>	<b>6,707</b>	<b>6,708</b>	<b>6,877</b>	<b>6,643</b>	<b>6,661</b>	<b>6,482</b>	<b>6,763</b>	<b>6,878</b>	<b>6,967</b>	<b>6,779</b>	<b>6,693</b>
<b>Other Petroleum Products</b>											
Commercial	226	195	166	181	198	204	199	170	176	177	194
Electric	197	546	306	232	376	94	119	116	-	-	-
Industrial	4,600	5,662	6,640	6,996	6,266	5,786	5,062	4,314	4,351	4,554	3,259
Residential	333	197	168	155	138	101	107	99	102	116	120
Transportation	471	288	307	330	293	220	215	353	325	325	334
<b>Subtotal</b>	<b>5,827</b>	<b>6,888</b>	<b>7,587</b>	<b>7,894</b>	<b>7,271</b>	<b>6,405</b>	<b>5,702</b>	<b>5,052</b>	<b>4,954</b>	<b>5,172</b>	<b>3,907</b>
<b>Total</b>	<b>49,371</b>	<b>46,808</b>	<b>50,950</b>	<b>50,044</b>	<b>47,676</b>	<b>44,523</b>	<b>42,083</b>	<b>43,644</b>	<b>41,574</b>	<b>39,933</b>	<b>39,466</b>

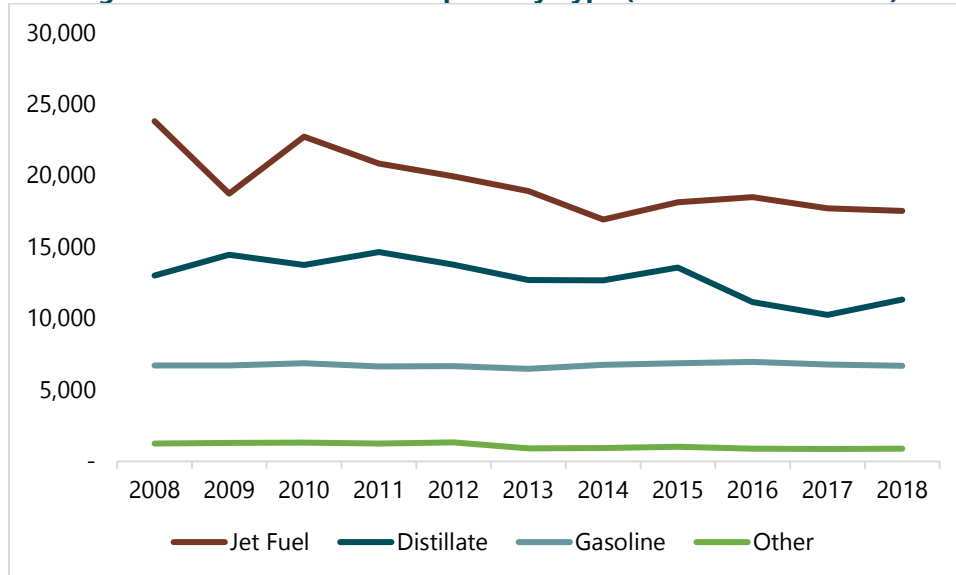
Source: US EIA, McDowell Group calculations

ANC reported a little more than 15 million barrels of jet fuel consumption in 2019. Fuel consumption data from prior years is not available but when comparing 2019 ANC jet fuel consumption to 2018 total Alaska jet fuel consumption of 17.5 million barrels, it appears that most of Alaska's jet fuel consumption takes place at ANC. It is unclear how the Energy Information Agency accounts for military jet fuel use and whether it is included in this data.

Alaska jet fuel consumption generally declined from 2008 until 2015 and has been relatively steady since. This generally matches the air cargo traffic at ANC. Future quantities of jet fuel consumption will largely be a function of ANC air cargo traffic.

The long-term decline in Alaska distillate fuel consumption, which includes diesel, is driven by changes in the industrial and transportation sectors, which are somewhat interrelated. The decrease is likely a function of reduced activity on the North Slope from 2015-2018 and a shift in fuel transportation from trucking to more efficient rail transport.

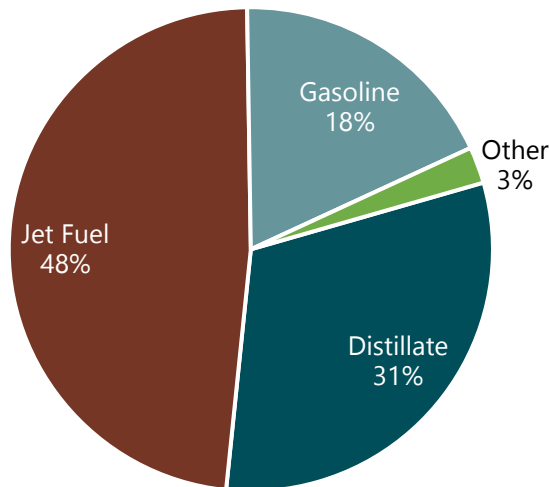
**Figure 3. Alaska Fuel Consumption by Type (thousands of barrels)**



Source: US EIA

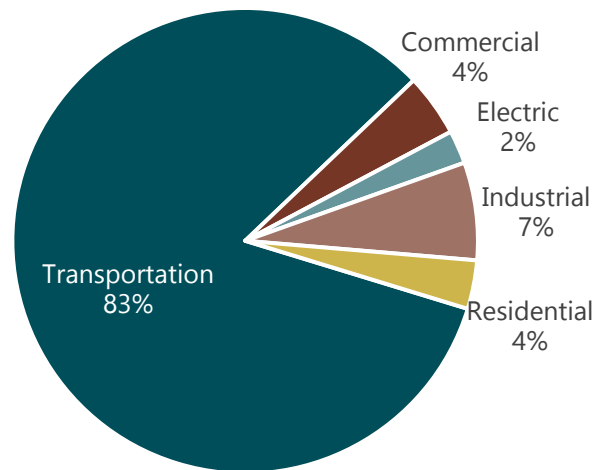
Jet fuel accounts for almost half of all petroleum products consumed in Alaska. This compares with about 1% of US petroleum consumption being jet fuel. The transportation sector consumes 83% of all petroleum products. The residential and commercial sectors combine for only 8% of petroleum product consumption.

**Figure 4. Alaska Fuel Consumption by Fuel Type (2018)**



Source: US EIA

**Figure 5. Alaska Fuel Consumption by Usage (2018)**



## Port of Alaska Fuel Volume

Fuel is transported through PoA in multiple ways. Fuel that is transported through the port by pipeline, rail, or truck is accounted for as "Shoreside" fuel. Fuel that is transported by ship or barge to or from the port in bulk is "dockside" fuel. Vessel fueling is accounted for as NOS (not otherwise specified).

Until 2015, PoA transported more fuel shoreside than it did dockside. After Flint Hills closed, the amount of dockside fuel transported through the Port more than doubled from about 4 million barrels in 2014 to over 11

million barrels in 2015. Since 2015 dockside fuel has been between 9 and 11 million barrels per year while shoreside fuel transport has steadily grown from a low of 2.6 million barrels in 2015 to 5.6 million barrels in 2019.

**Table 4. Port of Alaska Fuel Transport (thousands of barrels)**

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
NOS (vessel fueling)	12	14	10	18	14	35	6	10	909	1,558
Shoreside	8,352	9,642	7,329	6,671	6,415	2,579	2,582	3,303	3,543	5,617
Dockside (bulk)	6,460	6,526	5,812	4,104	4,064	11,151	9,938	9,307	11,023	10,325
<b>Total</b>	<b>14,823</b>	<b>16,183</b>	<b>13,151</b>	<b>10,793</b>	<b>10,493</b>	<b>13,765</b>	<b>12,526</b>	<b>12,621</b>	<b>15,475</b>	<b>17,500</b>

A portion of the shoreside fuel is shipped from the Marathon refinery in Kenai (formerly owned by Tesoro) to PoA by pipeline. This pipeline has a capacity of 48,000 barrels per day and regulatory filings indicate that about 13 million barrels of petroleum product were moved through the pipeline in 2019. Much of that fuel likely was transported directly to ANC but some may have also been piped to PoA. In addition, the Alaska Railroad transported about 1.5 million barrels of petroleum product in 2019. It is unclear which direction the fuel was transported but it is very likely that most this fuel was transported through PoA.

## Alaska Refining Capacity

The EIA reports that Alaska has five operating refineries. This count includes two “topping plants” on the North Slope owned and operated by BP/Hilcorp and ConocoPhillips. Both plants stopped producing diesel prior to 2010 as they were not able meet new rules requiring the use of ultra-low sulfur diesel. Since shutting down the topping plants all diesel fuel consumed on the North Slope must now be trucked on the Dalton Highway or transported by ocean during the summer months.

The Flint Hills refinery began to slow operations in 2013 before completely shutting down in 2015. Tesoro (now Marathon) purchased Flint Hills fuel terminal in Anchorage in 2015 and purchased the North Pole refinery and its storage assets in 2019.

**Table 5. Alaska Gross Refining Capacity (thousands of barrels/year)**

Company	Site	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
BP	Prudhoe Bay	5,200	5,200	2,900	4,750	4,750	4,750	4,750	2,900	2,900	2,900
Conoco Phillips	Prudhoe Bay	5,850	5,850	5,850	5,850	5,850	5,850	5,850	5,850	5,850	5,850
Flint Hills	North Pole	82,650	85,800	85,800	50,750	50,750	-	-	-	-	-
Petro Star	North Pole	8,200	8,200	8,200	8,200	8,200	8,200	8,200	8,200	8,200	8,200
Petro Star	Valdez	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900
Tesoro	Kenai	29,200	26,300	26,300	26,300	26,300	26,300	26,300	26,300	26,300	26,300
<b>Total</b>		<b>153,000</b>	<b>153,250</b>	<b>150,950</b>	<b>117,750</b>	<b>117,750</b>	<b>67,000</b>	<b>67,000</b>	<b>65,150</b>	<b>65,150</b>	<b>65,150</b>

Source: EIA, McDowell Group calculations

Petro Star’s two refineries as well as the shuttered Flint Hills refinery are located adjacent to the Trans Alaska Pipeline System (TAPS). These refineries are relatively simple facilities and only convert about 30% of the crude oil input into petroleum products. The remaining 70% is reinjected into TAPS. As a result, the net output of these refineries is only about 30% of the operating capacity reported by EIA.

**Table 6. Alaska Net Refining Capacity (thousands of barrels/year)**

Company	Site	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
BP	Prudhoe Bay	-	-	-	-	-	-	-	-	-	-
Conoco Phillips	Prudhoe Bay	-	-	-	-	-	-	-	-	-	-
Flint Hills	North Pole	24,800	25,750	25,750	15,250	15,250	-	-	-	-	-
Petro Star	North Pole	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450	2,450
Petro Star	Valdez	6,550	6,550	6,550	6,550	6,550	6,550	6,550	6,550	6,550	6,550
Tesoro	Kenai	29,200	26,300	26,300	26,300	26,300	26,300	26,300	26,300	26,300	26,300
<b>Total</b>		<b>63,000</b>	<b>61,050</b>	<b>61,050</b>	<b>50,550</b>	<b>50,550</b>	<b>35,300</b>	<b>35,300</b>	<b>35,300</b>	<b>35,300</b>	<b>35,300</b>

Source: EIA, McDowell Group calculations

## Port of Alaska Petroleum Product Storage

There are over 3.1 million barrels of fuel storage at PoA, owned by five different companies.

- Marathon is the largest fuel capacity owner and reports storing gasoline, ULSD, and jet fuel at the port<sup>1</sup>.
- Crowley, the second largest fuel capacity owner, serves DoD and most of its storage at the PoA is leased to the DoD. Crowley is also the primary aviation gasoline provider in Alaska.
- Menzies provides 90% of the fuel at ANC, relying on a pipeline from its jet fuel storage at PoA (which amounts to about half of the jet fuel used at ANC) and via pipeline from Marathon’s Kenai refinery.<sup>2</sup>
- Petro Star uses the storage at Terminal 1 to support fuel shipments from its Valdez refinery.
- Delta Western stores methanol at PoA.

**Table 7. Port of Alaska Fuel Storage (thousands of barrels)**

Company	Capacity
Marathon	1,322
Crowley	1,000
Menzies	554
Petro Star	195
Delta Western	50
<b>Total</b>	<b>3,121</b>

Source: Port of Alaska

<sup>1</sup> [http://www.commonwealthnorth.org/download/action\\_groups/Energy\\_Action\\_Coalition/2019/092719-EAC-Casey-Sullivan.pdf](http://www.commonwealthnorth.org/download/action_groups/Energy_Action_Coalition/2019/092719-EAC-Casey-Sullivan.pdf)

<sup>2</sup> <https://www.adn.com/business-economy/2017/09/06/anchorage-airport-fuelers-wont-strike-after-all/>



Tesoro (now Marathon) became the largest owner of fuel storage capacity at the port after its acquisition of Flint Hills' 580,000 barrels of capacity in 2016. To secure approval of the acquisition, Tesoro agreed with Alaska's attorney general to sell its fuel storage capacity at Terminal 1 to Petro Star. The attorney general determined that without the sale of the fuel storage capacity to a third party, Tesoro's acquisition of the Flint Hills' storage capacity would limit competitors' ability to import fuel through the port and impair competition for some fuel products, including gasoline<sup>3</sup>.

## EIA Projected Petroleum Product Consumption

The EIA forecasts that overall consumption of petroleum products in the United States to decline through 2035 before beginning to grow after 2040. Transportation, the largest consuming sector, is expected to decrease consumption by 11% over the next thirty years. This decline is offset by growth in the industrial sector which is expected to grow by almost 40%. The industrial sector includes petroleum products consumption in combined heat and power plants that have a non-regulatory status and small on-site generating systems. According to the EIA, combined heat and power plant consumption accounts for most of the increase in industrial petroleum product consumption. Alaska is not expected to experience a similar increase in industrial petroleum product consumption.

**Table 8. EIA Forecast of U.S. Petroleum Product Consumption by Sector (quadrillion Btu)**

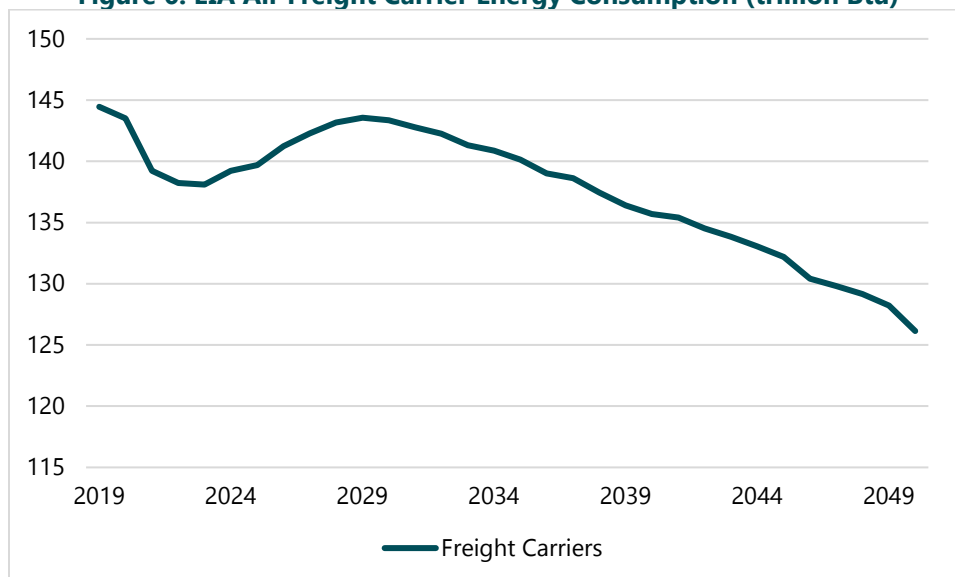
	2020	2025	2030	2035	2040	2045	2050	2020 - 2050	2020 - 2050
Residential	0.9	0.8	0.7	0.7	0.6	0.6	0.6	-0.3	-36%
Commercial	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0	1%
Industrial	8.8	9.5	10.1	10.7	11.1	11.6	12.3	3.5	39%
Transportation	27.3	25.7	24.6	24.0	23.6	23.9	24.4	-3.0	-11%
<b>Total</b>	<b>37.9</b>	<b>36.9</b>	<b>36.4</b>	<b>36.2</b>	<b>36.2</b>	<b>37.0</b>	<b>38.1</b>	<b>0.2</b>	<b>-0.1</b>

Source: EIA

Jet fuel accounts for almost half of petroleum product consumption in Alaska. This is largely driven by air cargo at ANC. EIA forecasts that U.S. air freight energy consumption will decline sharply through 2023 before rising through 2029. After 2029, energy consumption by U.S. air freight carriers will begin a long-term decline. This is likely a function of both increased aircraft fuel efficiency and a decrease in U.S. air freight traffic.

<sup>3</sup> <http://www.law.state.ak.us/press/releases/2016/062116-FuelMarkets.html>

**Figure 6. EIA Air Freight Carrier Energy Consumption (trillion Btu)**



Source: EIA

## Alaska Industry Outlook

### Ted Stevens Anchorage International Airport (ANC)

ANC is a global cargo hub as its location allows for freighters transporting cargo between North America and Asia to increase payload by refueling in Anchorage. Typically, about 50% of all air cargo transported between Asia and North America is flown through Anchorage for refueling. Boeing projects air cargo between North America and Asia to grow at 4.7% per year through 2037<sup>4</sup>. Anchorage is expected to maintain its position as a refueling hub and should be expected to grow at a similar rate.

### Department of Defense (DoD)

DoD fuel use is dependent on decisions by the U.S. government. The DoD recently selected Eielson Air Force Base in North Pole to host multiple squadrons of F-35 fighter jets. This should increase the demand for jet fuel for the foreseeable future. Petro Star's North Pole facility will probably not be able to supply all of Eielson's jet fuel requirements and additional jet fuel will be needed. Most of that jet fuel is expected to be shipped in through PoA. JBER recently installed an alternative jet fuel header. This new header is only expected to serve as back up to supply from PoA.

The DoD recently awarded Crowley a contract to build and operate 500,000 barrels of storage capacity in Fairbanks to support Eielson Air Force Base and Fort Wainwright. This fuel storage facility will likely be supplied by fuel refined in Petro Star's North Pole refinery or transported through PoA. Crowley's Fairbanks storage is in addition to the fuel capacity at PoA that Crowley purchased in 2011 and expanded in 2015 to

<sup>4</sup> <https://www.boeing.com/commercial/market/cargo-forecast/>

support the DoD<sup>5</sup>. In 2015, the DoD awarded Crowley a \$71.4 million contract for ten years of fuel storage capacity in Anchorage<sup>6</sup>.

In Fiscal Year 2019, the DoD reported awarding Petro Star \$134.6 million worth of contracts for petroleum products in Alaska<sup>7</sup>. The DoD reported purchasing only \$19.4 million of petroleum product from Crowley in Fiscal Year 2019<sup>8</sup> so it is likely that the DoD purchases most of its fuel from Petro Star with Crowley providing storage at PoA.

## Oil Industry

The North Slope oil industry’s future is uncertain as production has been consistently decreasing since 2000. Multiple large construction projects and the operations of existing fields have historically driven petroleum product consumption. Several large projects are currently being planned. If these projects are sanctioned the industry would be expected to continue to consume significant amounts of petroleum products. Much of the North Slope fuel is transported through PoA and, barring any disruptions in North Slope investment, the oil industry will continue to utilize PoA’s fuel infrastructure.

## Alaska Population Forecast

In April 2020, the Alaska Department of Labor and Workforce Development (DOLWD) forecasted three different cases for Alaska population change. The mid case projects steady population growth through 2045, with an average growth rate of about 0.4% per year. The mid case assumes net migration of -0.1% per year with population growth being driven by natural increase (more births than deaths). The low and mid case are based on annual net migration rates of -1% and 1%, respectively. Alaska’s net migration rate has historically been dependent on the relative strength of Alaska’s economy when compared with the Lower 48.

**Table 9. Alaska Population Projections**

	2020	2025	2030	2035	2040	2045	2020 - 2045	2020 - 2045
Low Case	729,381	717,539	700,490	679,918	656,797	631,738	-97,643	-13%
Mid Case	731,566	753,360	771,767	787,706	801,596	813,822	82,256	11%
High Case	743,909	809,814	878,752	951,532	1,028,643	1,110,932	367,023	49%

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

DOLWD’s long-range population forecast was prepared prior to the coronavirus pandemic. The long-term population implications of the economic shock stemming from the pandemic are uncertain, though the high-case population forecast may now be the least likely.

<sup>5</sup><https://www.crowley.com/news-and-media/press-releases/defense-logistics-agency-energy-awards-strategic-bulk-fuel-storage-contract-to-crowley/>

<sup>6</sup> [https://www.usaspending.gov/award/CONT\\_AWD\\_SPE60015C5024\\_9700\\_-NONE\\_-NONE-/](https://www.usaspending.gov/award/CONT_AWD_SPE60015C5024_9700_-NONE_-NONE-/)

<sup>7</sup> <https://www.usaspending.gov/recipient/f1535d71-3d16-b58f-a761-5f7deefcad42-C/2019>

<sup>8</sup> <https://www.usaspending.gov/recipient/c4d9cddb-6d50-3dfa-71c4-e04107546e6e-C/2019>

## Summary and Outlook

Approximately 40 million barrels of refined petroleum products are consumed annually in Alaska. Varying somewhat year-to-year, jet fuel accounts for about 44% of that consumption, distillate fuel oil about 28%, and gasoline approximately 17%. Slightly less than half (44%) of that total volume moves through PoA, either over the dock or through the valve yard (based on 2018 and 2019 data).

Total petroleum fuel consumption in Alaska has been declining steadily, falling 22% overall between 2010 and 2018, according to EIA data. Over that period, distillate fuel oil and jet fuel consumption have declined (by 18% and 23%, respectively) while gasoline consumption has been relatively steady. (Data for 2019 and 2020, when available, will likely show growth in jet fuel consumption.)

The volume of fuel transported through PoA has grown each of the last two years, including 13% between 2017 and 2018 and 9% between 2018 and 2019 (excluding non-NOS fuel for vessel fueling). Through the first eight months of 2020, PoA is on track to transport 27% more fuel than 2019. This sharp increase is being driven by several factors, including a pandemic-related increase in air freighter traffic through Anchorage. Normally about one-quarter of all air freight moved between U.S. and Asia is carried in the bellies of trans-Pacific passenger planes. Beginning in March those planes were largely grounded due to the pandemic and much of the associated freight was instead routed through Anchorage. Air freight volume through Anchorage was up 14.5% in the second quarter of 2020, compared to the same period in 2019. The increase in 2020 fuel volume through PoA is also the result of buyers taking advantage of very low global fuel prices and topping off storage capacity around the state. In addition, some of the increase in 2020 is the result of a continuing ramp-up of arrivals by barge from the Valdez refinery. The growth in fuel volume through PoA seen in 2020 will slow as trans-Pacific passenger flights resume. Little or no further increase in the volume of fuel moving from the Valdez refinery to PoA is expected.

Over the long term, several factors will drive the volume of fuel consumed in Alaska and transported through PoA, including:

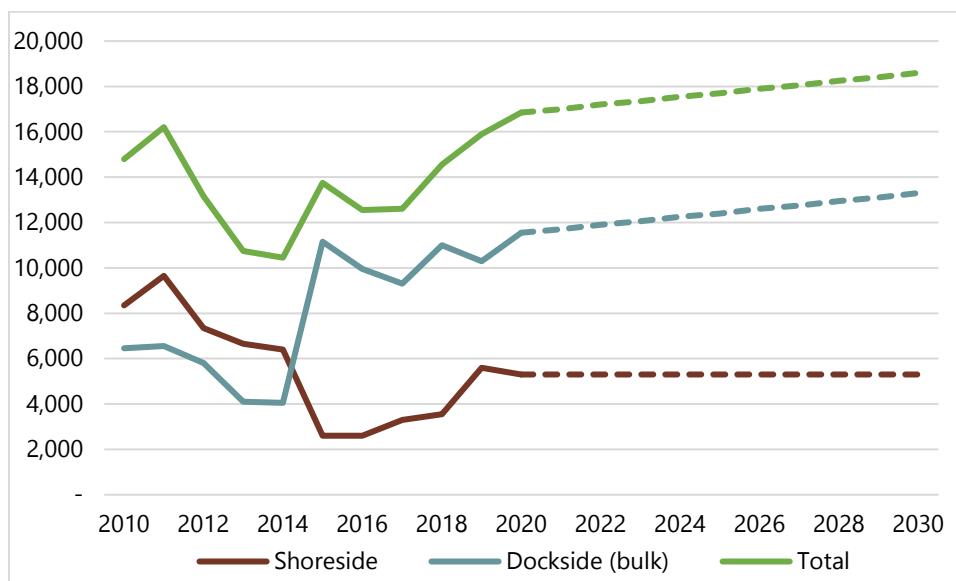
- **In-state refinery production:** No new refinery capacity is expected in Alaska and the general petroleum product transportation patterns that have been in place since the closing of the Flint Hills refinery should persist. As a result, the amount of fuel produced in-state is expected to stay static and any additional fuel requirements would be imported. Shoreside fuel transported through PoA are largely tied to in-state refinery production and is expected to remain steady at around 5.3 million barrels per year. Any projected growth of PoA fuel transports would be expected to come from increased dockside transports.
- **Population growth:** While Alaska's population has been declining in recent years, published forecasts suggest generally slow population growth in Alaska over the long-term. Any increase in fuel consumption that might otherwise be driven by population growth will most likely be offset by increasing fuel (energy) efficiency and measures to lower household-level carbon footprint.
- **Economic and industrial growth:** Long-range economic forecasts for Alaska are not routinely published and therefore not available for purposes of this analysis. In general, it is reasonable to

expect relatively slow economic growth (consistent with population growth). Alaska’s key economic drivers are the oil and gas industry, the seafood industry, tourism, and military activity. None of these sectors is expected to be the source of a significant growth in fuel consumption in Alaska over the long-term, though military activity is difficult to forecast. Until COVID-19, the tourism industry was the fastest-growing sector. The pace of recovery following COVID-19 is uncertain but over the long term, the visitor industry should return to a growth trajectory. Industrial development wildcards include potential development of the Willow and Pikka prospects, which could spur demand for fuel on the North Slope. Mine development in the Ambler region would also increase demand for fuel. Gas line construction is a single project that could generate a significant one-time spike in fuel demand. Longer-term ANWR development has potential to stimulate significant additional oil industry fuel demand.

- Jet fuel consumption:** Any significant change in in-state fuel consumption would be driven by demand for jet fuel from ANC and DoD. Both are expected to have increased demand for fuel. ANC air freight growth is expected to be consistent with overall growth in the global airfreight business, with a potential for accelerated growth associated with development of cargo handling and cold storage facilities at ANC. DoD fuel consumption is likely to grow with deployment of F-35’s at Eielson, in particular, and a likely uptick in military monitoring activity associated with increasing Russian presence in the Arctic.

In summary, total fuel consumption in Alaska is expected to be generally flat for the foreseeable future (after stabilizing following pandemic-related disruptions). The outlook for volume of fuel through PoA is somewhat less predictable, due to uncertainty about future ANC and DoD demand. The following graph illustrates a 1% annual growth rate for fuel transported through the PoA, including 1.4% rate of growth in dockside fuel. At that growth rate, by 2030, dockside fuel would total 13.3 million barrels and total dockside and shoreside fuel would reach 18.6 million barrels.

**Figure 7. Historic and Projected Fuel Transported through the Port of Alaska (thousands of barrels)**



Source: Port of Alaska, Forecasts are McDowell Group calculations.