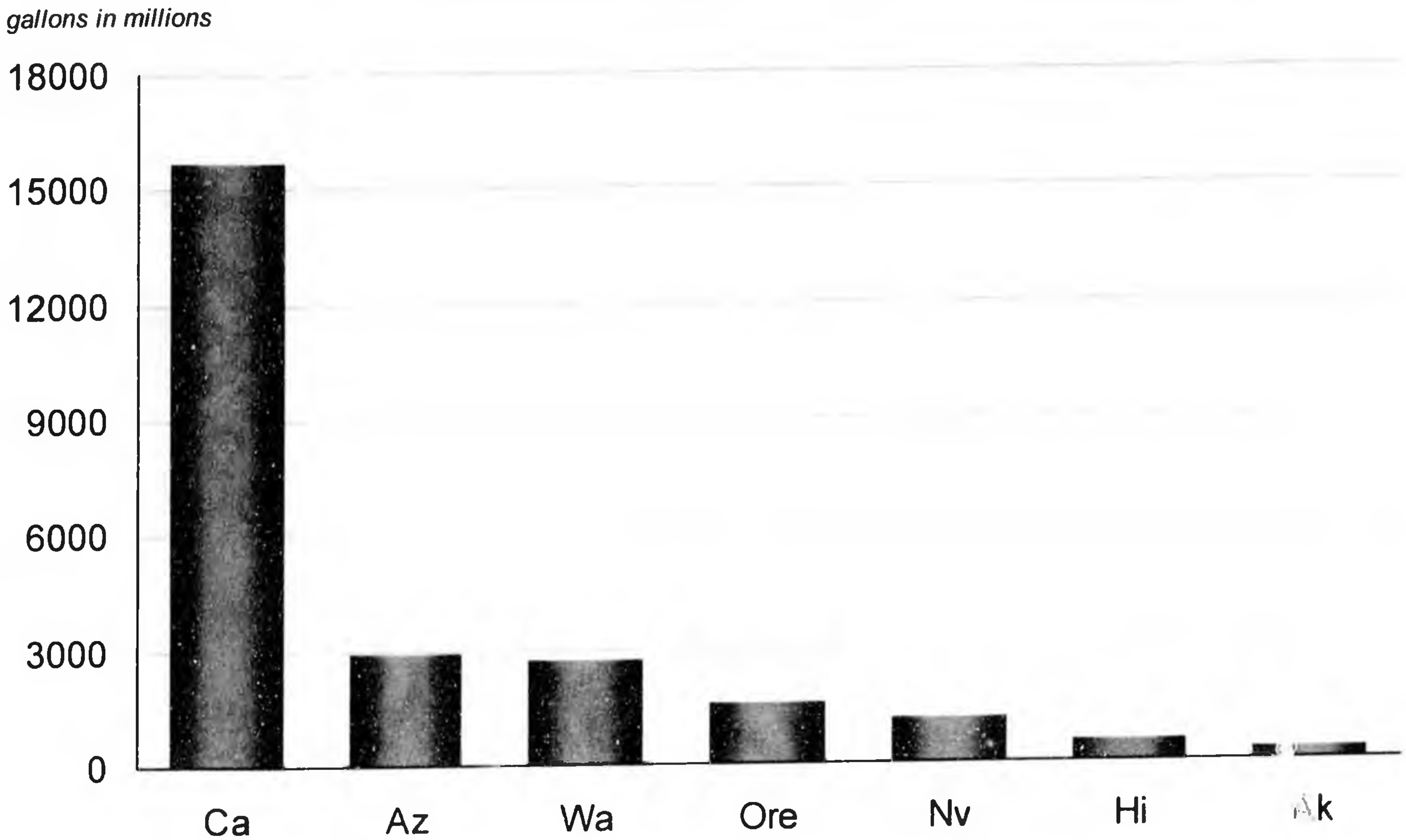
12143 HOUSE JUDICIARY

Alaska and Other Western Markets

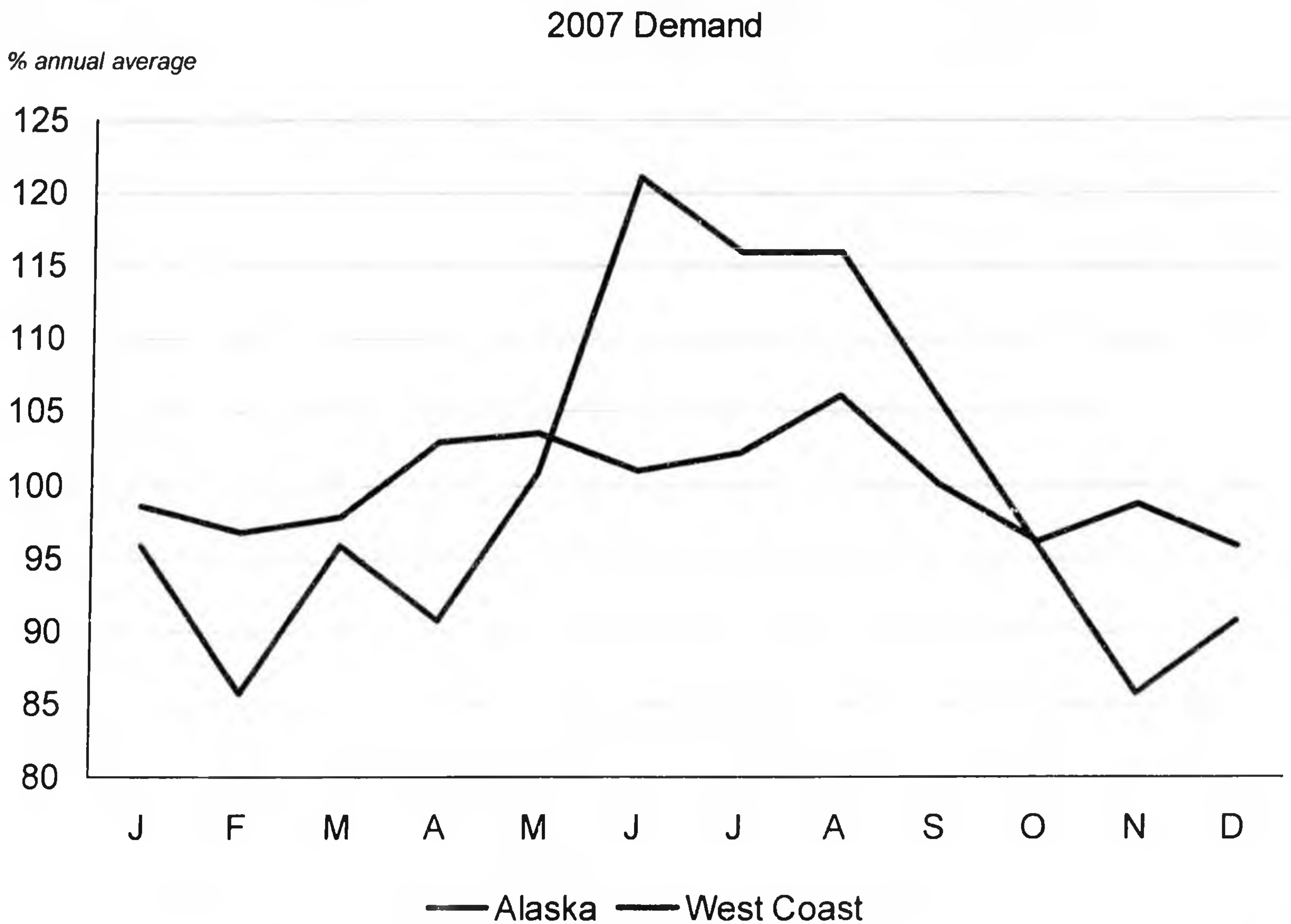
2007 Gasoline Demand



Source: Federal Highway Administration

TESORO

Alaska Market Shows More Seasonality



Source: Federal Highway Administration, DOE

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What We Would Like To Emphasize

- Retail prices are set by individual retail owners
- Retail prices respond to differing local conditions
- The Alaska market is very small and very seasonal
- Tesoro only prices 29 stations of 566 in the state
- Tesoro will respond to the AG investigation with confidential information that cannot be shared in an open forum

TESORO

5

Section Five

Alaska Refining
Sales and Consumption

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Alaska Refineries

Alaska is a leading supplier of United States crude oil, ranking second in crude oil production (excluding federal offshore production), according to the U.S. Department of Energy, Energy Information Administration. Prudhoe Bay on Alaska's North Slope is the highest yielding oil field in the United States, producing approximately 400,000 barrels per day. The trans-Alaska oil pipeline system (TAPS) throughput peaked at 2.1 million barrels of crude oil per day from North Slope oil fields to the Port of Valdez in 1988. In 2006, North Slope production had dropped to 781,000 barrels per day. From Valdez, North Slope crude is shipped primarily to refineries in Washington and California.

The state's six refineries have a combined crude distillation capacity of about 373,500 barrels per day. Five of the six facilities are "topping" plants which only remove the lighter, higher valued transportation fuels from the crude oil stream while injecting the degraded bottoms back into the crude oil in the pipelines serving the refineries.

As shown in Table V.1, two small refineries, owned by the Prudhoe Bay Unit and the Kuparuk River Unit, are located on the North Slope. The remaining four refineries are located in North Pole near Fairbanks, Nikiski on the Kenai Peninsula, and at Valdez near the TAPS marine terminal. These refineries serve a variety of residential, commercial, industrial, and transportation sectors across the state.

Table V.1 Alaska Refineries and Service Stations

Refinery	Location	Distillation Capacity (Barrels Per Day)
Flint Hills Resources AK LLC (FHR)	North Pole	210,000
Tesoro Petroleum Corp	Nikiski (Kenai)	72,000
Petro Star Inc.	Valdez	48,000
Petro Star Inc.	North Pole	17,000
ConocoPhillips AK, Inc.	Kuparuk	14,000
BP Exploration (Alaska) Inc.	Prudhoe Bay	12,500
Total Distillation Capacity		*373,500*
Gasoline Service Stations	Statewide	460 Outlets

Alaska North Slope (ANS) oil comes from several units. The quality of the crude produced from each unit is somewhat different. To properly account for the difference in quality and value of the streams coming from the different units, each unit is assigned a quality bank value. The quality bank is the method of making monetary adjustments among shippers of ANS oil which either compensates or charges a shipper for the difference in quality between the crude oil tendered by that shipper at the unit LACT meter and the crude oil received by that shipper at the destination point. Through the quality bank process, the total payments paid by shippers equal the total payments received by shippers. The current methodology values the tendered crude oil on the value of the components of the oil. Similarly, the refineries in North Pole and Valdez take oil out of TAPS, extract the valuable components of the oil in manufacturing petroleum products, and inject into the pipeline a mixture of lower-valued components. The return streams from the refineries bear a quality bank payment to each of the shippers of the passing TAPS stream.

Flint Hills Resources Alaska (FHR) acquired its North Pole refinery – Alaska's largest – from Williams Alaska Petroleum, Inc., in 2004. FHR also owns a 700,000-barrel jet fuel terminal in Anchorage, and a 20,000-barrel jet fuel terminal in Fairbanks. The North Pole refinery, expanded in 1998, receives North Slope crude via TAPS and has a crude oil throughput of about 226,500 barrels per day; however, only about 60,000 barrels per day was refined into products for sale and the rest was injected back into TAPS. FHR processes North Slope crude and supplies gasoline, jet fuel, heating oil, diesel, gas oil, and asphalt to local and international markets. About 60 percent of the refinery's production goes to the aviation market. The company also owns and operates products terminals in Fairbanks and Anchorage that store and distribute asphalt, diesel, jet fuel, and gasoline produced at the North Pole refinery.

Constructed in 1965, the FHR Anchorage Terminal receives products from the North Pole Refinery via tank cars delivered by the Alaska Railroad. In 2006, more than 25,000 tank cars were delivered and offloaded. Each tank car holds approximately 550 barrels of product. Product from the FHR Anchorage terminal is distributed via pipeline, truck and rail racks locally and to locations throughout Alaska. The FHR Anchorage terminal facility can store more than 700,000 barrels of refined products. A pipeline system extends from the terminal one-half mile away to the Port of Anchorage and enables bulk fuel transfers to and from other terminals and vessels berthed at the Port of Anchorage municipal docks. The terminal loads an average of 60 to 80 vessels annually with refined product. The Fairbanks Terminal stores, in bulk, jet fuel that is delivered by tanker truck from the refinery. Jet fuel is loaded from tanks into 10,000-gallon aircraft refueling trucks called fuel tenders, or "DARTS," and delivered to airline customers. The DARTS fuel 18 to 24 flights per day. The Fairbanks Terminal was built in the early 1970s. The company produces low-sulfur gasoline at the North Pole Refinery and purchases ultra-low-sulfur diesel from other sources to meet local demand. FHR has also retrofitted its fuel terminals in North Pole and Anchorage to handle low-sulfur fuels.

Flint Hills North Pole refinery production by volume

Gasoline & Naphtha	10%
Jet Fuel/#1 Fuel Oil	77
#2 Diesel	8
Gas Oil	4
Asphalt	1
Total	100%

FHR transported about 1.4 million gallons per day of jet fuel in 2006, and about 70,000 gallons per day of gasoline by rail to Southcentral Alaska. The North Pole refinery accounts for more than half of Anchorage jet fuel consumption. FHR purchases between 56,000 and 77,000 barrels per day of Alaska royalty oil per its state royalty contract.[1]

[1] Flint Hills Resources, LP; www.fhr.com/alaska/
and ADNR. Division of Oil and Gas http://www.dog.dnr.state.ak.us/oil/programs/royalty/rik_sale/flint_appx_a.pdf

Tesoro Corporation operates Alaska's first oil refinery, which opened in Nikiski in 1969 and currently has a throughput capacity of 72,000 barrels per day. The refinery processes all of the oil produced in Cook Inlet and supplements this supply primarily with Alaska North Slope and foreign crudes. In December 1994, Tesoro completed installation of a vacuum unit at Nikiski. The vacuum unit reduces the volume of bottoms and residual production by approximately half. The Nikiski refinery produces an average of approximately 55,000 barrels per day of petroleum products to serve its 125 Tesoro-branded retail stations and other customers across the state. Process units at the refinery include a hydrocracker that is used to maximize the production of jet fuel for sale at Ted Stevens Anchorage International Airport, where the refinery serves about 40 percent of the total monthly jet fuel demand. A 75-mile, 10-inch, multi-product pipeline traverses Cook Inlet from Nikiski to Tesoro's terminal facility located at the Port of Anchorage. A pipeline spur allows direct delivery into the airport's tank farm.

Asphalt produced at Nikiski is sold in Alaska. Nearly all of the remaining heavy oil, for which there is no local market, is exported to other states. Tesoro sells all of its summer gasoline production in the state, but must ship gasoline and diesel to markets in the Pacific Northwest during the winter season. As an example of the synergies, Tesoro capitalizes on its refineries by shipping heavy vacuum gas oil to its Anacortes, Wash., refinery where it is used as a feedstock to produce gasoline.

Tesoro Nikiski refinery production by volume:

Gasoline & Naphtha	28%
Jet Fuel	45-55
Diesel	
Gas Oil	
Bottoms/Resid (Asphalt)	22
Total	100%

Petro Star Inc. (PSI) operates refineries in North Pole and Valdez and is owned by the Arctic Slope Regional Corp. Petro Star was founded in 1984 to process light fuels for heating homes and operating businesses in rural Alaska and built its first refinery at North Pole in 1984. Petro Star acquired fuel distribution companies, including Sourdough Fuel in 1986, and began to distribute its products throughout Interior Alaska and the Arctic Slope, including Prudhoe Bay. In 1991, Petro Star expanded into the lubricants market with the purchase of Alaska Lube and Fuel, now known as PSI Lubricants. Also that year, plans for a larger refinery in Valdez got under way. By 1993, the PSI Valdez Refinery began continuous operations. PSI began servicing military and commercial aviation clients in Anchorage in 1994. Today, jet fuel production is the refinery's largest business sector. The company acquired Valdez Petroleum Terminal in the mid-1990s and began serving customers in western Alaska with the purchase of Kodiak Oil Sales in 1997 and North Pacific Fuel in 1998.

PSI's smaller North Pole refinery has throughput capacity of 18,000 barrels per day; while the Valdez refinery processes 48,000 barrels per day. Both refineries are relatively small scale, located adjacent to TAPS and process ANS crude oil. Approximately 25 percent of the throughput is retained as product and refinery fuel with the balance returned to TAPS in a similar manner to the Flint Hills North Pole refinery.

Petro Star North Pole and Valdez refinery production by volume:

Jet Fuel / # 1 Fuel Oil	68%
Diesel / # 2 Heating Oil	32
Total	100%

The main function of the BP-operated Prudhoe Bay Unit Crude Oil Topping Unit (COTU) is to provide arctic heating fuel (AHF) for the operation of North Slope equipment and drilling operations. The COTU currently receives crude oil for processing from the Endicott/Badami/FS2 oil transit line (OTL). After the AHF is distilled from the crude, all remaining residual oil, naptha and trace water are re-injected into the OTL. The supply and return volumes are metered and recorded.

The COTU consists of two parallel distillation plants that are very similar in equipment and operation. The incoming crude is split between the two plants. Each plant then heats the crude to approximately 550 degrees Fahrenheit and distills off the AHF in a simple distillation tower. This AHF is sent to their storage tanks and the remaining fluids are recombined and re-injected back into the OTL. Each plant is capable of processing approximately 7,000 to 8,000 Bbls per day of crude oil with a production of 1,200 to 1,400 Bbls per day of AHF. The production of Jet-A is done on a periodic batch basis and is the same operation with similar production figures. AHF and Jet-A are the only products the COTU produces for distribution. As stated, the main function of the COTU is to provide AHF for the Prudhoe Bay operation. The majority of the production is distributed for this purpose. The remaining production that is in excess of the unit's requirements is distributed to non-Prudhoe Bay operations. The COTU does not ship any AHF or Jet-A south of the Brooks Range for sale or distribution.

BP Prudhoe Bay Crude Oil Topping Unit production by volume:

Arctic Heating Fuel (Diesel)	97%
3% Jet–A	3
Total	100%

The ConocoPhillips-operated Kuparuk Unit Topping Plant is designed to process pipeline-quality crude oil feedstock from Central Processing Facility #1 (CPF1) for support of drilling and production operations. This feedstock is sent through a distillation process to extract AHF. The AHF is extracted from the distillation tower and further processed to control the flashpoint of the fuel before being transferred to a storage facility where the various users can take delivery. The plant processes approximately 14,500 barrels per day of crude-oil feedstock, which results in a yield of 1,700 to 2,400 barrels per day of AHF, depending on specific end product requirements.

ConocoPhillips – Kuparuk Crude Oil Topping Unit production by volume:

Arctic Heating Fuel	100%

Statewide Total Fuel Consumption

In-state consumption of refined products includes in-state production and imports. Sales volumes, a proxy indicator for consumption, are reported by the U.S. Department of Energy, Energy Information Administration[2] (EIA) in its *Petroleum Marketing Annual* and the Alaska Department of Revenue (ADOR) in its fuel sales tax reports. Total or gross annual fuel sales volume and price by major product type are summarized in Tables V.2.A and B. Annual gross fuel sales volumes increase over time for most products, except for No. 2 diesel fuel. Annual jet fuel sales volumes show a steady increase over the time period, despite slight declines in 2001 and 2003. The jet fuel decline in 2003 was probably related to a sharp nationwide decline in commercial aviation. Alaska's refineries supply approximately 88 percent of in-state jet fuel consumed based on EIA data on prime supplier sales.

Table V.2.A Prime Supplier Sales for Alaska, 1995 – 2006

(Thousands of Gallons per Day) Alaska Prime Supplier Sales Volumes of Petroleum Products

Year	Total Gasoline[a]	Aviation Gasoline	Kerosene Type Jet Fuel	Propane	No. 1 Distillate	No. 2 Diesel Fuel	No. 2 Fuel Oil	Total Fuel Sold
1995	691.9	49.9	1,714.7	W	243.2	W	280.2	2979.9
1996	698.8	46.4	1,935.3	40.2	219.6	W	277.1	3217.4
1997	694.6	47.4	2,193.2	W	255.0	W	421.7	3611.9
1998	771.4	57.6	2,285.2	W	254.8	427.7	357.4	4154.1
1999	784.4	58.7	2,434.4	W	276.6	467.2	295.9	4317.2
2000	744.8	58.7	2,502.9	W	216.7	396.5	287.6	4207.2
2001	761.2	61.2	2,461.9	W	233.6	462.5	227.4	4207.8
2002	755.2	55.3	2,777.1	W	233.9	512.8	W	4334.3
2003	784.0	W	2,627.4	W	185.9	551.8	W	4149.1
2004	826.8	W	2,970.9	W	162.8	361.9	263	4585.4
2005	838.0	W	3,201.9	32.3	W	298.9	300.7	4671.8
2006	778.9	W	3,080.9	30.9	W	W	270.4	4161.1

In the last 10 years, all product prices have nearly doubled. Propane sales volume data is limited, but a flattening consumption trend is evident since the mid-1990s. Alaska propane price data are not available.

Table V.2.B Prime Supplier Alaska Petroleum Product Prices, 1995 – 2006

(Dollars per Gallon – Taxes Excluded) Alaska Prices, Sales Volumes and Stocks

Year	Total Gasoline[a]	Aviation Gasoline	Kerosene Type Jet Fuel	No. 1 Distillate	No. 2 Diesel Fuel	No. 2 Fuel Oil
1995	1.13	W	0.61	0.75	0.82	0.83
1996	1.20	W	0.71	0.74	1.06	0.91
1997	1.18	W	0.67	0.67	1.08	0.97
1998	0.99	W	0.49	0.57	0.91	0.85
1999	1.00	W	0.61	0.81	0.81	0.97
2000	1.33	1.49	0.96	1.02	W	1.34
2001	1.38	W	0.81	0.83	1.26	1.38
2002	1.29	W	0.76	0.84	1.10	1.09
2003	1.48	W	0.90	W	1.29	1.24
2004	1.70	W	1.30	1.26	1.54	1.52
2005	2.09	W	1.77	W	2.04	2.06
2006	2.40	W	2.05	W	2.42	2.40

Table Notes:

[a] Includes regular, mid-grade, and premium blends of motor gasoline.

[W] Withheld to avoid disclosure of individual company data. Source: Energy Information Administration, U.S. DOE, Prime Supplier Sales in Alaska

[2] Fuel consumed is based on EIA data on prime supplier sales. Prime suppliers include firms that produce, import, or transport petroleum products across state boundaries and local marketing areas and sell the products to local distributors, local retailers, or end users. According to the EIA, prime supplier sales within a given state may serve as a proxy for consumption but may not equal actual consumption by the end-users in the state because a product may be sold by a prime supplier in one state and transported by local distributors to another state for final consumption. Price data for 2006 may be subject to revision upon final publication in the Petroleum Marketing Annual.
No. 2 diesel fuel and No. 2 fuel oil prices and sales volumes are classified in accordance to what the product was sold as, regardless of the actual specifications of that product (i.e., if a No. 2 distillate was sold as a heating oil or fuel oil, the volume and price would be published in the category "No. 2 Fuel Oil" even if the product conformed to the higher specifications of a diesel fuel.

Seasonal Taxable Aviation Gas, Jet Fuel, Motor Gas and Diesel Sales

Seasonal fuel sales shown in Figures V.3 through V.6 represent taxable sales only and are less than the total sold in any given month. The range (maximum and minimum values) of monthly sales over the six-year period 2001–2006 is presented as the shaded region in each of the four figures. Monthly sales during 2006 are shown with a black line within the shaded high-low range. Aviation gas sales for 2006 were near the historic low for the six-year period, whereas jet fuel sales in 2006 were high compared to previous years during the period. Motor gas sales tend to fluctuate between the upper and lower limits of its range while diesel sales tend to be at the peak range.

ADOR reported fuel sales totals do not match the monthly figures published by the EIA.[3] The primary reason for the difference is the ADOR totals represent taxable values, whereas the EIA prime supplier sales volumes are based on total sales volumes. The EIA reported prime supplier sales include firms that produce, import, or transport petroleum products across state boundaries and local marketing areas and sell the products to local distributors, local retailers, or end users. According to the EIA, prime supplier sales within a given state may serve as a proxy for consumption but may not equal actual consumption by the end-users in the state because a product may be sold by a prime supplier in one state and transported by local distributors to another state for final consumption. The largest discrepancy between EIA and ADOR data is in jet fuel, and is probably due to jet fuel used in commercial foreign flights.[4] ADOR data excludes jet fuel purchased in Alaska that is used in commercial flights that originated in a foreign country or where the next destination is a foreign country. For example, several international airlines refuel in Anchorage where the flight originated, say, in Korea or Hong Kong. Even if the flight is then destined for a U.S. city, the fuel is tax-exempt under AS 43.40.100(2)(B)(i). ADOR data includes only that fuel upon which the excise tax was due or collected. [5,6]

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[3] The monthly EIA data contain numerous missing values, which limits its applicability

[4] The primary reason for the difference is ADOR totals only count taxable volume, whereas, the EIA, Prime Supplier Sales Volumes are based on total or gross statewide sales. For the period 2001 through 2006, the ADOR taxable portion averages approximately 80% of the EIA total for all products except Jet Fuel, which averages 20 percent of the EIA reported total.

[5] Source: Energy Information Administration, U.S. DOE, Prime Supplier Sales in Alaska. http://tonto.eia.doe.gov/dnav/pet/pet_cons_prim_dcu_SAK_a.htm

[6] Motor Fuel tax is levied on motor fuel sold, transferred or used within Alaska. Motor fuel taxes are collected primarily from wholesalers and distributors who are licensed as qualified dealers. Persons who first transfer or sell motor fuel in the state are subject to the tax. Motor fuel tax rates are as follows: gasoline, diesel, and gasohol - highway 8¢ / marine 5¢; aviation gas 4.7¢; and jet fuel 3.2¢ per gallon. Motor fuel tax returns are filed monthly and are due with payment of tax by the last day of the month following the month in which sales were made, or taxable use occurred. See http://www.tax.state.ak.us/programs/motorfuel/index.asp. More information on AS 43.40, Motor Fuel Tax, can be found at: http://www.tax.state.ak.us/programs/motorfuel/reports/2005_MF_Annual_Report.pdf .

Figures V.3 and V.4 Seasonal Aviation Gas and Jet Fuel Sales

Statewide (Thousands of Gallons per Day)

Figure V.3 Seasonal Aviation Gas Sales 2006
Maximum-Minimum Range 2001-2006

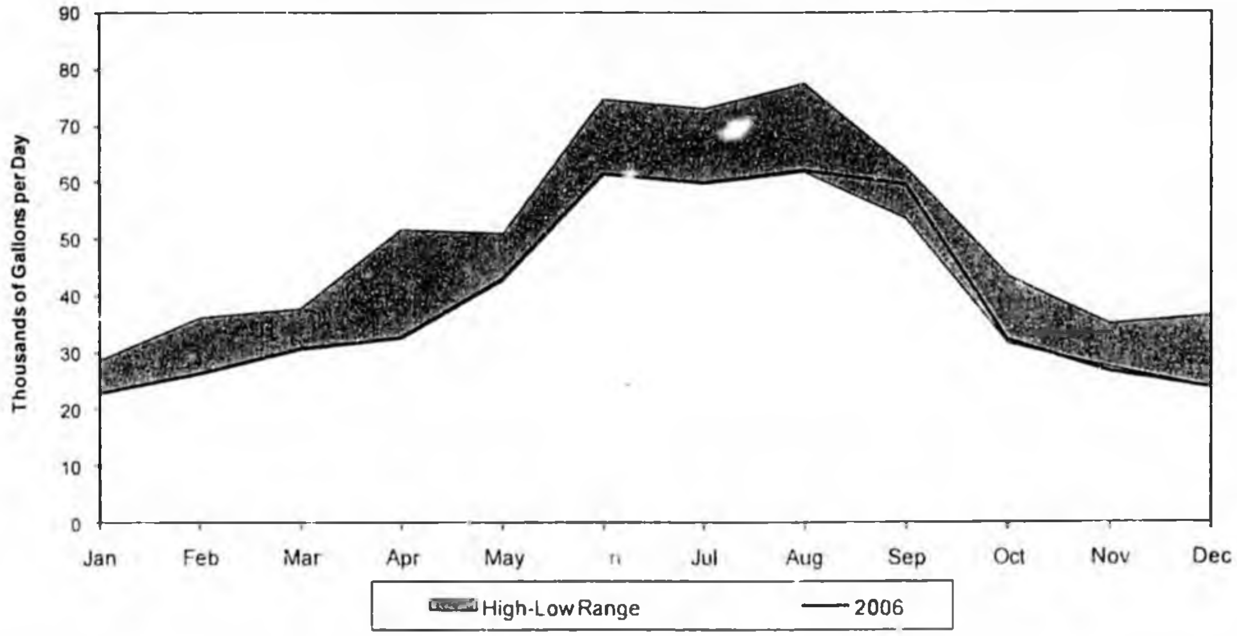
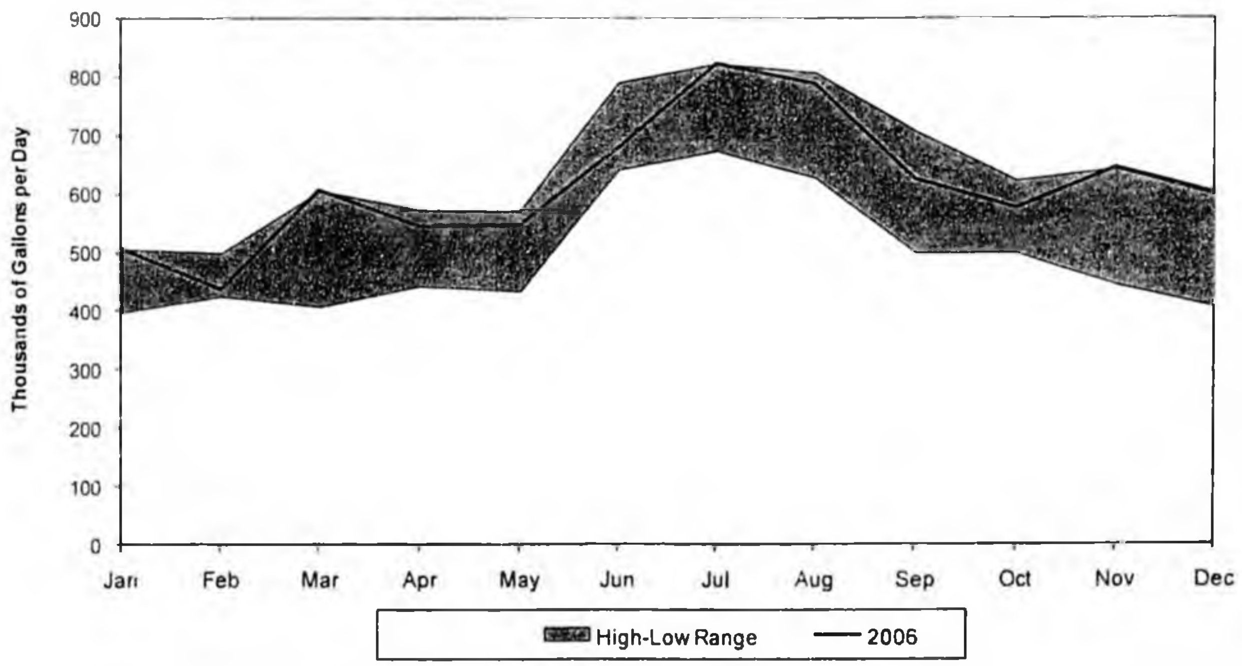


Figure V.4 Seasonal Jet Fuel Sales 2006
Maximum-Minimum Range 2001-2006



Source: State Of Alaska - Department of Revenue (Special Tabulations from Tax Division)

Figures V.5 and V.6 Seasonal Motor Gasoline and Diesel Sales

Statewide (Thousands of Gallons per Day)

Figure V.5 Seasonal Motor Gasoline Sales 2006
Maximum-Minimum Range 2001-2006

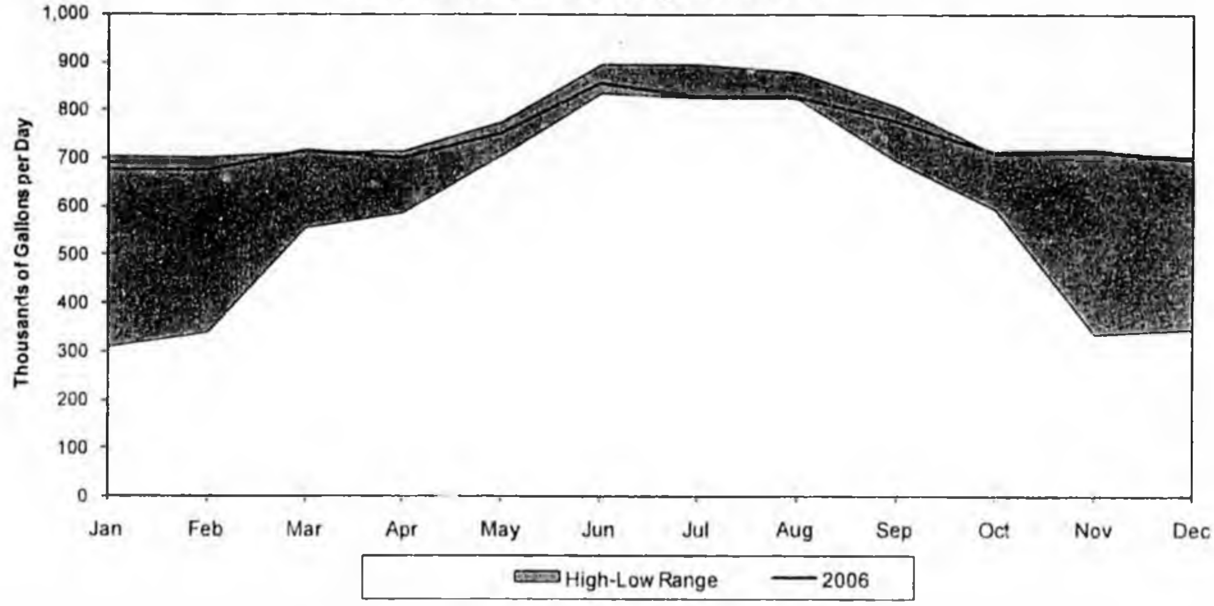
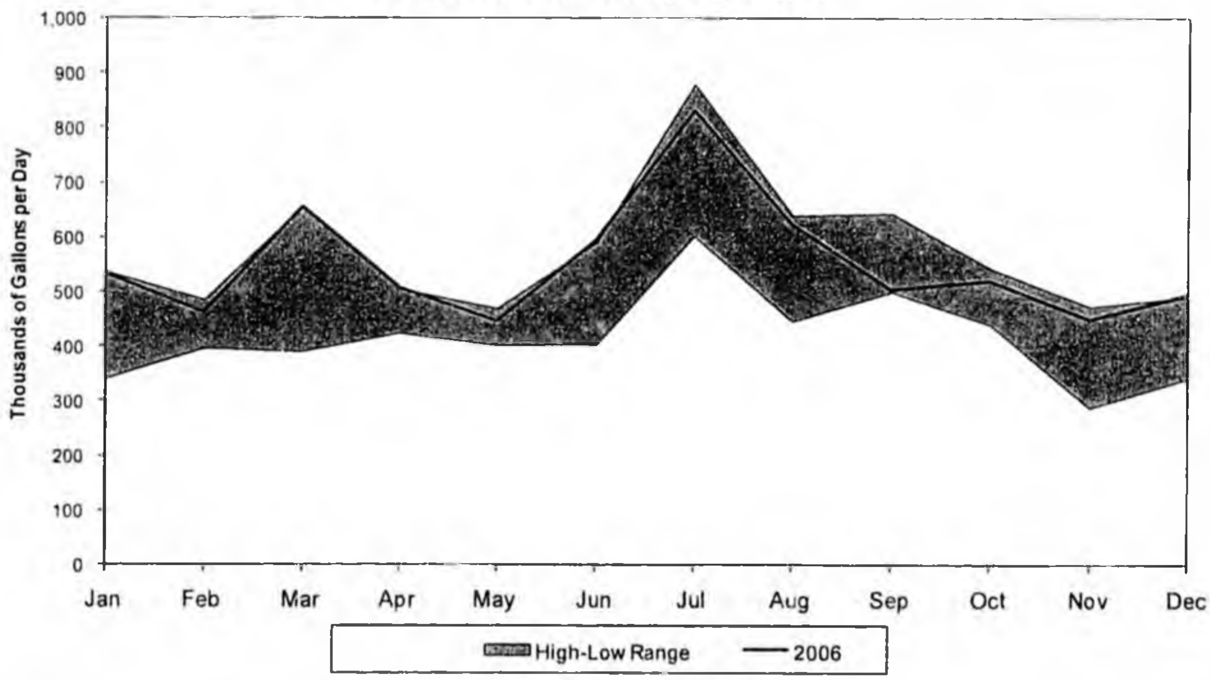


Figure V.6 Seasonal Diesel Sales 2006
Maximum-Minimum Range 2001-2006



Source: State Of Alaska - Department of Revenue (Special Tabulations from Tax Division)

Key Terms	Department of Energy Definitions*
Aviation Gasoline (Finished)	A complex mixture of relatively volatile hydrocarbons with or without small quantities of additives, blended to form a fuel suitable for use in aviation reciprocating engines. Fuel specifications are provided in ASTM Specification D 910 and Military Specification MIL-G-5572. Note: Data on blending components are not counted in data on finished aviation gasoline.
Catalytic Hydrocracking	A refining process that uses hydrogen and catalysts with relatively low temperatures and high pressures for converting middle boiling or residual material to high-octane gasoline, reformer charge stock, jet fuel, and/or high-grade fuel oil. The process uses one or more catalysts, depending upon product output, and can handle high sulfur feedstocks without prior desulfurization.
Gas Oil	European and Asian designation for No. 2 heating oil and No. 2 diesel fuel.
Kerosene-Type Jet Fuel	A kerosene-based product having a maximum distillation temperature of 400 degrees Fahrenheit at the 10 percent recovery point and a final maximum boiling point of 572 degrees Fahrenheit and meeting ASTM Specification D 1655 and Military Specifications MIL-T-5624P and MIL-T-83133D (Grades JP-5 and JP-8). It is used for commercial and military turbojet and turboprop aircraft engines.
Motor Gasoline	A complex mixture of relatively volatile hydrocarbons with or without small quantities of additives, blende to form a fuel suitable for use in spark-ignition engines. Motor gasoline, as defined in ASTM Specification D 4814 or Federal Specification VV-G-1690C, is characterized as having a boiling range of 122 to 158 degrees Fahrenheit at the 10 percent recovery point to 365 to 374 degrees Fahrenheit at the 90 percent recovery point. Motor Gasoline includes conventional gasoline; all types of oxygenated gasoline, including gasohol; and reformulated gasoline, but excludes aviation gasoline. Note: Volumetric data on blending components, such as oxygenates, are not counted in data on finished motor gasoline until the blending components are blended into the gasoline. Finished motor gasoline includes all ethanol blended gasoline (e.g. E10, E85).
No. 1 Distillate	A light petroleum distillate that can be used as either a diesel fuel (see No. 1 Diesel Fuel) or a fuel oil. No. 1 Diesel Fuel: A light distillate fuel oil that has distillation temperatures of 550 degrees Fahrenheit at the 90 percent point and meets the specifications defined in ASTM Specification D 975. It is used in high-speed diesel engines generally operated under frequent speed and load changes, such as those in city buses and similar vehicles. No. 1 Fuel Oil: A light distillate fuel oil that has distillation temperatures of 400 degrees Fahrenheit at the 10-percent recovery point and 550 degrees Fahrenheit at the 90 percent point and meets the specifications defined in ASTM Specification D 396. It is used primarily as fuel for portable outdoor stoves and portable outdoor heaters.
No. 2 Diesel Fuel	A fuel that has distillation temperatures of 500 degrees Fahrenheit at the 10 percent recovery point and 640 degrees Fahrenheit at the 90 percent recovery point and meets the specifications defined in ASTM Specification D 975. It is used in high-speed diesel engines that are generally operated under uniform speed and load conditions, such as those in railroad locomotives, trucks, and automobiles.
No. 2 Distillate	A petroleum distillate that can be used as either a diesel fuel (see No. 2 Diesel Fuel) or a fuel oil (see No. 2 Fuel Oil).
No. 2 Fuel Oil (Heating Oil)	A distillate fuel oil that has a distillation temperature of 640 degrees Fahrenheit at the 90 percent recovery point and meets the specifications defined in ASTM Specification D 396. It is used in atomizing type burners for domestic heating or for moderate capacity commercial/industrial burner units.
PADD	Petroleum Administration for Defense District **PADD V** (West Coast): Alaska (North Slope and Other Mainland), Arizona, California, Hawaii, Nevada, Oregon, Washington

*Source for Terms and Definitions: United States Department of Energy, Energy Information Administration; www.eia.doe.gov/glossary/glossary_a.htm

Petroleum Products	Petroleum products are obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds. Petroleum products include unfinished oils, liquefied petroleum gases, pentanes plus, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.
Prime Supplier	A firm that produces, imports, or transports selected petroleum products across state boundaries and local marketing areas, and sells the product to local distributors, local retailers, or end users.
Propane (Consumer Grade)	A normally gaseous paraffinic compound (C_3H_8), which includes all products covered by Natural Gas Policy Act Specifications for commercial and HD-5 propane and ASTM Specification D 1835. It is a colorless paraffinic gas that boils at a temperature of -43.67 degrees Fahrenheit. It does not include the propane portion of any natural gas liquid mixes, i.e., butane-propane mix.
Refiner	A firm or the part of a firm that refines products or blends and substantially changes products, or refines liquid hydrocarbons from oil and gas field gases, or recovers liquefied petroleum gases incident to petroleum refining and sells those products to resellers, retailers, reseller/retailers or ultimate consumers. "Refiner" includes any owner of products that contracts to have those products refined and then sells the refined products to resellers, retailers, or ultimate consumers. For the purposes of this survey, gas plant operator data are included in this category.
Reformulated	Finished motor gasoline formulated for use in motor vehicles, the composition and properties of which meet the requirements of the reformulated gasoline regulations promulgated by the U.S. Environmental Protection Agency under Section 211(k) of the Clean Air Act. This category includes oxygenated fuels program reformulated gasoline (OPRG) but excludes reformulated gasoline blendstock for oxygenate blending (RBOB).
Regular	Gasoline having an antiknock index (average of the research octane rating and the motor octane number) greater than or equal to 85 and less than 88. Note: Octane requirements may vary by altitude.
Reseller	A firm (other than a refiner) that is engaged in a trade or business that buys refined petroleum products and then sells them to a purchaser who is not the ultimate consumer of those refined products.
Residual Fuel Oil	A general classification for the heavier oils, known as No. 5 and No. 6 fuel oils, that remain after the distillate fuel oils and lighter hydrocarbons are distilled away in refinery operations. It conforms to ASTM Specifications D 396 and D 975 and Federal Specification VV-F-815C. No. 5, a residual fuel oil of medium viscosity, is also known as Navy Special and is defined in Military Specification MIL-F-859E, including Amendment 2 (NATO Symbol F-770). It is used in steam-powered vessels in government service and inshore power plants. No. 6 fuel oil includes Bunker C fuel oil and is used for the production of electric power, space heating, vessel bunkering, and various industrial purposes.
Retailer	A firm (other than a refiner, reseller, or reseller/retailer) that carries on the trade or business of purchasing refined petroleum products and reselling them to ultimate consumers without substantially changing their form.
Topping Plant	Facilities that top off the lighter products from the crude stream that are used for internal refinery fuel use.

*Source for Terms and Definitions: United States Department of Energy, Energy Information Administration; www.eia.doe.gov/glossary/glossary_a.htm

6

Economic Development Through State Ownership of Oil and Gas: Evaluating Alaska's Royalty-in-Kind Program

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UA
Understanding Alaska

Economic Development Through State Ownership of Oil and Gas: Evaluating Alaska's Royalty-in-Kind Program

Abstract

Government owners of petroleum subsurface rights often face constituent pressure to exercise control over the disposition of these resources in pursuit of economic development objectives. At the same time, states cannot simply dissipate the potential rent from their resources without losing a principal revenue source. The paper takes a retrospective look at the state of Alaska's policies and programs regarding disposition of oil and gas resources, focusing on the evolution of the royalty-in-kind program. It examines the relative success of different programs in achieving objectives of import substitution and value-added export relative to the cost in foregone revenue. The analysis leads to general conclusions about programs of this type, along with specific insights as the state prepares to embark on the biggest test yet related to the disposition of North Slope natural gas.

Economic Development Through State Ownership of Oil and Gas:

Evaluating Alaska's Royalty-in-Kind Program

Introduction

Governments in remote regions often possess few options for economic development. At the same time, their narrow economic base provides few options for raising revenue. A dilemma arises for such states that are fortunate enough to own rights to rich natural resource assets. Constituent pressures to exercise control over the disposition of these resources in pursuit of development objectives may conflict with constituent pressures to fund public services. Governments in remote resource-rich regions can stimulate economic development by giving away their natural resources to sponsors of projects that promise attractive economic benefits. Yet such states cannot simply dissipate the potential rent from their resources without losing a principal revenue source.

The greatest potential for conflict between these two objectives occurs in oil-producing states, because the economic rents -- and associated revenues -- from oil are so large. Alaska is unique among North American sovereign jurisdictions in its per-capita state-owned petroleum wealth. The challenge of economic development in Alaska's remote, petroleum-based economy in some ways more closely resembles that of oil-rich developing nations than it resembles that of other US states and Canadian provinces. In other respects, Alaska's situation resembles that of other remote regions in more developed nations (Morehouse and Huskey, 1992). The state of Alaska's experience with balancing the conflicting pressures over the use of oil and gas for revenue enhancement versus economic development provides a laboratory for understanding the opportunities and limits to government-sponsored development programs based on natural resources. Alaska attempted to resolve the dilemma by leasing its oil lands competitively, while retaining the option to dispose of its royalty share -- the share retained by the landowner of oil and gas produced from leased lands -- in kind to prospective industrial developers.

In this paper, I discuss how the State of Alaska has approached the tradeoff between revenue and development through administration of its royalty-in-kind program. In the next section I provide the economic context by summarizing the state's development problem and the role that disposition of the royalty share could play in economic development. Next, I review the history of the state's policy and programs for the disposition of its royalty oil and gas. Then, I discuss the outcomes of the program, describing industrial facilities built, economic benefits, and impacts on state oil revenues. I also discuss disposals that failed to achieve their promise. Following the analysis of outcomes, I evaluate the program to try to explain the pattern of successes and failures, and analyze their implications for likely future royalty disposals. I conclude with broader lessons for economic development policy for Alaska, other remote regions, and for developing areas with petroleum resources.

Petroleum and Alaska Economic Development

The United States is one of the few nations in the world in which petroleum and other subsurface resources may be privately owned. The history of oil and gas development in most of the nation is a history of struggles among private owners over the development and disposition of petroleum (Lovejoy and Homan, 1975; McDonald, 1971). Two factors made Alaska an exception to this rule when it entered the union in 1959. First, the federal government awarded the new state a 102-million-acre land entitlement, including subsurface rights, to be selected from unreserved public domain. Second, the 1953 Submerged Lands Act settling intergovernmental disputes over offshore resources had recently awarded coastal states offshore mineral rights within three miles of land. Alaska's long coastline entitled the state to a vast nearshore estate. The geology was fortuitous, rewarding the state handsomely with oil and gas resources on both onshore and offshore entitlements.

Objectives and constraints of economic development

At the time Alaska entered the union, oil and gas resources in the Cook Inlet region were seen as key to the new state's economic viability (Rogers, 1962). Discovery of the largest field in North America at Prudhoe Bay in 1964 entrenched and enhanced Alaska's status as a petroleum state. The oil and gas industry provided new high-paying jobs, but many of these were held by non-resident workers.[1] "Downstream" vertical integration in the form of petroleum refining and petrochemical industries provided a logical opportunity for increasing resident employment and other economic benefits from oil and gas production. Downstream development does not remove the link to world energy markets, so it does not really make the state economy less dependent on petroleum. Nevertheless, it provides a direct opportunity to increase value added in the state from the state's resource endowment.

Alaska economists have defined three objectives for regional industrial development. New industry can (1) increase jobs and personal income, (2) expand the state and local tax base, and (3) increase share of economic activity retained in the region (increase the economic multiplier) (Kresge et al., 1984: 192). To these one might add a fourth objective of providing benefits to regional consumers. Consumers benefit from development that reduces the cost of living or cost of doing business, or provides products and services that were not previously available locally. This was a particularly relevant objective in Alaska in the 1960s, where the high cost of living and high cost of business posed significant barriers to economic development and diversification.

Two key factors that determine how expansion of different industries might differently achieve the development objectives are: (1) whether wages in the industry are relatively low or high, and (2) the relative capital intensity (Kresge et al., 1984: 198-199). Oil and gas processing industries are capital intensive -- meaning that they provide relatively few jobs as a percentage of value added -- but those jobs are highly skilled and pay high wages (Tussing and Kramer, 1981). Consequently, one would expect that petroleum processing would be provide relatively few permanent jobs, but relatively more enhancement to the property tax base and per-capita income.

The geology and economics that allow large quantities of oil and gas to be produced in Alaska do not guarantee that petroleum processing in the state will be feasible. Alaska faced -- and still does face -- significantly higher construction costs relative to the nation as a whole. In addition, its remote location makes relative transportation costs of raw materials and manufactured products a key factor in economic viability. Crude oil is very inexpensively moved around the globe by tanker. Natural gas, because of its lower value per volume and the expense to liquefy for marine transport, is relatively expensive to move long distances. Refined products and

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[1]Although major oil companies made a concerted effort to move employees to Alaska, non-resident workers still represent 28 percent of oil industry employees (Fried and Windisch-Cole, 2003).

petrochemicals are typically more expensive to move than crude oil but less expensive to move than natural gas over long distances.

These basic facts led Tussing and Kramer (1981: 114) to postulate three axioms for location of petroleum processing facilities based on the transportation economics of oil and gas:

(1) Petroleum refineries tend to be located near their markets

(2) Naptha and gas-oil based petrochemical plants tend to be located near refineries.

(3) Natural-gas-based petrochemical plants tend to be located near raw-materials sources.

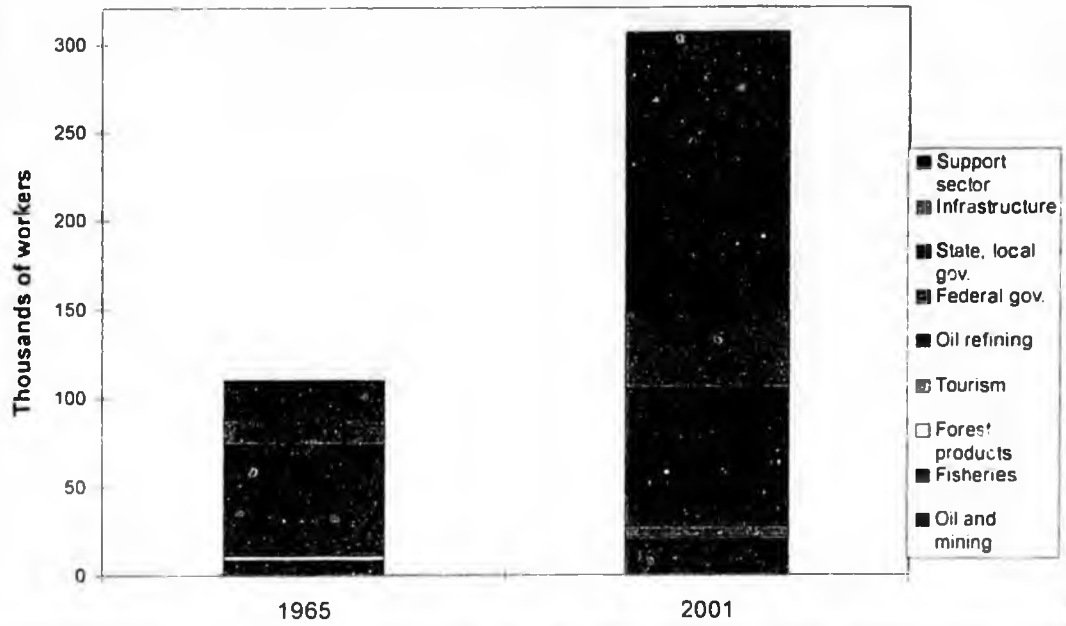
As a result, transportation economics disfavor Alaska locations for export petroleum refineries and oil-based petrochemical plants, but might favor refineries to serve in-state needs. Transportation economics favor converting Alaska gas to petrochemicals in-state, if anywhere (Tussing and Kramer, 1981: 115).

Import substitution vs. export-led growth

Traditional economic wisdom holds that the path to economic development in less-developed regions is through trade; that is, through increased exports. This maxim definitely applies to resource development in remote regions, where exporting minerals to world markets provides the most obvious opportunity for growth. Traditional Alaska "basic" industries such as fisheries, tourism, mining, and forest products, as well as oil and gas, are examples of trade-dependent exports. In Alaska, especially in the early years of statehood, however, federal civilian and military government employment provided the largest source of basic industry employment. Federal government employment is an export industry in the sense that the demand for the services is determined by forces external to the state; i.e., the U.S. Congress.

Figure 1 illustrates the shares of Alaska employment by major industry in 1965, and compares 1965 total employment and employment shares to those in 2001. In 1965 the federal government was by far Alaska's largest employer, employing 50,000 civilian and military workers -- nearly one in two Alaskan workers. All resource industries and tourism combined employed only about 11,000 workers, or 10 percent of the total. The budget shares for 2001 contrast sharply with those of 1965. One obvious difference is the decline in federal government employment (largely due to military staff cutbacks), and the growth in oil and gas and state employment. But by far the biggest change in numbers is the growth in support sector employment. This sector, composed primarily of trade services, grew sevenfold. This growth was largely accomplished through import substitution -- replacement of imported services by locally produced services.

Figure 1. Alaska Employment: 1965 vs. 2001
Source: ISER MAP Database



Import substitution also an option to export-led growth in the manufacturing sector. Tuck et al. (1988) used national data to analyze what manufacturing industries were present in Alaska in the 1980s. One of their principal findings was that nearly all manufacturing industries then in Alaska directly served either a basic industry or final consumer demand. That is, Alaska produced relatively few intermediate goods: inputs to other manufacturers. In contrast, the majority of manufacturing industries nationally (at the 4-digit SIC level) produced intermediate goods. Another finding was that a much higher share of Alaska industries than U.S. industries had high transport costs: 60 percent vs. 30 percent. They defined a high-transportation-cost industry as one for which more than three percent of total costs typically paid for transportation. These findings suggest that successful Alaska manufactures are industries that are either favored by a location close to consumers, or have other geographic limitations on location (such as needing to be near a key input with very high transport costs) (Tuck et al., 1988: III.B.4-5).

Another structural feature of the Alaska economy bears on the import-substitution vs. export-led growth question: the state a big petroleum-based fuel-user. Geography -- Alaska's remoteness and sparse population density -- requires that the state burn a lot of fuel per capita in transportation. Its industrial base other than oil -- fishing, tourism, logging, mining, and aviation -- all rely on refined petroleum products as essential production inputs. The statistics confirm these intuitive observations. Energy Information Administration (EIA) 2001 data show that Alaska consumes more than three times as much energy per capita as the U.S. average -- 30 percent more per capita than the next most energy-intensive state (Wyoming). Even without an industrial base using petroleum as feedstock for petrochemicals, Alaska consumes nearly 3.5 times as much petroleum products per capita as the nation, and nearly 40 percent more than the next highest state (Louisiana). Still, the total amount -- about 140 thousand barrels per day -- is relatively small.

Economies of scale

The relatively small size of the Alaska economy can discourage production for local use if there are economies of scale in manufacturing. Petroleum refining and petrochemical manufactures, like most chemical process industries, have substantial economies of scale (Tussing and Kramer, 1981). Scherer et al. (1975) compiled information on minimum efficient scales (MES) -- the smallest size plant that achieves competitive costs -- for a variety of manufacturing industries based on technology available in 1967. They reported an MES for petroleum refining of 1.9 percent of production (Scherer et al., 1975: 80). Using EIA historical consumption data, this translates into a throughput of roughly 230 thousand barrels per day (Mb/d), substantially more than current Alaska consumption and nearly eight times consumption in 1965.

Scherer et al. (1975: 91) also computed the cost disadvantage for plants operating less than the MES. For petroleum refining, a plant with a capacity of one-third the MES in 1967 (approximately 70 Mb/d) faced a cost disadvantage of 4.8 percent relative to an MES plant. For an Alaskan refinery at a scale appropriate for serving the local market in the late 1960s, the projected cost disadvantage might be closer to ten percent.

Petroleum refining will produce a mix of products, not all of which have a market in Alaska. Even configured to maximize recovery of fuels that have large Alaskan demand, a local refinery would have to find a market for some products outside the state. The combination of economies of scale, process limits on the product mix in refinery runs, and the size of Alaska's product markets suggest that a refinery producing for the local market could face significant cost disadvantages that might not be able to be offset by higher transportation costs for competitors' imported petroleum products. It is in this context that I now turn to the issue of disposition of the state's royalty oil.

Royalty-in-Kind program

Many states and the federal government have RIK programs. Alaska has been more aggressive in pursuing this option than other states. Since 1969, Alaska has made upwards of 30 sales involving more than 800 million barrels of oil, or just over half of all state royalty oil. The intellectual roots of the state's development policy toward oil and gas were well established before the oil wealth was realized.

Evolution of the program

Frustration with federal control of fisheries (Cooley, 1963) and national forests (Rakestraw, 2002) played a prominent role in the drive for statehood. In his keynote address to the Alaska Constitutional Convention (Nov. 8, 1955), E.L. Bartlett reflected prevailing views when he said:

> ...The financial welfare of the future state and the well-being of its present and unborn citizens depend upon the wise administration and oversight of these developmental activities. Two very real dangers are present. The first, and most obvious, danger is that of exploitation under the thin guise of development. The taking of Alaska's mineral resources without leaving some reasonable return for the support of Alaska government and the use of all the people in Alaska will mean a betrayal in the administration of the people's wealth. The second danger is that outside interests, determined to stifle any

development in Alaska which might compete with their activities elsewhere, will attempt to acquire great areas of Alaska's public lands in order *not* to develop them until ... they see fit. [emphasis in original] (quoted in Fischer, 1975: 131)

Delegates clearly had Bartlett's ideas in mind when they drafted Article VIII, section 1 of the Alaska Constitution, which reads, "It is the policy of the State to encourage the settlement of its land and the development of its resources by making them available for maximum use consistent with the public interest"; and section 2: "The legislature shall provide for the utilization, development, and conservation of all natural resources belonging to the state, including land and waters for the maximum benefit of its people." But as a consensus document, the language is suitably vague. To some Alaskans, state ownership of petroleum and other resources gave the government the opportunity to push aggressively for specific utilization and development projects that were deemed in the public interest. This perspective is closely aligned with the so-called *owner-state* model of governance championed by former governor Walter Hickel (2002). To others, the public interest was better served with the state taking a more passive stewardship role, leaving development decisions to private initiative and market forces.

Alaska's royalty-in-kind program resembles production-sharing contracts popular in the developing world in the sense that they reserve a share of the state's oil and gas to the state landowner for disposal to promote economic development. However, Alaska, like the federal government and other U.S. states, never considered creating a state oil company or entering the oil production business. The practice since statehood has been to lease lands competitively to private developers in arms-length transactions, much as economists argued was appropriate for federal lands (McDonald, 1979). The state retains a royalty share from its leases.[2] Alaska law permits the Department of Natural Resources to take its royalty oil and gas in kind or in value (that is, letting the oil companies market it on behalf of the state). Many Alaskans believed that maximizing revenue from oil lands was the only legitimate role for the state. Others, however, favored taking the state's royalty share in kind and making it available to specific projects that would provide additional private-sector jobs, and possibly stimulate additional development. Jack Roderick, Commissioner of Natural Resources for Alaska's first governor, Bill Egan, reported that the governor saw a dual role for royalty-in-kind disposals: job creation and reduced costs for Alaskans. Roderick (1997: 401).

In this regard Alaska, differed from other states and the federal government, where the primary purpose of a royalty-in-kind option was to maximize revenue. Like production sharing contracts in developing countries, Alaska's choice to dispose of royalties in kind for any purpose other than revenue maximization subjected the program to charges of political favoritism, and potentially, corruption. This is exactly what transpired the first time that the Commissioner of Natural Resources entered into a royalty-in-kind contract during the first term of Governor Hickel, who followed Egan. In February 1969, Commissioner Kelley negotiated a deal to sell all the state's Cook Inlet royalty oil up to 15,000 barrels per day for eight years -- at that time all the state's royalty oil -- to a company called Alaska Oil and Refining Company. The company, which

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[2]In 1979 Alaska's oil and gas leasing law was changed to give the state the option of net profit share leases that do not include a royalty share. However, that provision was used only one time -- in the 1979 Beaufort Sea sale -- and has not been used since. According to a former petroleum economist with the Department of Natural Resources, one reason that the state did not use its net profit share lease option is that these leases do not provide the state with royalty oil for disposition (Ed Phillips, personal communication).

appeared to have been created entirely for the purpose of purchasing Alaska's royalty oil, promised to build a refinery in Alaska and pay the state the same price for its oil as the producers received for theirs (the so-called in-value price). Suspicions deepened when the company merged five months later with Tesoro, a small independent oil company. Tesoro did immediately begin construction of a refinery to process the oil in Nikiski, north of Kenai, but the lack of transparency in the negotiations leading to the sale rankled legislators and created lingering doubts about whether the public interest had been served (Roderick, 1997: 248-249).

The euphoria over the $900 million brought in by the 1969 North Slope oil lease sale quickly diverted public attention from the Tesoro case. But legislative debate about the propriety of the 1969 royalty disposal continued, spilling over into the larger question of the appropriate state role in the Trans-Alaska Pipeline System (TAPS) and other projects involving North Slope oil and gas. According to Roderick, things came to a head in a September 1973 special legislative session called by Gov. Egan (elected again after Hickel resigned) to address these issues. Roderick (1997: 367) called this a pivotal time in Alaska's political history, one of two times when the relationship between the state and the oil industry changed in a significant way.[3] Legislators dropped a proposal for a 20 percent equity ownership in TAPS and a right of way leasing law that could set tariffs, and raised severance taxes instead. The following year, the legislature rewrote the statutes governing royalty-in-kind disposals, in a bid to ensure transparency of negotiations for future sales of royalty oil and gas from Prudhoe Bay.

The 1974 statute set criteria and standards for the Commissioner of Natural Resources to meet in royalty-in-kind disposals (AS38.05.183). Royalty-in-kind disposals must be competitive unless the state's best interest required that they be noncompetitive (AS 38.05.183(c)), and earn at least as much as if the oil were taken in-value. Instate domestic and industrial needs had priority over export sales of royalty-in-kind oil and gas (AS 38.05.183(d)). AS 38.05.183(e) defined the constitutionally required "maximum benefits" to the state as based on cash, effects on the economy, benefits of instate processing, provision of products to benefit instate consumers, and specific criteria related to local economic development benefits. The 1974 statute also created a Royalty Oil and Gas Development Advisory Board (ROGDAB) which would hold public hearings on proposed sales, review benefit claims against the statutory criteria, and recommend to the legislature whether to ratify contracts (AS38.06).

The changed climate favoring transparency was evident in the way that governor Jay Hammond, who succeeded Egan, announced the next proposed royalty-in-kind sale: a proposal to sell Prudhoe Bay royalty gas in support of an "All-Alaska Pipeline."[4] In a statewide radio address, the governor carefully articulated the reasons for his best-interest finding. The rationale included how delivery of gas to tidewater improved the chances of using the gas for industrial purposes in Alaska, an assurance that royalty gas in-kind removed in Alaska would not be subject to federal regulation, and a negotiated "takeback" provision if a need developed for in-state use of the gas (Hammond, 1976). By the time Hammond left office in 1983, his administration had sufficiently institutionalized royalty disposals that his deputy commissioner, Geoffrey Haynes, found

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[3]The other time was in 1981, when the legislature bowed to oil company pressure to revise its tax code.

[4]The purchasers of the proposed contract were Tenneco (50% share), Southern Nat. Gas. Co. (25%), and El Paso Natural Gas Company, (the pipeline sponsor (25%). The contract was approved but never implemented because El Paso did not receive federal certification for the project.

it necessary to write a thick handbook explaining the process for the incoming commissioner (Haynes, 1983).

Summary of Disposals

Between 1969 and 2003, slightly more than one-half of all Alaska state royalty oil was taken in-kind (Figure 2). Relatively little gas was taken in kind, however, despite several attempts[5] The state sold 10.4 billion cubic feet -- about one-half of one-year's worth of Cook Inlet royalty gas -- to the local gas distributor, Alaska Pipeline Company (Enstar), from 1977 to 1984 (Division of Oil and Gas, 2004: 5.1).

Figure 2. Disposition of Alaska Royalty Oil, 1969-2003

Source: 1969-1978, Berman et al. (1984); 1979-2003, Alaska Division of Oil and Gas Annual Reports

Figure 3 shows the distribution over time of state royalty oil and the disposals by purchaser. Oil production began in 1958 on federal lands in the Cook Inlet region. Alaska received 90 percent of the revenue from this production but did not control disposition. Production on state-leased lands generating royalties for potential disposal in-kind commenced in 1966. State royalties dramatically increased with completion of TAPS in 1977. Figure 4 shows the distribution of cumulative Alaska oil royalty-in-kind disposals by purchaser through 2003. Two instate refiners -- Tesoro and Mapco (later Williams and now Flint Hills) -- each purchased nearly 40 percent of oil royalty-in-kind oil. Chevron (also an instate refiner), purchased another 10 percent. Two percent was sold to Golden Valley Electric Association (GVEA) -- the Fairbanks area electric utility -- for turbine fuel.[6] Altogether, 94 percent of royalty-in-kind oil was sold to promote instate use, with the remainder sold in competitive auctions. Not all royalty disposals, as we shall see below, successfully served their intended purpose.

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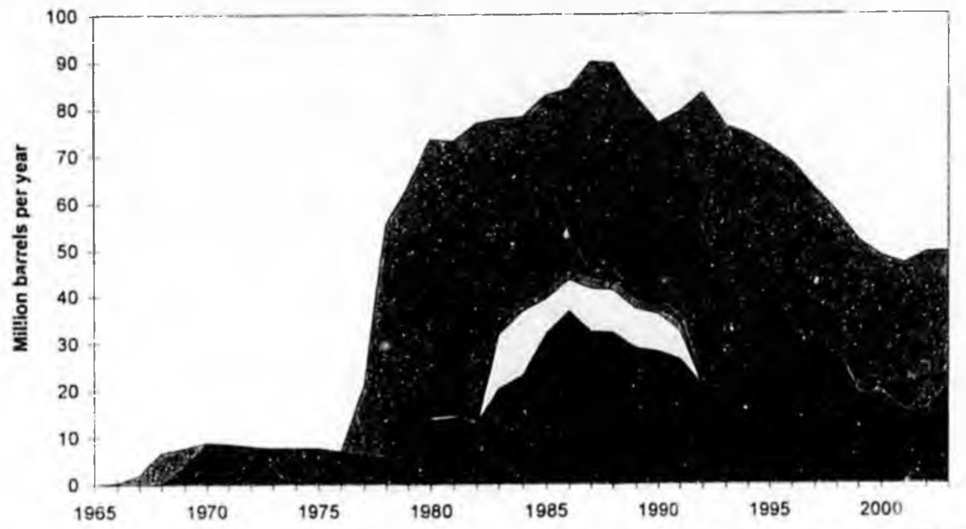
[5] In addition to the All-Alaska gas pipeline sale mentioned above, several natural gas pipeline companies and Dow-Shell acquired options to purchase large quantities of North Slope natural gas and gas liquids, but never exercised their options. This project is discussed further in the next section.

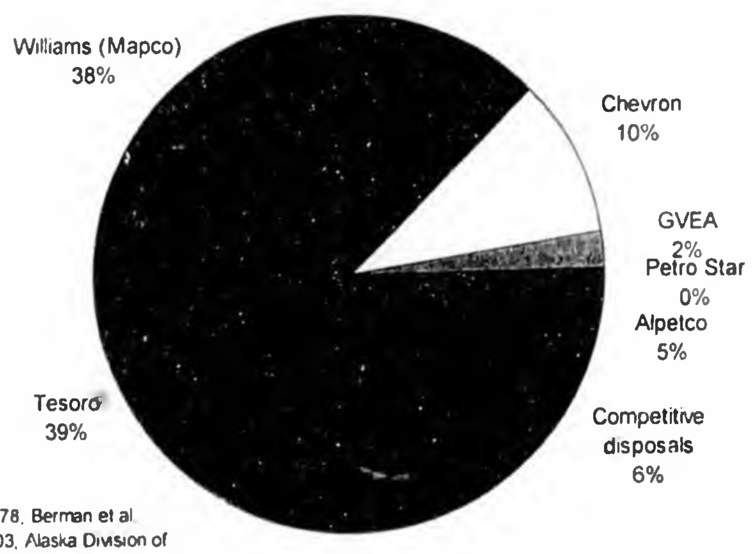
[6] GVEA never took physical custody of the oil, but swapped the crude oil in exchange for refined turbine fuel from Mapco (Alaska Division of Oil and Gas, 2004: 5-2).

Figure 3. Disposition of Alaska Royalty Oil



Source: 1969-1978, Berman et al (1984); 1979-2003, Alaska Division of Oil and Gas Annual Reports

Figure 4. Distribution of Alaska Royalty-In-Kind Oil, 1969-2003



Source: 1969-1978, Berman et al (1984); 1979-2003, Alaska Division of Oil and Gas Annual Reports

Evaluation of Royalty-in-Kind Dispositions

In order to evaluate the success or failure of Alaska's royalty-in-kind program, one needs answers to four main questions. The first and most obvious question is: "What facilities were constructed related to the program?" A second question would be, "What facilities were proposed and supported with RIK disposals but never opened for business? Third is the question of how much it cost the state and the taxpayers. How much more money might the state have made if they had sold all oil competitively? Finally, what can be said about the degree to which RIK oil and gas contracts might have been necessary to get the facilities constructed or their operations successful?

Facilities constructed

When Alaska entered the union in 1959, no oil and gas processing facilities existed anywhere in the state. All petroleum products were imported from the lower '48 states or abroad, and there was no natural gas distribution system.[7] Table 1 summarizes Alaska oil and gas processing facilities constructed between 1959 and 2004. The table shows that many of the early Cook Inlet facilities were constructed without the benefit of any state royalty oil or gas. Chevron constructed the first modern oil refinery in Alaska in 1963, although the company did purchase some royalty oil later. Faced with the need to make large expenditures to convert the refinery from Cook Inlet to North Slope feedstock as Cook Inlet production declined, Chevron closed and dismantled the plant in 1991, after 27 years in operation.

Other Cook Inlet facilities constructed in the early years, in addition to the Tesoro refinery mentioned above, were the Phillips-Marathon LNG plant and an ammonia-urea fertilizer plant, using natural gas as feedstock. The Collier Chemical Company, later merged into Unocal, built the fertilizer plant to serve Pacific Rim demand. Unocal sold the plant to Agrium in 2000. After North Slope oil started flowing through TAPS, two oil refineries were built near Fairbanks and a third was constructed in Valdez. All three take oil from TAPS, refine it into products for Alaska markets, and return the residual back to the TAPS oil stream. They pay a fee, called a Quality Bank adjustment, for reducing the quality of the oil stream. Earth Resources (later Mapco), a partnership involving the Doyon regional native corporation, built the largest of these refineries. The Mapco refinery, later sold to Williams, which recently sold it to Flint Hills, has been expanded several times over the years. Arctic Slope Regional Corporation, another Alaska Native regional corporation, owns an interest in Petro Star, the operator of the other two TAPS refineries.

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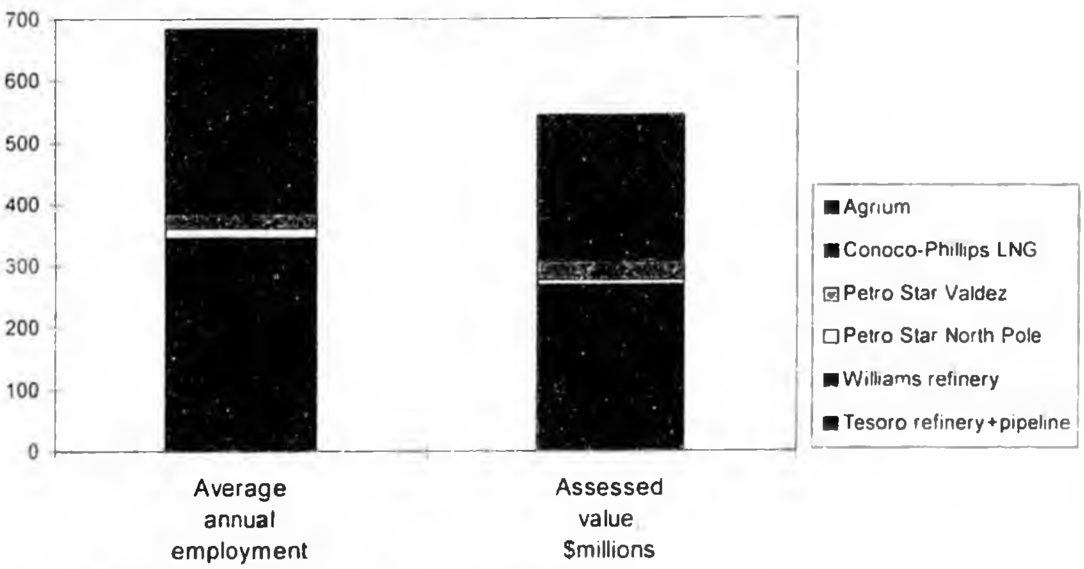
[7]A small oil refinery had been operation in Katalla in the early part of the 20th century but burned down in the 1930s (Rakestraw, 2002).

Table 1. Alaska Oil and Gas Processing Facilities Constructed

Owner	Location	Start	Feed-stock	Capacity	Royalty-in-kind	Products	Destination	Status (2/2005)
Conoco-Phillips	Prudhoe Bay	1975?	Crude oil	14,000 b/d	No	Diesel	Prudhoe Bay	Operating
Conoco-Phillips	Kuparuk	1981	Crude oil	14,000 b/d	No	Diesel	Kuparuk	Operating
Flint Hills (Williams/Mapco)	North Pole	1977	Crude oil	220,000 b/d	yes	Gasoline	Alaska	Operating
						Jet fuel	Alaska	
						Diesel	Alaska	
						Gas oil	Alaska	
						Asphalt	Alaska	
						Residual	Returned to TAPS	
Petro Star	North Pole	1985	Crude oil	15,000 b/d	Yes	Kerosene	Alaska	Operating
						Jet fuel	Alaska	
						Diesel	Alaska	
						Residual	Returned to TAPS	
Petro Star	Valdez	1992	Crude oil	46,000 b/d	Option, not exercised	Jet fuel		Operating
						Diesel		
						Residual	Returned to TAPS	
Tesoro	Nikiski	1969	Crude oil	72,000 b/d	Yes	Gasoline	Alaska	Operating
						Jet Fuel	Alaska	
						Diesel	Alaska	
						Fuel oil	Export	
						Asphalt	Alaska	
						Propane	Alaska	
						Sulfur	Lower '48	
						Residual	Lower '48, export	
Chevron	Nikiski	1963	Crude oil	18,000 b/d	Initially no, later yes	Naptha	Lower 48	Closed in 1991
						Jet fuel	Alaska	
						Diesel	Alaska	
						Fuel oil	Lower '48	
						Asphalt	Alaska	
Conoco-Phillips-Marathon	Nikiski	1969	Natural gas	235,000 Mcf/d	No	Liquefied Natural Gas	Japan	Operating
Agrium (Unocal/Collier)	Nikiski	1969	Natural gas	160,000 Mcf/d	No	Ammonia	Export	Operating below capacity
						Urea		

Figure 5 illustrates the magnitude of the benefits to the Alaska regional economy generated by the facilities listed in Table 1. In 2003, the six major facilities employed 685 workers on an average annual basis. Agrium was the largest employer, with nearly 40 percent of the total, followed by Tesoro. The jobs generate a payroll of roughly $550 million annually (precise figures are considered proprietary). The contribution that these facilities make to the local property tax base is about equal to the annual payroll. Alaska has no state property tax for oil and gas processing facilities, but all these facilities are located in local governments -- the Kenai Peninsula Borough, the Fairbanks North Star Borough, and the city of Valdez -- that levy property taxes to support schools and other local government activities. Tax rates vary by jurisdiction, but these capital-intensive plants have probably allowed the boroughs to reduce their overall tax rates somewhat.

Figure 5. Employment and Assessed Value in Alaska Oil and Gas Processing, 2003



Sources. Employment: Alaska Department of Labor, Research and Analysis; Property Tax Assessments: Kenai Peninsula Borough, Fairbanks North Star Borough, City of Valdez Assessors

The economic benefits that Figure 5 summarizes leave out information for the two small North Slope, built by Arco Alaska (now Conoco-Phillips) to serve oilfield operations. Figures for employment and assessed value for these refineries are relatively small and not separately reported from those of the oil production operations.

Facilities proposed but not constructed

Table 2 summarizes Alaska oil and gas transportation and processing facilities that were proposed, and supported by royalty-in-kind disposals, but never constructed. All three were massive undertakings conceived during the national energy crisis in the late 1970s. None of the three could meet a market test after oil and gas wellhead prices were deregulated in the early 1980s.

Alaska Petrochemical Company (Alpetco) was the winning bidder in the first solicitation for offers to purchase royalty-in-kind oil from Prudhoe Bay. Alpetco, a partnership of Alaska Interstate (later Enstar) (60%), Alaska Consolidated Shipping (itself a consortium of Native corporations and Seatrain) (20%), and Barbour Oil (20%), proposed to build a world-scale oil-based petrochemical plant (see Table 2). The plant, to be located at tidewater in Southcentral Alaska, would produce up to 2.1 million pounds per year of polyethylene, polypropylene, styrene and similar products. It would cost an estimated $1.5 billion to build, and require an additional $400 million of working capital, ultimately generating a $2.3 billion tax base. Construction would require 3,500 to 4,000 temporary workers, while operations would generate 2,000 permanent jobs (Alaska Petrochemical Company, 1977). In 1978, the state agreed to sell up to 150 thousand barrels per day (Mb/d) of royalty oil for 27 years to support the project. After review by the ROGDAB, the legislature approved the contract, with minor amendments (Haynes, 1983).

Table 2. Proposed Alaska Oil and Gas Facilities Not Constructed, Receiving Royalty-In-Kind Contracts or Options

Owner	Location	Start	Feedstock	Capacity	Royalty-in-kind	Products	Destination
El Paso Natural Gas	Prudhoe Bay to Valdez	1978	Natural gas	2 billion cf/d	Option, not exercised	Liquefied Natural Gas	Lower '48
Alaska Oil Co. (Alpetco)	Valdez	1977	Crude oil	150,000 b/d	Yes, renegotiated	Polyethylene	Lower '48, export
						Polypropylene	Lower '48, export
						Styrene	Lower '48, export
Alpetco	Valdez	1980	Crude oil	100,000 b/d	Yes, terminated	Naptha	Lower '48, export
						Olefins	Lower '48, export
Dow-Shell	Valdez	1982	Natural gas liquids	210,000 b/d	Option, not exercised	Ethylene	Lower '48, export
						Polyethylene	Lower '48, export
						Ethylene glycol	Lower '48, export

In early 1980, U.S. oil markets were deregulated, rapidly changing the market outlook for Alaska oil. That May, the parties agreed to Alpetco's request to amend the contract to construct. By then, the project's sponsor had changed to the Alaska Oil Company, whose major partner was Charter Oil, a Caribbean refiner. Alpetco's new partnership proposed a 100 Mb/d refinery in Valdez to produce Naptha and Olefins for further processing elsewhere. Alpetco would receive 75 Mb/d beginning July 18, 1980, until the refinery was operational. At that point, the volume would rise to 100 Mb/d. The market outlook continued to deteriorate for Alpetco's project. One year later, the company abandone[illegible] refinery project, and its contract was terminated in January 1982.

As mentioned above, the state entered into a contract to sell Prudhoe Bay royalty gas to a consortium including El Paso pipeline, the sponsor of the All-Alaska gas pipeline project. When the federal government selected the Alaska Natural Gas

Transportation System (ANGTS) as the preferred route for the project, a second proposal emerged for a natural gas liquids (NGL) pipeline following the route El Paso had proposed. After reviewing proposals from several contenders, the state selected a consortium headed by Dow Chemical and calling itself the Dow-Shell Group to perform a detailed feasibility study of the project. As outlined by the proposers, the project would manufacture 210 Mb/d of ethane and liquified petroleum gasses (LPG) -- propane, butane, etc. -- into petrochemicals for export (Dow-Shell Group, 1980; 1981). The project entailed a complex of four interrelated facilities costing roughly $7 billion, including:

1. a $1 billion plant on the North Slope to extract NGLs from produced gas;
2. a 20" pipeline from Prudhoe Bay to Valdez or Cook Inlet, costing $2.3 billion;
3. a $175 million fractionation plant to separate ethane from the LPGs;
4. a petrochemical plant using 90Mb/d of ethane feedstock, costing $3.5 billion.

The petrochemical infrastructure would develop in two phases. In phase 1, the plant would have the capacity to produce up to 4 million lbs/year of ethylene, polyethylene, and ethylene glycol. In phase 2, capacity would expand to produce another 3.5 million pounds of derivative products. Peak construction employment would top 11,000, while 3,500 permanent workers would be needed for operations in phase 1, and 6,800 in phase 2.

In addition to a commitment from the state to sell its entire royalty share of NGLs, Dow-Shell had obtained a right of first refusal from Arco, and an agreement to negotiate in good faith with Sohio. Exxon, the other major North Slope owner, refused to negotiate with Dow-Shell, and instead pursued its own feasibility study. Dow-Shell's (1981) detailed feasibility study concluded that crude oil prices would have to remain at $38 (in 1981 prices) to make the NGL pipeline feasible. Shortly after releasing the feasibility study, world oil prices started to decline. Dow-Shell backed out of the project in 1982, citing adverse market trends.

The first North Slope royalty-in-kind solicitations and the Alpetco and Dow-Shell bids spawned much debate among Alaskans about whether petrochemical development at this scale was appropriate for the state. Although no royalty hydrocarbons ever made their way into a petrochemical product, the official deliberations created a litany of engineering and market feasibility studies. Mostly funded by the state, the state's urgent need to understand the parameters and implications of the industry spread a windfall to engineering firms and other consultants in the state and around the nation.

Since the Alpetco-Dow-Shell episode, state officials have been more cautious about approving royalty oil and gas sales other than for in-state refining. Several gas and NGL offers have been made in recent years. Agrium requested Cook Inlet royalty gas at a low price, but the state balked with other gas purchasers objected. Williams once expressed interest in buying North Slope NGLs for a petrochemical plant, but backed out before making a formal offer when it determined that transportation costs made it infeasible to ship ethylene or polyethylene to the Japanese market.[8] The state continues to get expressions of interest, some more credible than others. The state has not kept a comprehensive record of denied requests. According to Kevin Banks, manager of the

[8]The state has also recently tried to use its royalty gas a leverage to shape the course of negotiations over a North Slope natural gas pipeline. Anadarko and Encana were awarded contract for the option to take up to 70% of the state's North Slope gas royalty share, giving them a right to claim capacity of a common pipeline carrier. The idea was to force the main North Slope producers to increase the design capacity of the pipeline to encourage gas exploration.

program for DNR, most smaller traders lose interest as soon as they see the bureaucratic process involved in obtaining a best-interest finding that is required to complete a sale (Kevin Banks, personal communication, 8/05/04).

How much did RIK disposals cost the state?

By statute, the state must earn at least as much from a royalty-in-kind disposal as it would earn if the oil had been taken in-value: the default method. No one has ever challenged a sale on the grounds that it failed to achieve this statutory requirement. So leaving aside the administrative cost of the analyses leading to the requisite best-interest findings, one could argue that the burden or proof would be on detractors to prove that the program has cost the state anything at all. In truth, however, the question is not so easy to answer.

Most royalty-in-kind disposals involved contracts with a pricing provision that specifies that the purchaser will pay the royalty-in-value price, or a slight premium above it. While this should in principle have guaranteed that the state not lose money on RIK sales, the state and producers have been in litigation over some aspect or another of in-value royalty accounting for more than 25 years (the so-called Amerada-Hess case). Various aspects of the lawsuit have been settled out of court, but not until years had passed from the royalty sales. Limitations of contracts and the passage time have made it difficult if not impossible for the state to collect from all past royalty purchasers when it receives retroactive payments from producers in an in-value settlement. The state must negotiate a separate settlement for each contract (assuming that the firm that held the contract is still in business). The price in the most recent contract with Williams (Flint Hills) is not directly tied to the in-value price. A full and accurate retrospective accounting of the RIK program would be a monumental undertaking.[9]

Arguably, however, the correct test should not be based on in-value prices but on whether the state *expected* to receive at least as much over the long term from its RIK sales as it could have *expected* to have received from the *best opportunity available at the time.* Unfortunately, there are also many reasons why the comparison of expected sales receipts to the opportunity cost would be difficult to make over the years. Why this might be true will become clearer after a brief historical review of the supply and demand for Alaska's oil, natural gas, and manufactured hydrocarbon products.

First of all, most RIK disposals are long-term contracts. Available market indicators for oil and gas reflect short-term, or spot prices. The spot market is extremely volatile, and often diverges substantially from long-term conditions. The outcomes of the state's few competitive short-term disposals illustrate the difficulty of comparing the two markets at any given time.

As illustrated in Figures 3 and 4, the state sold about 6 percent of its oil in competitive sales, totaling about 50 million barrels. In the first North Slope competitive sale, held in 1981 at a time when the state believed that the in-value price was below the true market value, the average premium of winning bidders was $2.57 above in-value. All purchasers in this contract ended up losing money. When it came time to start taking the oil several months later, prices had slid, sending one firm into bankruptcy and causing another to default (Haynes, 1982). Over the life of the one-year contracts, I estimate that the state had received less than $1.82 on average above in-value, not

[9]DNR staff did at one time attempt to construct a retrospective analysis of in-kind vs. in-value sales prices for royalty oil. However, this analysis was never published, due to doubts among agency staff about its accuracy (Kevin Banks, personal communication).

counting substantial legal costs to settle with the largest purchaser. Desiring to avoid repeating this experience in the next competitive sale (1985), the state allowed purchasers an option of early termination. Only three of seven contracts in that sale lasted the full year. The state also offered up to 4,000 barrels a day in competitive sales of Cook Inlet oil for export, beginning in 1987, with a Taiwanese company picking up the contract. In 1991 after the eruption of Mt. Redoubt temporarily shut down operations at the Cook Inlet westside oil terminal, the company claimed *force majeure* and backed out of the contract.

Second, both spot and long-term markets for Alaska oil have been replete with market distortions, causing the value of Alaska oil to diverge from what free competitive markets would signal. These distortions arose from federal and state regulation, combined with imperfect competition. Between 1974 and 1980, the federal government controlled wellhead oil prices throughout the nation. Cook Inlet and North Slope oil had different regulatory status and traded at very different prices.[10] When Congress authorized TAPS in 1973, it prohibited exports of Alaska oil. This created a surplus of oil on the U.S. west coast, which kept prices for Alaska oil from rising as fast after deregulation as they did elsewhere. Shipping between U.S. ports was subject to the Merchant Marine Act of 1920 (Jones Act), which required that products move in U.S.-built tankers operated by U.S. crews. This increased shipping costs substantially and further depressed Alaska wellhead prices.

The major Alaska oil producers enjoyed significant market power in west-coast markets. Rather than engage in arms-length sales that might reveal the profitability of their Alaska production, these firms sold most of their Alaska oil to their own refineries at artificial transfer prices. One way that they used their market power was to divert some oil through the Panama Canal to the U.S. gulf coast at an apparent loss, in order to relieve downward pressure on west-coast prices. Alpetco had proposed its refining and petrochemical project in the midst of these distortions. Refined products, unlike crude oil, could be exported in foreign vessels at unregulated competitive prices. Export refinery economics were therefore based on a series of market distortions created by the combination of the export ban on crude oil, the resulting west-coast surplus, the lack of transparency in netback prices, and the ability to avoid the Jones Act. When just one of these pillars of this structure gave way -- wellhead price regulation -- the project was revealed to be uneconomic, and started to unravel.

Still another regulatory artifact affecting in-value in oil prices and the value of RIK oil relates to price adjustments for oil of differing characteristics. TAPS ships oil commingled from several different fields with varying chemical properties. Fields producing lower quality oil pay a fee into a Quality Bank, which pays out to fields producing higher quality oil. Alaska refineries at North Pole and Valdez also pay into the Quality Bank when they discharge their residual oil back into TAPS. The Quality Bank charges, like other aspects of royalty pricing, reflect a legal settlement that mediates conflicting interests over a variety of issues. The state obtained a Quality Bank settlement that favored the TAPS refineries, to the displeasure of the refineries' main competitor: Tesoro.

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[10] In 1980, when Congress deregulated oil prices, it passed the Windfall Profits Tax. This tax had a variable rate depending on the previous regulatory status of the oil. Cook Inlet oil was taxed at the highest rate (90% of the difference between the market and the previous regulated price). State royalty oil was exempt from taxation. The tax phased out when the oil market collapsed in 1986.

The history of Alaska natural gas markets is likewise convoluted. Cook Inlet gas was mostly developed during the era of wellhead price regulation. Under wellhead price regulation, consumer prices were based on historical cost, without reference to current supply and demand conditions. During the late 1970s, this practice resulted in acute gas shortages in lower '48 states, leading to passage in 1978 of the Natural Gas Policy Act (NGPA). NGPA further extended regulation to allocate gas to preferential uses. Alaska won an exemption from some aspects of NGPA, allowing it to continue process natural gas into fertilizer and LNG for export, as well as burn gas to generate electric power, as these activities were being curtailed elsewhere in the nation. It was in this environment that the NGL-based petrochemical project appeared. Petrochemicals manufactured from NGLs were exempt from price regulation. If exported, they could also avoid the Jones Act shipping cost penalty. The phased deregulation of natural gas in the 1980s began shifting U.S. natural gas supplies toward higher-valued uses. Concurrently, Dow-Shell lost interest in its Alaska petrochemical project.

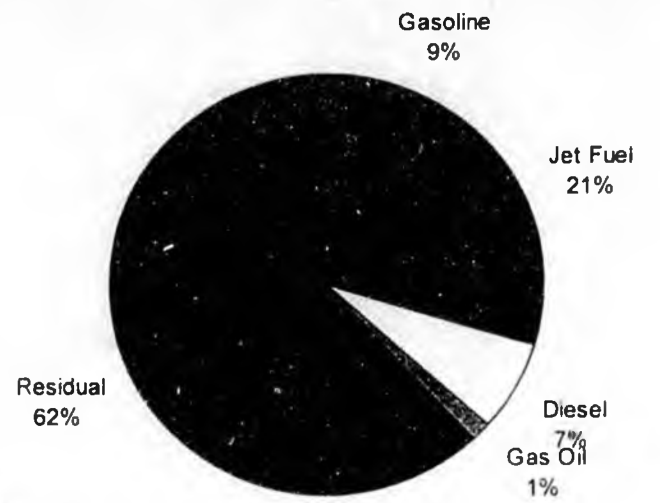
These array of distortions in oil and gas markets make it extremely difficult to determine ex-post whether the state's expected revenues from RIK sales matched or exceeded the expected revenues from the best alternative option. It would have been impossible to expect that the state could have made this determination at the time. It remains unclear that the program made any significant difference in the royalty revenues that would otherwise have been received. The slight premium over in-value prices must be balanced against the cost of administration, especially in dealing with the failed contracts.

Role of RIK contracts

If the net cost of the program was small, one must ask, then, whether the program produced any significant economic benefits for the state and for society? If so, were the RIK contracts important to the success of projects that generated these benefits? Arguably, the wages and taxes paid were just reallocations of economic activity and did not consist of true benefits. Alaska is an open economy, with net migration balancing labor markets relatively quickly. Workers constructing and operating Alaska oil and gas processing plants probably would not have moved to Alaska if these plants had not been built. Once here, they need more local government services which the larger tax base can provide. The local economy is larger, but economic well-being has improved relatively little.

What about benefits to Alaska consumers from import substitution? Figure 6 shows the approximate distribution of products produced. These percentages varied over time depending on market conditions, and the exact distribution at any given time is proprietary. However, the figure gives a snapshot of the approximate product mix. The largest share of production is residual oil, which is all exported from the state into competitive world markets. Three products -- jet fuel, gasoline, and number 2 diesel -- dominate the output of Alaska refineries marketed within the state.

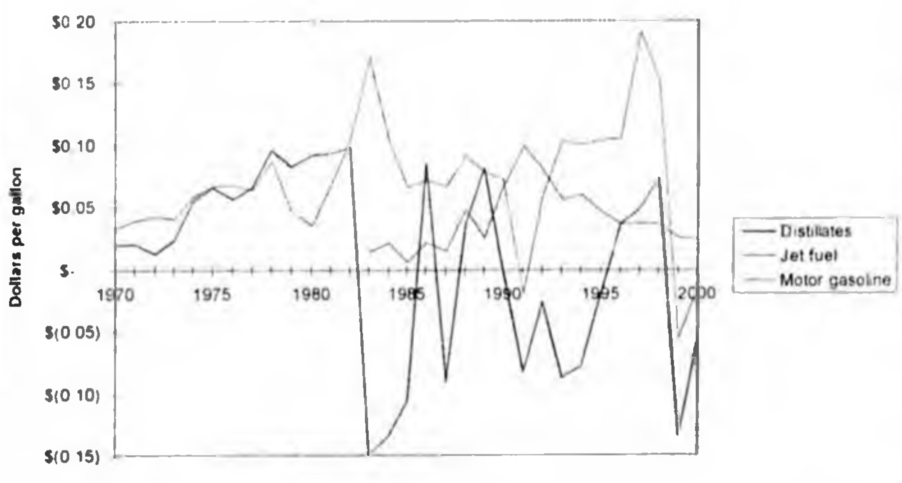
Figure 6. Approximate Alaska Refinery Product Percentages



Source: estimated from Alaska Division of Oil and Gas Annual Reports and data provide by the refining companies

Figure 7 compares price differentials over time calculated from EIA data for distillate fuels (diesel), jet fuel, and motor gasoline. The five to ten-cent premium in the 1970s largely reflects the transportation cost differential. After 1980, competition between Mapco and Tesoro appears to have periodically given Alaska consumers substantial diesel price savings of up to $0.20 per gallon. Substantial gasoline price savings also appeared in 1991 and again after 1998. Jet fuel prices have also been drifting down since 1991, at a time when Alaska refineries have continued to raise jet fuel production, suggesting a benefit from competition of a few cents per gallon. The price differentials in Figure 7 show no huge savings, but do suggest that Alaska consumers and businesses have benefited measurably from the competition among Alaska refineries.

Figure 7. Alaska-Washington Price Differentials for Selected Petroleum Products, 1970-2000



Source: EIA, total energy consumption, transportation sector

If RIK contracts did not involve a subsidy, then were they really needed for the success of the projects they supported? Royalty-in-kind contracts at fair market value provided three direct benefits to the purchasers. First, the long-term contracts provided an element of security from the volatility of spot oil markets. Large integrated oil producers enjoyed this advantage, and the state's contracts helped level the playing field for independent refiners like Tesoro and Mapco. The security from spot market fluctuations played a significant role in financing refinery expansion. For example, in 1992, Petro Star obtained an option to buy RIK oil to start a refinery in Valdez. After it was able to obtain financing, the company decided it did not need the oil, and elected not to exercise its option (Alaska Division of Oil and Gas, 2004L 5-2). A second, related advantage that the contracts provide independent refiners is the diversification of supplies, in particular, a source outside major oil company control. The major North Slope producers may be perceived to have a vested interest in restraining competition in the west Coast market, which includes Alaska. Once it was clear that the new refineries were going to be built, the producers appeared to have been willing to sell them oil at competitive prices.

If RIK contracts have these advantages, then why has the state not elected to take more of their oil and gas in-kind? In general, according to DNR staff, the refiners have not asked for more oil. They pay a slight premium for long-term contract, and appear comfortable with buying the rest of their needs from the producers (Kevin Banks, personal communication).

Conclusions: Lessons Learned

Alaska's royalty-in-kind program has fostered the development of a local refining industry. The refining plants have employed relatively few workers but contributed significantly to local tax bases. Competition from Alaska refiners appears to have provided benefits to Alaska consumers and businesses. Instate refining has not only made a direct value-added contribution to the economy, it presumably has made an indirect contribution to diversification by substituting instate-manufactured fuel for imported fuel with at least some reduction in price. Since many important Alaska industries are fuel-intensive, any reduction at all in their fuel costs is potentially significant.

Political pressure to give away the state's resources to project sponsors promising economic benefits has been muted by the state's dependence on royalty revenues. The constitutional amendment that created the Permanent Fund requires that at least 25 percent of royalty revenue be deposited into the fund. The distribution of Permanent Fund Dividends to residents ensures that citizens, not just politicians, have a direct stake in the tradeoff between development and revenues. The Permanent Fund Dividend effect will likely protect the transparency that the program has enjoyed since the 1974 legislative amendments.

The successes and failures of the program suggest four lessons for development policy for Alaska and elsewhere. The first lesson is an affirmation of the benefits of transparency. A bad proposal is likely to wither under public scrutiny. Alaska was very fortunate to have avoided the potential economic disaster that would have occurred if it had embarked on either of the massive proposed petrochemical development schemes. Because cautious state officials had built milestones that Alpetco and Dow-Shell had to meet before they received additional help, both companies withdrew from their contracts early before they could inflict serious losses on the state.

The second lesson is that projects that rely on free market forces are more likely to succeed in the long run than projects built around regulatory policies or economic distortions. Market distortions are inherently arbitrary and ephemeral. They can change rapidly due to factors unrelated to Alaska conditions or to global supply and demand. The political risk of relying on these incentives only compounds the inherent economic risks that all projects face.

A third lesson to draw from Alaska's RIK program is that import substitution is as effective as exports for providing economic benefits. In some cases, import substitution can be preferable, as in the case of Alaska fuels, where it might reduce the cost of a critical imported input to a broad range of industrial activities.

The final lesson is that projects that can start at a small scale and expand gradually over time are more likely to succeed than ones that require a huge, risky up-front investment. Alaska's main refineries all started relatively small, and have made a series of upgrades over the years to keep pace with market opportunities. Today, the combined capacities of the two largest refineries substantially exceed the proposed size of Alpetco's export refinery. But unlike Alpetco, which had to raise $1.5 billion at one time, Tesoro and Mapco and its successors had two decades over which to raise a comparable sum.

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7

COMMUNITY & REGIONAL AFFAIRS
DIRECTOR'S REPORT

CURRENT COMMUNITY CONDITIONS: FUEL PRICES ACROSS ALASKA

JUNE 2008 UPDATE

INTRODUCTION

Retail fuel prices have continued to climb across Alaska. While increased energy prices have benefitted the State of Alaska through increased treasury revenues, households, small businesses, and communities have been under extreme duress. This is especially true in remote rural Alaska where environmental and climate conditions are harsh and electric generation and home heating are rarely powered by sources other than diesel fuel. A recent study[1] indicated low-income households in remote rural Alaska may be paying 41% of their income on home energy use, compared to four percent for the average Alaska household. Additionally, the cost of goods, services, and subsistence activities are disproportionately high in remote regions due to the impact of high fuel costs on transportation and basic survival needs.

During June 2008 the Division of Community & Regional Affairs (DCRA) repeated a statewide survey of retail heating fuel and gasoline prices in a cross-section of 100 select Alaska communities first initiated during 2005 (*Community Conditions: Fuel Prices Across Alaska*). This report, *Current Community Conditions: Fuel Prices Across Alaska, June 2008 Update* summarizes fuel survey findings, discusses changes in fuel prices during the past six months, and provides a current and historical perspective of fluctuating fuel prices.

Of critical importance, this report details fuel prices in each community on the date of contact. Many communities in remote rural Alaska are still awaiting spring fuel shipments or selling the remainder of last year's fuel shipment at 2007 prices. The severity of fuel price increases in these communities will not be fully realized until spring fuel arrives and 2008 prices are implemented. Given what is being experienced in other rural remote Alaska communities, an overall price increase of approximately 30% - 50% in the cost of heating fuel is anticipated in communities where fuel vendors are selling last year's supplies.

[1] *Estimated Household Costs for Home Energy*, University of Alaska Anchorage, Institute of Social and Economic Research, 2008

METHODOLOGY

The DCRA Research and Analysis Section, in consultation with the Local Government Assistance Section, developed the survey instrument and community sample frame during 2005. Communities were strategically selected to represent differing socioeconomic conditions and all Alaska regions including the Interior, North Slope, South Coastal, Southeast, and Western Regions. Selected communities had also generally been the recipient of an Alaska Energy Authority bulk fuel project during the recent past. Since a non-probability sampling method was utilized, this survey is considered a non-scientific study with results not generalizable to the entire population of rural Alaska communities. To accurately and consistently track longitudinal changes in fuel prices, the 2005 survey instrument and community sampling frame was used to collect 2006, 2007, and 2008 fuel information – the communities and questionnaire items remained the same from 2005 to 2008.

DCRA Research and Analysis staff implemented the survey instrument during June 23 - 25, 2008. In total, local fuel retailers from 100 communities were contacted (via telephone) and requested to provide current heating fuel (#1) and gasoline per gallon prices. Survey results are one-time measurements and representative of retail fuel prices on the particular day of contact. Heating fuel and gasoline prices may have changed between the time of contact and publishing of this report.

NATIONAL CONTEXT

In November 2007, federal analysts projected crude oil prices would average over $80 per barrel in 2008.[2] Prices have exceeded projections as crude oil prices have remained over $100 per barrel since early March and reached $140 by the end of June. Short-term estimates have been modified, with the average price per barrel now projected at $122 in 2008 and $126 per barrel in 2009.

In November 2007, the 2008 projected price per gallon for unleaded gasoline was slightly over $3.40 per gallon. The national average price per gallon on June 30, 2008 was $4.10 and is now projected to peak at $4.15 in August. As with crude oil, short-term projections have been modified, with the average price per gallon projected at $3.78 in 2008 and $3.92 in 2009.

Diesel fuel has risen at a faster rate than unleaded gasoline due to its strong demand in emerging markets. While unleaded gasoline increased from an average price of $2.81 per gallon in 2007 to $4.08 on June 16, 2008, diesel fuel has increased from an average price of $2.88 per gallon in 2007 to $4.69 on June 16, 2008. Short-term projections indicate diesel fuel prices will remain near $4.70 over the summer and average $4.32 per gallon in both 2008 and 2009.

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[2] United States Department of Energy, Energy Information Administration
Note - All federal projections are based on calendar year (January 1 to December 31) cycles. Federal projections use West Texas Intermediate (WTI) crude pricing as its standard. The price per barrel for WTI crude may vary from Alaska North Slope (ANS) crude.

ALASKA CONTEXT: ALASKA NORTH SLOPE CRUDE

While generally unpredictable, Alaska North Slope (ANS) crude prices have shown a historical pattern of balancing over time. This was true for the period spanning Fiscal Year (FY) 1989 to FY 2002[3] when the annual average price of ANS crude consistently hovered between $12 and $28 per barrel. In the six years hence, the annual average price of ANS crude has jumped from $21.79 (FY 2002) to approximately $96.57[4] (FY 2008) per barrel, an increase of 443% (Figures 1 and 2).

Figure 1. ANS Price per Barrel (FY02 - FY08)

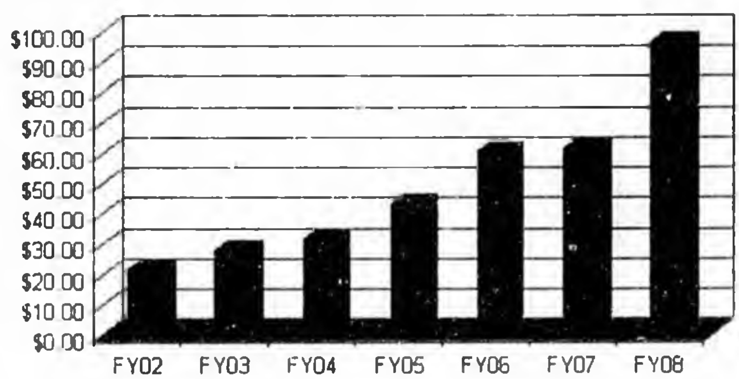
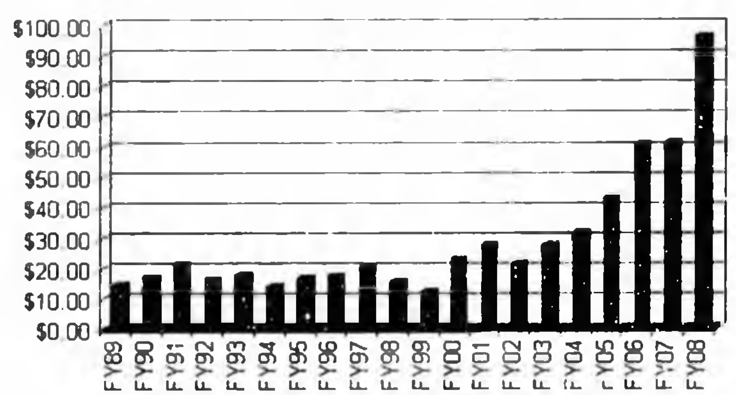


Figure 2. ANS Price per Barrel (FY89 - FY08)



From FY 1989 to FY 2005, the average price of ANS crude went up from one month to the next slightly more often (55%) than it went down (45%). During FY 2006 to FY 2008, month-to-month price increases were more than twice as common (71%) as price decreases (29%). The effect has been even more pronounced lately, as month-to-month price increases have occurred five times out of six (83%) from July 2007 to June 2008.

Not only has the frequency of month-to-month increases been more pronounced, but the amount prices have increased from one month to the next has been unprecedented. Of the twenty highest month-to-month increases, 80% have occurred since the beginning of FY 2006. Of the six highest month-to-month increases, five have occurred since November 2007,[5] with increases ranging from $7.31 to $13.00. These increases pushed ANS crude to a record high of $139.46 on June 27, 2008 - nearly double what ANS crude had cost one year prior ($70.82 on June 27, 2007).

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[3] Alaska Department of Revenue, Tax Division, http://tax.alaska.gov/

[4] FY 2008 average is an estimate based upon the daily West Coast price of ANS crude and should not be considered an official figure. All other annual averages are calculated by the Tax Division using a weighted average of sales to West Coast, Gulf Coast, and foreign destinations.

[5] In August 1990, the price of ANS crude increased by $10.44 over the previous month.

As unprecedented as the month-to-month changes have been, an analysis of daily ANS crude prices from January 1, 1999 to June 30, 2008 reveals day-to-day increases in price per barrel have also become more pronounced.[6] Of the 25 largest day-to-day increases during this period, 20 have occurred since October 25, 2007. The four largest day-to-day increases all occurred in June 2008 with the largest ($10.75, June 6, 2008) representing a one-day increase of greater significance than any month-to-month increase prior to May 2008.

CURRENT FUEL PRICES ACROSS ALASKA

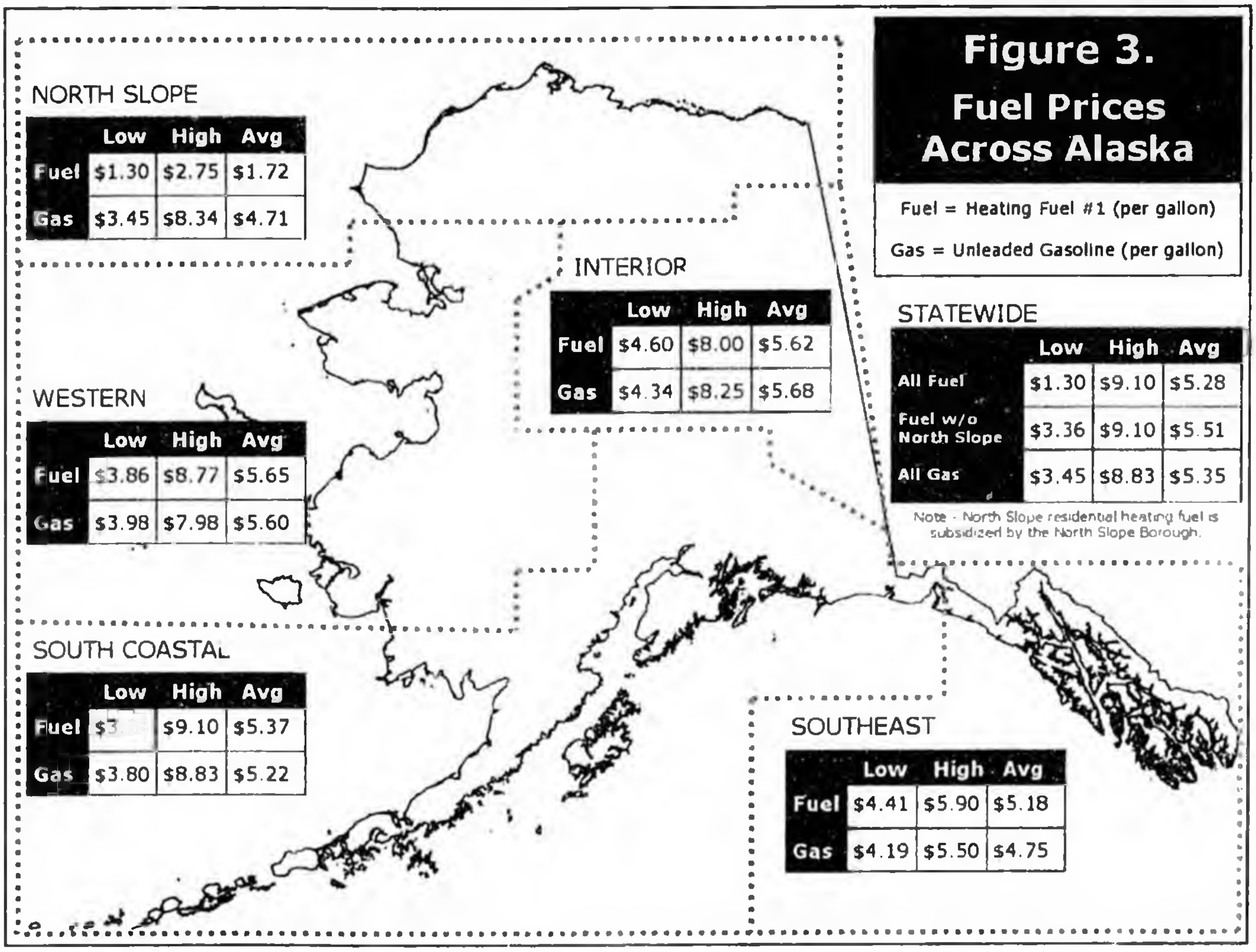


Figure 3. Fuel Prices Across Alaska

Fuel = Heating Fuel #1 (per gallon)

Gas = Unleaded Gasoline (per gallon)

NORTH SLOPE

	Low	High	Avg
Fuel	$1.30	$2.75	$1.72
Gas	$3.45	$8.34	$4.71

INTERIOR

	Low	High	Avg
Fuel	$4.60	$8.00	$5.62
Gas	$4.34	$8.25	$5.68

STATEWIDE

	Low	High	Avg
All Fuel	$1.30	$9.10	$5.28
Fuel w/o North Slope	$3.36	$9.10	$5.51
All Gas	$3.45	$8.83	$5.35

Note - North Slope residential heating fuel is subsidized by the North Slope Borough.

WESTERN

	Low	High	Avg
Fuel	$3.86	$8.77	$5.65
Gas	$3.98	$7.98	$5.60

SOUTH COASTAL

	Low	High	Avg
Fuel	$3.36	$9.10	$5.37
Gas	$3.80	$8.83	$5.22

SOUTHEAST

	Low	High	Avg
Fuel	$4.41	$5.90	$5.18
Gas	$4.19	$5.50	$4.75

[6] Alaska Department of Revenue, Tax Division, http://tax.alaska.gov/

As Figure 3 illustrates, average heating fuel prices per gallon vary across Alaska by region. Western Alaska communities report the highest average heating fuel retail price at $5.65 per gallon while North Slope communities report the lowest average retail price at $1.72 per gallon. Of noteworthy importance, the North Slope Borough provides free heating fuel for residential use through village corporations who distribute fuel to residents throughout the Borough, charging only a delivery fee on a per gallon basis. The North Slope Borough does not subsidize heating fuel for commercial use. Consequently, heating fuel retail price for commercial entities is significantly higher than residential use heating fuel (Table 1). Compared to other regions, and excluding the North Slope, Southeast Alaska communities experience relatively lower heating fuel prices indicated by an average price of $5.18 per gallon.

Table 1. North Slope Heating Fuel (#1) and Gasoline Retail Prices

Community	Community Retailer	Heating Fuel Retail Price Residential	Heating Fuel Retail Price Commercial	Gasoline Retail Price
Anaktuvuk Pass	Nunamiut Corporation	$1.30	$9.20	$8.34
Atqasuk	Atqasuk Corporation	$1.40	$4.10	$4.10
Barrow	BUEC, Inc.	Natural Gas	$4.65	$4.45
Kaktovik	Kaktovik Inupiat Corporation	$1.50	$4.95	$3.45
Nuiqsut	Kuukpik Corporation	$2.75	$3.95	$3.75
Point Hope	Tigara Corporation	$1.90	$5.05	$4.25
Wainwright	Olgoonik Corporation	$1.45	$5.84	$4.63

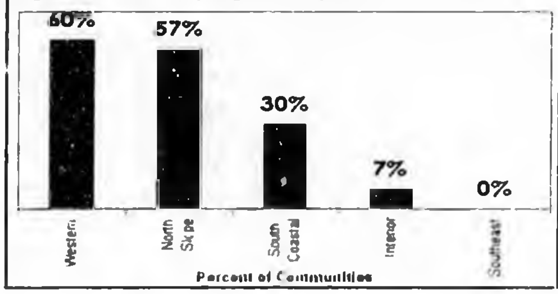
To accurately summarize statewide heating fuel prices, it is appropriate to exclude North Slope Region communities due to the North Slope Borough subsidy for residential use heating fuel. When considering statewide heating fuel prices, the Kokhanok Tribal Council in Kokhanok (South Coastal Region) reports the highest heating fuel retail price at $9.10 per gallon (see Appendix). In contrast, the City of Akutan in Akutan (South Coastal Region) reports the lowest heating fuel retail price at $3.36 per gallon. On average, heating fuel retails for $5.51 per gallon across Alaska with 93 communities reporting heating fuel prices (excluding North Slope Region communities).

As Figure 3 illustrates, average gasoline prices per gallon also vary across Alaska by region. Interior communities report the highest average gasoline retail price at $5.68 per gallon while North Slope communities report the lowest average retail price at $4.71 per gallon. Statewide retail prices indicate significant variation in gasoline retail price. Specifically, the Kokhanok Tribal Council in Kokhanok (South Central Region) reports the highest gasoline price at $8.83 per gallon. In contrast, the Kaktovik Inupiat

Corporation in Kaktovik (North Slope Region) reports the lowest gasoline retail price at $3.45 per gallon. On average, gasoline retail price is $5.35 per gallon across Alaska with 97 communities reporting.

Of noteworthy importance, the majority of Western (60%) and North Slope (57%) communities and one-third of South Coastal (30%) communities have not yet received a 2008 fuel shipment (Figure 4). Additionally, some retailers in these regions have elected to sell the remainder of their 2007 fuel stocks at last year's prices before instituting price increases. As fuel barges continue to deliver to remote rural Alaska communities and retailers begin selling this year's fuel stocks, the cost of fuel in these regions will increase significantly.

Figure 4. Awaiting Spring Fuel Shipment



CHANGE IN FUEL PRICES ACROSS ALASKA (11/2007 TO 6/2008)

During the past six months, heating fuel and gasoline retail prices have significantly increased from November 2007 to June 2008. With 93 communities reporting (excluding North Slope Region communities), the statewide average heating fuel price increased from $4.32 per gallon to $5.51 per gallon (Table 2). This $1.19 per gallon average price increase represents a 28% increase in statewide average heating fuel per gallon price. Prices have increased by one-third in the South Coastal (36%), Southeast (36%), and Interior (30%) Regions, and by nearly one-quarter (20%) in the Western Region. The Western Region has the highest average price at $5.65 per gallon.

Table 2. Regional Change in Heating Fuel (#1) Price (11/07 to 6/08)

Region	Communities Reporting	6/08 HF Average	Percent +/- 6/08 Statewide Average ($5.51)*	11/07 HF Average	Percent +/- 11/07 - 6/08
Interior	15	$5.62	2%	$4.32**	30%
North Slope	6***	$1.72	-69%	$1.46	18%
South Coastal	27	$5.37	-3%	$3.94	36%
Southeast	11	$5.18	-6%	$3.82	36%
Western	40	$5.65	3%	$4.71	20%
Statewide	**93********	**$5.51********	**n/a**	**$4.32**/********	**28%**

* Excludes North Slope Region communities, as heating fuel is subsidized by the North Slope Borough
** This reflects a data correction from the November 2007 report. Heating fuel in Arctic Village in 11/2007 was $6.36 per gallon, not $9.00 per gallon as reported
*** Seven North Slope communities surveyed; one (Barrow) does not use residential heating fuel and is consequently excluded.
**** Statewide heating fuel average excluding North Slope Region communities

With 97 communities reporting, the statewide average gasoline price increased from $4.54 to $5.35 per gallon from November 2007 to June 2008 (Table 3). This $0.81 per gallon average price increase represents an 18% increase in the statewide average. Prices have increased by more than one-quarter in the Interior (28%), Southeast (28%), and South Coastal (26%) Regions. The North Slope (12%) and Western (9%) Regions have experienced a more modest increase in average gasoline per gallon price; however, it is important to note a majority of communities in these two regions have not yet received a fuel shipment in 2008.

Table 3. Regional Change in Gasoline Price (11/07 to 6/08)

Region	Communities Reporting	6/08 Gas Average	Percent +/- 6/08 Statewide Average ($5.35)	11/07 Gas Average	Percent +/- 11/07 - 6/08
Interior	15	$5.68	6%	$4.44	28%
North Slope	7	$4.71	-12%	$4.20	12%
South Coastal	26*	$5.22	-2%	$4.15	26%
Southeast	11	$4.75	-11%	$3.71	28%
Western	38**	$5.60	5%	$5.13	9%
Statewide	**97*/****	**$5.35**	**n/a**	**$4.54**	**18%**

* One South Coastal community, Ouzinkie, reports they do not presently stock unleaded gasoline.
** Two Western communities, Atmautluak and Brevig Mission, had no gasoline available for sale during the June 2008 survey period.

Notably, the increases in price per gallon for heating fuel and gasoline from the period spanning November 2007 to June 2008 exceeded the increases from the two-year period spanning November 2005 to November 2007. From November 2007 to June 2008, the statewide average price of heating fuel increased by $1.19 per gallon, compared to an increase of $0.84 per gallon from November 2005 to November 2007. Similarly, from November 2007 to June 2008, the statewide average price of gasoline increased by $0.81 per gallon, compared to an increase of $0.71 per gallon from November 2005 to November 2007.

Retailers were queried regarding whether market demand for heating fuel or gasoline had generally increased, decreased, or remained the same during the past 12 months. Findings suggest a strong regional relationship regarding change in demand for heating fuel and gasoline. A significant percent of retailers in the Interior (40%) and Southeast (45%) Regions report a decrease in demand for heating fuel (Table 4). Vendors in the Interior Region report customers are more likely to heat with wood. Vendors in the Southeast Region report customers are either heating with wood or electric, depending on local availability of hydroelectric power. Two thirds or more of vendors report an increase or no change in gasoline demand in the North Slope (100%), South Coastal (74%), and Western (72%), compared to only one-quarter (27%) in the Interior Region. The stable market demand for both heating fuel and gasoline in communities outside of road system and Southeast Region communities is likely due to reliance on diesel for heating and electric, lack of developed options for alternative energy, and need for gasoline to participate in subsistence-related activities.

Table 4. Change in Demand for Heating Fuel (#1) and Gasoline (past 12 months)

Region	Heating Fuel Increased	Heating Fuel Decreased	Heating Fuel No Change	Gasoline Increased	Gasoline Decreased	Gasoline No Change
Interior	13%	40%	47%	7%	73%	20%
North Slope	0%	0%	100%	33%	0%	67%
South Coastal	28%	32%	40%	30%	26%	44%
Southeast	10%	45%	45%	10%	45%	45%
Western	31%	14%	55%	17%	28%	55%
Statewide*	**23%**	**26%**	**51%**	**19%**	**34%**	**47%**

* 92 communities reporting on heating fuel. 91 communities reporting on gasoline.

METHODS OF PAYMENT ACCEPTED BY FUEL VENDORS

Recent proposals to provide energy relief have led to a discussion of the most practical way to disburse funds to eligible Alaska residents. A proposal to issue debit cards to Alaska residents was recently dismissed after rural legislators claimed some of their constituents are not served by vendors who accept credit cards. As part of the June 2008 survey, fuel retailers were asked what methods of payment they accept and whether they accept energy assistance payments through the federal Low Income Housing Energy Assistance Program (LIHEAP) on behalf of their customers. In Alaska, LIHEAP payments may be issued by the State of Alaska Department of Health and Social Services (DHSS) Heating Assistance Program or by approved tribal organizations. Retailers were also asked whether credit accounts are issued to customers, if a formal credit check is required to set up an account, and approximately what percent of customers are using accounts.

Not surprisingly, all vendors (100%) accept cash and personal checks (Table 5). Nearly all vendors (96%) report receiving heating assistance payments on behalf of their customers. Three-quarters (73%) accept credit cards and two-thirds (64%) accept debit cards. Given the significant number of local fuel vendors in rural Alaska who do not accept credit cards and debit cards as a method of payment, implementing statewide energy relief through the distribution of debit cards is likely not practical or feasible.

Two-thirds of vendors (64%) offer some form of in-house credit to their customers, ranging from 52% of vendors in the South Coastal Region to 73% of vendors in the Southeast Region. Vendors in the Southeast Region were most likely to require a formal credit check, with three-quarters of vendors (75%) who extend credit requiring a credit check to open an account. Statewide, less than half of vendors (45%) who extend credit to their customers require a credit check. In every region outside of Southeast, only a minority of vendors require a credit check prior to extending credit. Only one-third of vendors (30%) in the Interior Region require a credit check prior to extending credit.

Table 5. Payment Methods Accepted by Fuel Retailers

Region	Cash	Check	Credit Card	Debit Card	LIHEAP Energy Asst.	In-Store Account
Interior	100%	100%	60%	53%	87%	67%
North Slope	100%	100%	71%	71%	100%	71%
South Coastal	100%	100%	70%	59%	96%	52%
Southeast	100%	100%	100%	91%	100%	73%
Western	100%	100%	73%	63%	97%	68%
Statewide	**100%**	**100%**	**73%**	**64%**	**96%**	**64%**

How vendors utilize in-house credit varies greatly. Some vendors extend credit to an entire community, while others offer it to a few select customers who they know and trust (range = 2% to 100%, see Appendix). Statewide, vendors who extend credit report approximately half of customers (50%) use in-house credit, ranging from 45% in the Western Region to 61% in the North Slope and South Coastal Regions.

METHODS OF FUEL TRANSPORTATION

Methods of transporting heating fuel and gasoline varies across Alaska with fuel retailers using barge, air, truck, or a combination to transport fuel into the community (Table 6). With 100 communities reporting, the wide majority (83%) report barging fuel into the community. In contrast, nine communities (9%) report trucking fuel into the community, four communities (4%) report air freighting fuel into the community, and four communities (4%) utilize multiple methods of transporting fuel into the community (i.e., barge/truck, barge/air, or truck/air). Fairbanks and Valdez do not transport heating fuel because of a local on-site refinery, gasoline is transported by truck and barge respectively.

Table 6. Fuel Transportation Method

Transportation Method	Statewide	Interior Region	North Slope Region	South Coastal Region	Southeast Region	Western Region
Barge Only	83	4	5	23*	11	40
Truck Only	9	8*	0	1	0	0
Air Only	4	3	0	1	0	0
Barge/Truck	2	0	0	2	0	0
Barge/Air	1	0	1	0	0	0
Truck/Air	1	0	1	0	0	0
Total Communities Reporting	**100**	**15**	**7**	**27**	**11**	**40**

*Heating fuel is refined in Fairbanks and Valdez, gasoline is transported by truck and barge respectively.

ADDRESSING THE IMMEDIATE CHALLENGE

To date, short-term strategies for alleviating high fuel costs and corresponding impacts for rural energy have primarily included implementing temporary energy assistance funding programs. Such programs have only been possible through continued cooperation between federal agencies, state agencies, local governments, and tribal governments.

Currently, the State of Alaska has implemented several programs to assist with the immediate cost of energy. Community Revenue Sharing (CRS) has been reinstituted for FY 2009 and will provide $60 million to 233 Alaska communities. While not technically an energy relief program, municipalities and nonprofit community associations have the option of using funds to alleviate rising fuel prices, improve energy efficiency in community facilities, or upgrade local utility systems.

Prior to CRS, the State had authorized $48.7 million in one-time payments during FY 2008 for the Community Energy Assistance Program (CEAP) and $48 million in one-time payments during FY 2007 for the Municipal Energy Assistance Program (MEAP). CEAP payments were issued to 233 Alaska communities and MEAP payments were issued to 163 municipal entities across Alaska for the purpose of purchasing fuel for community or municipal use.

Alaska Energy Authority (AEA) is the administrative authority for the Bulk Fuel Revolving Loan Fund, the Bulk Fuel Bridge Loan Program, and the Power Cost Equalization (PCE) Program. The Revolving Loan Fund provides loans to communities, utilities, and fuel retailers in rural communities to purchase emergency, semi-annual, or annual bulk fuel supplies. From January 1, 2008 to June 27, 2008 a total of 19 Revolving Loan Fund applications were approved by AEA. The combined value of these loans is $5.3 million.

The Bridge Loan Program provides loan assistance to communities that are ineligible for loans from the Revolving Loan Fund. Presently, the Bridge Loan Program administers loans to 14 communities. Since its inception in 2004, the Bridge Loan Program has issued loans to 26 communities valued at a combined $6.7 million. Of noteworthy importance, the Bridge Loan Program has never experienced a loan default.

PCE provides energy cost relief to rural residential customers by providing a credit per kilowatt hour used, up to 500 kilowatt hours per month. The amount of the credit is determined using a formula based on the average retail residential rate in Anchorage, Fairbanks, and Juneau. In FY 2007, PCE provided over $25 million in energy relief to approximately 78,500 people in 183 rural Alaska communities..

Funds from the federal Low Income Home Energy Assistance Program (LIHEAP) are administered and distributed in Alaska by the Department of Health and Social Services, Division of Public Assistance, Heating Assistance Program (DHSS-HAP) and by approved tribal organizations. LIHEAP provides heating assistance to households with gross incomes of up to 150% of the federal poverty guideline for Alaska. In FY 2007, DHSS-HAP disbursed $6.6 million in LIHEAP funds to 8,896 households in 156 communities. Statewide, LIHEAP funds provided $9.1 million to 13,321 households in 257 communities.

With the passage of House Bill 152 in the last legislative session, DHSS-HAP will be issued $10 million in State funds during FY 2009 to distribute to households with gross incomes exceeding 150% of the federal poverty guideline for Alaska but not exceeding 225%, greatly increasing the reach of heating assistance to middle class Alaskans.

The Alaska Housing Finance Authority (AHFA) provides direct grants to homeowners across Alaska through the Home Energy Rebate Program and the Weatherization Program. The Home Energy Rebate Program allows all Alaska homeowners to have their home reviewed by a certified energy rater and provides up to $10,000 for home improvements leading to improved energy efficiency. In addition, 15-year loans of up to $30,000 are available to qualified borrowers whose rebates do not cover the full amount of energy upgrade costs. The Home Energy Rebate Program has received $100 million in funding for FY 2009.

The Weatherization Program is a need-based program providing free weatherization assistance for homes, rental units, and multifamily dwellings with priority given to the elderly, disabled, families with young children, and families earning less than 60% of the median income, as defined by the U.S. Department of Housing and Urban Development. The Weatherization Program has received $200 million in funding for FY 2009. These two programs reduce the amount of energy required to heat their residences, regardless of homeowner status.

ADDRESSING THE LONG-TERM CHALLENGE

A primary long-term concern for rural Alaska is the quality, quantity, and management of available storage in rural bulk fuel tank farms. In many rural communities, city and tribal governments own and operate the bulk fuel tank farms. DCRA's Local Government Assistance Section provides training and direct assistance to communities leading to improved financial management and utility management, more effective local governance, and better communication with regulatory agencies.

The Bulk Fuel Upgrade Program, co-administered by AEA and the Denali Commission, continues to assist communities to make necessary repairs or upgrades to ensure bulk fuel tank farms are safe and code-compliant.

With the recent spike in fuel prices, particularly in rural Alaska, increased focus has been placed on improved efficiency and alternative energy generation. The Rural Power System Upgrade Program, administered by AEA, provides funding to improve the efficiency of an existing diesel generation system, replace an existing system with a more efficient design, or fund heat recovery systems to reduce a community's energy draw. AEA and the Denali Commission are also providing funding for feasibility studies, design assistance, and construction through the Alaska Alternative Energy Projects Program. These two agencies have awarded over $5 million in FY 2009 to 33 projects across the state in the areas of wind, hydro, biomass, solar, and geothermal power.

SUMMARY

Alaska North Slope (ANS) crude prices have been rising at an unprecidented rate over the past three years. Instead of moderating, the pace of growth has been increasing. Five of the six highest month-to-month increases in crude oil prices have occurred since November 2007 and the four highest daily increases over the past decade occurred in June 2008.

From November 2007 to June 2008, heating fuel prices across 100 Alaska communities increased from $4.32 per gallon to $5.51 per gallon and gasoline prices increased from $4.54 per gallon to $5.35 per gallon, increases of 28% and 18% respectively. As daunting as those numbers are, they do not accurately paint the picture of fuel prices outside of Southeast and road system communities. Due to a late spring breakup, the majority of remote rural Alaska communities have yet to receive fuel and institute 2008 pricing. When fuel shipments arrive and pricing is adjusted, many of these vendors will be selling heating fuel at $2.00 to $3.50 per gallon more than reported.

High heating fuel and gasoline prices combined with high unemployment rates, limited local economies, and local governments struggling to provide basic services have presented remote rural Alaska communities and households with challenging circumstances. As energy costs continue to soar, there is increasing urgency within these communities for both short- and long-term solutions.

Community Heating Fuel and Gasoline Prices - June 2008 Update

Community	Region	**Community Retailer:** (entity selling fuel)	**Heating Fuel #1 6/2008 Retail:** (selling price per gallon)	**Percent +/- Statewide HF Average ($5.51*):**	**Percent +/- 11/2007 Retail:** (selling price per gallon)	**Gasoline 6/2008 Retail Price:** (selling price per gallon)	**Percent +/- Statewide Gas Average ($5.38):**	**Percent +/- 11/2007 Retail:** (selling price per gallon)
Alatna	Interior	Alatna Traditional Council	$5 50	0%	-8%	$7.00	31%	17%
Anderson	Interior	Nenana Heating	$4 88	-11%	42%	$4.89	-9%	39%
Arctic Village	Interior	Arctic Village Traditional Council	$8.00	45%	34%*	$8.00	50%	14%
Circle	Interior	(HF#1) Steese (Gas) HC Company Store	$4 98	-10%	42%	$5.35	0%	47%
Delta Junction	Interior	Delta Fuel Company	$4 63	-16%	41%	$4 49	-16%	39%
Eagle	Interior	Telegraph Hill Services	$4 95	-10%	41%	$5 50	43	47%
Fairbanks	Interior	Petro Star - Flint Hill	$4 60	-17%	44%	$4 34	-19%	40%
Galena	Interior	Crowley Marine Services	$6 62	20%	54%	$6.13	15%	31%
Healy	Interior	Keith's Healy Service	$5 20	-6%	49%	$4 92	-8%	38%
Hughes	Interior	Hughes City Council	$7 50	36%	0%	$8.25	54%	38%
Huslia	Interior	Huslia Gas & Oil	$5 75	4%	28%	$5 75	7%	15%
Minto	Interior	North Fork Store	$5 70	3%	39%	$5 55	4%	37%
Nenana	Interior	Nenana Heating	$4 88	-11%	42%	$4 89	-9%	39%
Ruby	Interior	Dinega Fuel Corporation	$6 15	12%	43%	$4 50	-16%	0%
Tanana	Interior	Tanacon Fuel	$4 95	-10%	25%	$5 70	7%	14%
Anaktuvuk Pass	North Slope	Nunamiut Corporation	$1 30	-76%	30%	$8 34	56%	52%
Atqasuk	North Slope	Atqasuk Corporation	$1 40	-75%	0%	$4 10	-23%	0%
Barrow	North Slope	Eskimo Inc	Natural Gas	n/a	n/a	$4 45	-17%	0%
Kaktovik	North Slope	Kaktovik Inupiat Corporation	$1 50	-73%	-3%	$3 45	-36%	0%
Nuiqsut	North Slope	Kuukpik Corporation	$2 75	-50%	90%	$3 75	-30%	12%
Point Hope	North Slope	Tigara Corporation	$1 90	-66%	15%	$4 25	-21%	0%
Wainwright	North Slope	Olgoonik Corporation	$1 45	-74%	-14%	$4 63	-13%	7%

Community Heating Fuel and Gasoline Prices - June 2008 Update

Community	Region	Community Retailer: (entity selling fuel)	Heating Fuel #1 6/2008 Retail: (selling price per gallon)	Percent +/- Statewide HF Average ($5.51*):	Percent +/- 11/2007 Retail: (selling price per gallon)	Gasoline 6/2008 Retail Price: (selling price per gallon)	Percent +/- Statewide Gas Average ($5.36):	Percent +/- 11/2007 Retail: (selling price per gallon)
Akutan	South Coastal	City of Akutan	$3 36	-39%	22%	$3 80	-29%	17%
Atka	South Coastal	Atka Native Store	$7 99	45%	60%	$5 09	-5%	0%
Chenega Bay	South Coastal	Chenega Bay Utility	$5 60	2%	70%	$5 70	7%	54%
Chignik	South Coastal	City of Chignik	$4 29	-22%	28%	$4 32	-19%	52%
Chitina	South Coastal	Chitina Services Oil and Gas	$4 79	-13%	39%	$4 75	-11%	38%
Clark's Point	South Coastal	City of Clark's Point	$5 13	-7%	9%	$4 70	-12%	-8%
Cordova	South Coastal	Hovers Mover	$5 47	-1%	31%	$5 32	-1%	31%
Dillingham	South Coastal	Delta Western	$5 78	5%	36%	$5 18	-3%	4%
Glennallen	South Coastal	Service Oil and Gas	$4 29	-22%	25%	$4 75	-11%	38%
Goodnews Bay	South Coastal	Mumtram Pikkai Village Corporation	$4 00	-27%	0%	$5 10	-5%	0%
Homer	South Coastal	Homer Run Oil	$4 72	-14%	38%	$4 77	-11%	42%
King Cove	South Coastal	Peter Pan Seafood	$3 77	-32%	34%	$4 34	-19%	21%
Kodiak	South Coastal	Thompson (HF) Petro Marine (Gas)	$4 74	-14%	45%	$4 64	-13%	33%
Kokhanok	South Coastal	Kokhanok Tribal Council	$9 10	65%	46%	$8 83	65%	31%
Larsen Bay	South Coastal	City of Larsen Bay	$6 68	21%	54%	$6 11	14%	49%
Nelson Lagoon	South Coastal	Nelson Lagoon Enterprises	$5 96	8%	45%	$5 71	7%	18%
New Stuyahok	South Coastal	New Stuyahok Village Corporation	$4 99	-9%	8%	$6 10	14%	12%
Nondalton	South Coastal	City of Nondalton	$7 95	44%	29%	$7 82	46%	28%
Old Harbor	South Coastal	City of Old Harbor	$6 57	19%	55%	$5 83	9%	40%
Ouzinkie	South Coastal	Ouzinkie Native Corporation	$3 56	-35%	16%	n/a	n/a	n/a
Port Lions	South Coastal	Kizhuyak Oil Sales	$5 25	-5%	42%	$4 65	-13%	16%
Saint George	South Coastal	Delta Fuel Company	$5 50	0%	23%	$4 08	-24%	0%

Community Heating Fuel and Gasoline Prices - June 2008 Update

Community	Region	Community Retailer: (entity selling fuel)	Heating Fuel #1 6/2008 Retail: (selling price per gallon)	Percent +/- Statewide HF Average ($5.61*):	Percent +/- 11/2007 Retail: (selling price per gallon)	Gasoline 6/2008 Retail Price: (selling price per gallon)	Percent +/- Statewide Gas Average ($5.35):	Percent +/- 11/2007 Retail: (selling price per gallon)
Sand Point	South Coastal	Trident Seafoods	$5.04	-9%	49%	$4.45	-17%	37%
Seldovia	South Coastal	Seldovia Fuel and Lube	$5.33	-3%	50%	$4.98	-7%	39%
Togiak	South Coastal	Togiak Village Corporation	$6.02	9%	63%	$5.59	4%	33%
Unalaska	South Coastal	Delta Western	$4.43	-20%	27%	$4.15	-22%	27%
Valdez	South Coastal	North Pacific	$4.74	-14%	46%	$4.93	-8%	48%
Angoon	Southeast	Angoon Oil and Gas	$5.15	-7%	32%	$4.87	-9%	19%
Craig	Southeast	Petro Marine	$4.68	-15%	30%	$4.26	-20%	25%
Gustavus	Southeast	Gustavus Dray - Gustavus Propane	$5.18	-8%	43%	$4.94	-8%	36%
Hoonah	Southeast	Hoonah Trading	$5.38	-2%	29%	$4.80	-10%	26%
Juneau	Southeast	Delta Western - Fred Meyer Gas	$4.83	-12%	39%	$4.42	-17%	34%
Kake	Southeast	Kake Tribal Fuel	$5.90	7%	44%	$5.34	0%	37%
Pelican	Southeast	Pelican Fuel Dock	$5.72	4%	36%	$4.19	-22%	3%
Petersburg	Southeast	Petro Marine	$4.93	-11%	34%	$4.31	-19%	26%
Point Baker	Southeast	Point Baker Trading Post	$5.50	0%	38%	$5.50	3%	41%
Thorne Bay	Southeast	Petro Alaska	$4.41	-20%	27%	$4.40	-18%	25%
Wrangell	Southeast	Wrangell Oil - Fennemore's Service	$5.35	-3%	42%	$5.25	-2%	39%
Akiak	Western	Kokarmiut Corporation	$4.70	-15%	2%	$5.10	-5%	2%
Anvik	Western	Deloyges, Inc	$6.25	13%	39%	$5.75	7%	15%
Atmautluak	Western	Atmauthluak Limited	$5.19	-8%	8%	OUT	n/a	n/a
Bethel	Western	Crowley	$6.33	15%	49%	$5.77	8%	28%
Brevig Mission	Western	Brevig Mission Native Store	$4.45	-19%	0%	OUT	n/a	n/a
Deering	Western	Deering IRA	$3.86	-30%	-3%	$5.15	-4%	21%

Community Heating Fuel and Gasoline Prices - June 2008 Update

Community	Region	Community Retailer: (entity selling fuel)	Heating Fuel #1 6/2008 Retail: (selling price per gallon)	Percent +/- Statewide HF Average ($5.51*):	Percent +/- 11/2007 Retail: (selling price per gallon)	Gasoline 6/2008 Retail Price: (selling price per gallon)	Percent +/- Statewide Gas Average ($5.35):	Percent +/- 11/2007 Retail: (selling price per gallon)
Emmonak	Western	Emmonak Corp. Tank Farm	$4.85	-12%	0%	$5.91	10%	0%
Gambell	Western	ANICA (Gambell Native Store)	$4.75	-14%	0%	$5.85	9%	0%
Golovin	Western	Golovin Public Utilities	$4.00	-27%	0%	$4.25	-21%	0%
Grayling	Western	AYL Grayling Fuel Company	$4.50	-18%	0%	$5.50	3%	0%
Holy Cross	Western	Holy Cross Oil Company	$5.90	7%	30%	$5.90	10%	11%
Hooper Bay	Western	Crowley Marine	$5.05	-8%	0%	$5.32	-1%	0%
Kaltag	Western	Kaltag Cooperative	$6.25	13%	39%	$6.00	12%	20%
Kiana	Western	Kiana Traditional Council	$5.67	3%	10%	$7.00	31%	18%
Kotlik	Western	Kotlik Yupik Enterprises	$5.11	-7%	14%	$7.32	37%	31%
Kotzebue	Western	Crowley	$4.20	-24%	0%	$4.36	-19%	0%
Koyuk	Western	Koyuk Native Corporation	$3.98	-28%	0%	$3.98	-26%	0%
Kwigillingok	Western	KWIK Marina Inc	$4.85	-12%	0%	$5.30	-1%	-1%
Marshall	Western	Maserculiq Inc	$7.25	32%	49%	$4.64	-13%	-4%
McGrath	Western	Crowley	$7.04	28%	43%	$6.45	21%	13%
Mountain Village	Western	Azachorak Fuel	$5.07	-8%	5%	$5.01	-6%	0%
Noorvik	Western	Morris Trading Post	$4.60	-17%	0%	$4.88	-9%	0%
Nulato	Western	City of Nulato	$6.75	23%	35%	$6.00	12%	20%
Nunapitchuk	Western	Nunapitchuk LTD	$5.19	-6%	9%	$5.24	-2%	5%
Pilot Station	Western	Pilot Station Native Corporation	$7.13	29%	19%	$6.41	20%	5%
Quinhagak	Western	Qanirtuuq Corporation	$7.02	27%	48%	$6.22	16%	19%
Russian Mission	Western	Russian Mission Corporation	$4.75	-14%	0%	$5.52	3%	0%
Saint Michael	Western	Saint Michael Fuel Company	$4.84	-12%	4%	$5.18	-3%	4%

Community Heating Fuel and Gasoline Prices - June 2008 Update

Community	Region	Community Retailer: (entity selling fuel)	Heating Fuel #1 6/2008 Retail: (selling price per gallon)	Percent +/- Statewide HF Average ($5.61*):	Percent +/- 11/2007 Retail: (selling price per gallon)	Gasoline 6/2008 Retail Price: (selling price per gallon)	Percent +/- Statewide Gas Average ($5.35):	Percent +/- 11/2007 Retail: (selling price per gallon)
Savoonga	Western	ANICA (Savoonga Native Store)	$4.69	15%	0%	$5.59	4%	0%
Scammon Bay	Western	Askinuk Corporation	$5.00	-9%	0%	$5.00	-7%	3%
Shishmaref	Western	Shishmaref Native Store	$5.09	-8%	0%	$5.25	-2%	0%
Sleetmute	Western	Henry Hill Store	$8.20	49%	45%	$7.70	44%	21%
Stebbins	Western	Tapraq Fuel Company	$6.00	9%	21%	$5.41	1%	0%
Teller	Western	City of Teller	$8.00	45%	111%	$4.25	-21%	0%
Toksook Bay	Western	Nunakauiak Yupik Corporation	$8.77	59%	67%	$7.98	49%	35%
Tuntutuliak	Western	Qinarmiut Corporation	$7.66	39%	49%	$6.65	24%	33%
Unalakleet	Western	Unalakleet Native Corporation	$6.81	24%	49%	$4.88	-9%	5%
Upper Kalskag	Western	City of Upper Kalskag	$5.00	-9%	0%	$5.15	-4%	0%
Wales	Western	Wales Native Store	$4.94	-12%	2%	$4.94	-8%	0%
White Mountain	Western	White Mountain Native Store	$6.25	13%	57%	$5.99	12%	31%

Note - Statewide heating fuel average price does not include North Slope communities as they are subsidized by the borough and therefore not comparable.
* This reflects a correction of data from the November 2007 report. Heating fuel in Arctic Village in November 2007 was $6.36 per gallon, not the previously reported $9.00 per gallon.

Heating Fuel and Gasoline Vendor Information - June 2008 Update

Community	[illegible]	[illegible]	Spring Fuel Arrived?	Change in HF Demand? (increase, decrease, remain same)	Change in Gas Demand? (increase, decrease, remain same)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Alatna	Interior	Air	Yes	Increase	Decrease	No	No	Yes	Yes	No	5%
Anderson	Interior	Truck	Yes	Same	[illegible]crease	Yes	Yes	Yes	No	n/a	n/a
Arctic Village	Interior	Air	Yes	Increase	Increase	No	No	Yes	No	n/a	n/a
Circle	Interior	Truck	Yes	Decrease	Same	No	No	Yes	No	n/a	n/a
Delta Junction	Interior	Truck	Yes	Decrease	Decrease	Yes	Yes	Yes	Yes	Yes	70%
Eagle	Interior	Truck	Yes	Decrease	Decrease	Yes	No	No	Yes	No	95%
Fairbanks	Interior	Truck	Yes	Decrease	Decrease	Yes	Yes	Yes	Yes	Yes	75%
Galena	Interior	Barge	Yes	Same	Same	Yes	Yes	Yes	No	n/a	n/a
Healy	Interior	Truck	Yes	Same	Same	Yes	Yes	No	Yes	Yes	75%
Hughes	Interior	Air	Yes	Same	Decrease	No	No	Yes	Yes	No	15%
Huslia	Interior	Barge	Yes	Decrease	Decrease	No	No	Yes	Yes	No	25%
Minto	Interior	Truck	Yes	Same	Decrease	Yes	Yes	Yes	Yes	No	75%
Nenana	Interior	Truck	Yes	Same	Decrease	Yes	Yes	Yes	No	n/a	n/a
Ruby	Interior	Barge	No	Decrease	Decrease	No	No	Yes	Yes	No	10%
Tanana	Interior	Barge	Yes	Same	Decrease	Yes	Yes	Yes	Yes	No	80%
Anaktuvuk Pass	North Slope	Barge	Yes	Same	Same	Yes	Yes	Yes	Yes	Yes	90%
Atqasuk	North Slope	Barge/Air	Yes	Same	Same	No	No	Yes	No	n/a	n/a
Barrow	North Slope	Barge	No	n/a	Increase	Yes	Yes	n/a	No	n/a	n/a
Kaktovik	North Slope	Barge	No	Same	Increase	No	No	Yes	Yes	No	50%
Nuiqsut	North Slope	Air/Truck	Yes	Don't Know	Don't Know	Yes	Yes	Yes	Yes	Yes	Don't Know
Point Hope	North Slope	Barge	No	Same	Same	Yes	Yes	Yes	Yes	Don't Know	100%
Wainwright	North Slope	Barge	No	Same	Same	Yes	Yes	Yes	Yes	No	5%

Heating Fuel and Gasoline Vendor Information - June 2008 Update

Community	Region	[illegible]	Spring Fuel Arrived?	Change in HF Demand? (increase, decrease, remain same)	Change in Gas Demand? (increase, decrease, remain same)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Akutan	South Coastal	Barge	No	Same	Increase	No	No	Yes	No	n/a	n/a
Atka	South Coastal	Barge	Yes	Same	Same	Yes	Yes	Yes	No	n/a	n/a
Chenega Bay	South Coastal	Barge	Yes	Increase	Increase	No	No	Yes	No	n/a	n/a
Chignik	South Coastal	Barge	No	Decrease	Decrease	No	No	Yes	Yes	No	Don't Know
Chitina	South Coastal	Barge/ Truck	Yes	Decrease	Decrease	Yes	Yes	Yes	Yes	No	Don't Know
Clark's Point	South Coastal	Barge	No	Decrease	Same	No	No	Yes	No	n/a	n/a
Cordova	South Coastal	Barge	Yes	Decrease	Don't Know	Yes	No	Yes	Yes	Yes	50%
Dillingham	South Coastal	Barge	Yes	Don't Know	Don't Know	Yes	Yes	Yes	Yes	Yes	Don't Know
Glennallen	South Coastal	Truck	Yes	Decrease	Decrease	Yes	Yes	Yes	Yes	Yes	Don't Know
Goodnews Bay	South Coastal	Barge	No	Same	Same	Yes	Yes	Yes	No	n/a	n/a
Homer	South Coastal	Barge/ Truck	Yes	Decrease	Decrease	Yes	Yes	Yes	Yes	Yes	50%
King Cove	South Coastal	Barge	Yes	Don't Know	Don't Know	Yes	Yes	No	No	n/a	n/a
Kodiak	South Coastal	Barge	Yes	Same	Same	Yes	Yes	Yes	No	n/a	n/a
Kokhanok	South Coastal	Barge	No	Increase	Increase	No	No	Yes	No	n/a	n/a
Larsen Bay	South Coastal	Barge	No	Same	Same	Yes	Yes	Yes	Yes	No	Don't Know
Nelson Lagoon	South Coastal	Barge	No	Increase	Same	Yes	No	Yes	No	n/a	n/a
New Stuyahok	South Coastal	Barge	No	Increase	Increase	Yes	Yes	Yes	No	n/a	n/a
Nondalton	South Coastal	Air	Yes	Increase	Increase	Yes	No	Yes	No	n/a	n/a
Old Harbor	South Coastal	Barge	Yes	Same	Same	No	No	Yes	Yes	No	100%
Ouzinkie	South Coastal	Barge	Yes	Same	n/a	No	No	Yes	Yes	No	75%
Port Lions	South Coastal	Barge	Yes	Decrease	Same	No	No	Yes	No	n/a	n/a
Saint George	South Coastal	Barge	Yes	Decrease	Decrease	Yes	Yes	Yes	No	n/a	n/a
Sand Point	South Coastal	Barge	Yes	Same	Same	Yes	Yes	Yes	Yes	No	50%

Heating Fuel and Gasoline Vendor Information - June 2008 Update

Community	Region	[illegible]	Spring Fuel Arrived?	Change in HF Demand? (increase, decrease, remain same)	Change in Gas Demand? (increase, decrease, remain same)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Seldovia	South Coastal	Barge	Yes	Same	Same	Yes	Yes	Yes	Yes	No	50%
Togiak	South Coastal	Barge	Yes	Increase	Increase	Yes	Yes	Yes	Yes	No	95%
Unalaska	South Coastal	Barge	Yes	Increase	Increase	Yes	Yes	Yes	Yes	Yes	3%
Valdez	South Coastal	Barge/ Refinery	Yes	Same	Decrease	Yes	Yes	Yes	Yes	Yes	75%
Angoon	Southeast	Barge	Yes	Same	Decrease	Yes	Yes	Yes	No	n/a	n/a
Craig	Southeast	Barge	Yes	Decrease	Decrease	Yes	Yes	Yes	Yes	Yes	70%
Gustavus	Southeast	Barge	Yes	Same	Same	Yes	Yes	Yes	Yes	No	20%
Hoonah	Southeast	Barge	Yes	Same	Decrease	Yes	Yes	Yes	No	n/a	n/a
Juneau	Southeast	Barge	Yes	Same	Same	Yes	Yes	Yes	Yes	Yes	Don't Know
Kake	Southeast	Barge	Yes	Increase	Increase	Yes	No	Yes	Yes	Yes	40%
Pelican	Southeast	Barge	Yes	Decrease	Same	Yes	Yes	Yes	No	n/a	n/a
Petersburg	Southeast	Barge	Yes	Decrease	Same	Yes	Yes	Yes	Yes	Yes	85%
Point Baker	Southeast	Barge	Yes	Same	Decrease	Yes	Yes	Yes	Yes	No	33%
Thorne Bay	Southeast	Barge	Yes	Decrease	Decrease	Yes	Yes	Yes	Yes	Yes	30%
Wrangell	Southeast	Barge	Yes	Decrease	Same	Yes	Yes	Yes	Yes	Yes	45%
Akiak	Western	Barge	No	Decrease	Same	Yes	Yes	Yes	Yes	No	10%
Anvik	Western	Barge	Yes	Increase	Same	No	No	Yes	Yes	No	95%
Atmautluak	Western	Barge	No	Same	Decrease	Yes	Yes	Yes	Yes	Don't Know	25%
Bethel	Western	Barge	Yes	Same	Same	Yes	Yes	Yes	Yes	Yes	15%
Brevig Mission	Western	Barge	No	Same	Same	No	No	Yes	Yes	No	80%
Deering	Western	Barge	No	Same	Same	No	No	Yes	No	n/a	n/a
Emmonak	Western	Barge	Yes	Don't Know	Don't Know	Yes	Yes	Yes	Yes	Yes	95%
Gambell	Western	Barge	No	Same	Same	Yes	Yes	Yes	No	n/a	n/a

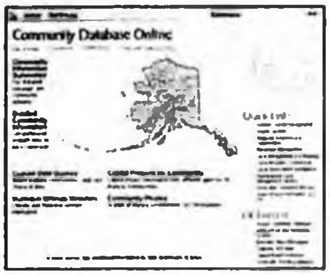
Heating Fuel and Gasoline Vendor Information - June 2008 Update

Community	Region	[illegible]	Spring Fuel Arrived?	Change in HF Demand? (increase, decrease, remain same)	Change in Gas Demand? (increase, decrease, remain same)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Golovin	Western	Barge	No	Same	Same	No	No	Yes	No	n/a	n/a
Grayling	Western	Barge	Yes	Increase	Increase	No	No	Yes	Yes	Yes	45%
Holy Cross	Western	Barge	Yes	Decrease	Same	Yes	Yes	Yes	Yes	No	33%
Hooper Bay	Western	Barge	No	Same	Same	Yes	Yes	Yes	Yes	Yes	2%
Kaltag	Western	Barge	No	Same	Decrease	N	No	No	Yes	No	40%
Kiana	Western	Barge	No	Increase	Increase	Yes	Yes	Yes	No	n/a	n/a
Kotlik	Western	Barge	Yes	Same	Increase	Yes	Yes	Yes	Yes	No	33%
Kotzebue	Western	Barge	No	Same	Same	Yes	Yes	Yes	Yes	Yes	30%
Koyuk	Western	Barge	No	Increase	Increase	No	No	Yes	No	n/a	n/a
Kwigillingok	Western	Barge	Yes	Same	Same	Yes	Yes	Yes	Yes	No	30%
Marshall	Western	Barge	No	Increase	Same	Yes	Yes	Yes	Yes	No	50%
McGrath	Western	Barge	Yes	Increase	Same	Yes	Yes	Yes	Yes	Yes	2%
Mountain Village	Western	Barge	Yes	Decrease	Decrease	Yes	No	Yes	Yes	Yes	80%
Noorvik	Western	Barge	No	Decrease	Same	Yes	Yes	Yes	No	n/a	n/a
Nulato	Western	Barge	Yes	Increase	Decrease	Yes	Yes	Yes	No	n/a	n/a
Nunapitchuk	Western	Barge	No	Increase	Increase	Yes	Yes	Yes	Yes	Yes	100%
Pilot Station	Western	Barge	No	Increase	Same	Yes	Yes	Yes	Yes	Yes	4%
Quinhagak	Western	Barge	Yes	Same	Decrease	Yes	No	Yes	Yes	Yes	10%
Russian Mission	Western	Barge	Yes	Same	Same	Yes	Yes	Yes	Yes	No	100%
Saint Michael	Western	Barge	No	Same	Same	No	No	Yes	No	n/a	n/a
Savoonga	Western	Barge	No	Same	Decrease	Yes	Yes	Yes	No	n/a	n/a
Scammon Bay	Western	Barge	No	Don't Know	Don't Know	Yes	No	Yes	Yes	Don't Know	Don't Know
Shishmaref	Western	Barge	No	Don't Know	Don't Know	Yes	No	Don't Know	No	n/a	n/a

Heating Fuel and Gasoline Vendor Information - June 2008 Update

Community	Region	[illegible]	Spring Fuel Arrived?	Change in HF Demand? (increase, decrease, remain same)	Change in Gas Demand? (increase, decrease, remain same)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sleetmute	Western	Barge	Yes	Decrease	Decrease	Yes	Yes	Yes	Yes	No	15%
Stebbins	Western	Barge	No	Increase	Decrease	No	No	Yes	No	n/a	n/a
Teller	Western	Barge	No	Same	Same	No	No	Yes	Yes	No	Don't Know
Toksook Bay	Western	Barge	Yes	Same	Decrease	Yes	Yes	Yes	Yes	Yes	50%
Tuntutuliak	Western	Barge	Yes	Same	Same	Yes	Yes	Yes	Yes	Yes	20%
Unalakleet	Western	Barge	No	Same	Same	Yes	Yes	Yes	Yes	No	50%
Upper Kalskag	Western	Barge	No	Increase	Increase	No	No	Yes	No	n/a	n/a
Wales	Western	Barge	No	Don't Know	Don't Know	Yes	Yes	Yes	Yes	No	100%
White Mountain	Western	Barge	Yes	Same	Decrease	Yes	Yes	Yes	No	n/a	n/a

The Division of Community and Regional Affairs (DCRA) offers a wide range of online data and information resources to communities, agencies, and the public. The following is a select listing of DCRA's varied information resources:



The **Community Profiles Database** contains profiles for more than 390 places in Alaska, the majority of which are communities. Information found in this database includes population, history, culture, facilities, census data, and more. Visit the **Community Profiles Database** at:

http://commerce.alaska.gov/dcra/commdb/CF_COMDB.htm

The **Municipal Officials Directory (MOD) Online System** offers dynamic contact information for communities across the state, including local and regional contacts, municipal officials, and employee listings. Visit the **MOD Online System** at:

http://commerce.alaska.gov/dcra/MOD/MOD.htm

The **Alaska Economic Development Resource Guide (EDRG)** is an inventory of programs and services which can provide economic development assistance to Alaska communities and businesses. Visit the **EDRG** at:

http://commerce.alaska.gov/dcra/edrg/EDRG.htm

The **Capital Projects Database** contains descriptions, funding levels, and status for over 8,000 capital projects in Alaska communities. The **Capital Projects Database** is designed to quickly deliver requested queries in Excel to your email in-box. Visit the **Capital Projects Database** at:

http://commerce.alaska.gov/dcra/commdb/CF_RAPIDS.htm

Community Profile Maps display land use, land suitability, land ownership, and ANCSA 14(c) land settlement boundaries. These maps are ideal for use in planning economic development projects within mapped communities. Visit **Community Profile Maps** at:

http://commerce.alaska.gov/dcra/profiles/profile-maps.htm

Division of Community & Regional Affairs

The Community Fuel Survey was conducted by the Alaska Department of Commerce, Community, and Economic Development, Division of Community & Regional Affairs (DCRA). If you have any questions or comments regarding the survey or this report, please contact:

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CURRENT COMMUNITY CONDITIONS: FUEL PRICES ACROSS ALASKA

JULY 2008 SUPPLEMENTAL

As follow-up to the report *Current Community Conditions: Fuel Prices Across Alaska, June 2008 Update*, the Division of Community & Regional Affairs contacted fuel vendors between July 23 – 25, 2008 in communities where a spring or summer bulk fuel shipment had not been received prior to the original survey period (June 23 – 25, 2008). Specifically, the majority of Western (60%) and North Slope (57%) communities and one-third of South Coastal (30%) communities had not received a fuel shipment prior to the original survey period. In total, local fuel retailers from 37 communities were contacted (via telephone) and queried whether spring fuel had arrived, whether fuel pricing had been updated, and to provide current heating fuel (#1) and gasoline per gallon prices. Survey results are one-time measurements and representative of retail fuel prices on the particular day of contact (July 23 – 25, 2008). Heating fuel and gasoline prices may have changed between the time of contact and publishing of this summary. This brief report, *Current Community Conditions: Fuel Prices Across Alaska, July 2008 Supplemental* summarizes fuel survey findings and changes in prices since November 2007.

Heating Fuel and Gasoline Survey - July 2008 Supplemental

Community	Region	Community Retailer:	Heating Fuel #1 7/2008 Retail:	Percent +/- 11/2007 Retail:	Gasoline 7/2008 Retail Price:	Percent +/- 11/2007 Retail:	Spring Fuel Arrived?	Spring Pricing Instituted?
Ruby	Interior	Dinega Fuel Corporation	$6.15	43%	$4.50	0%	Yes	HF Only
Barrow	North Slope	Eskimo Inc.	Natural Gas	n/a	$4.45	0%	No	n/a
Kaktovik	North Slope	Kaktovik Inupiat Corporation	$1.50	-3%	$3.45	0%	No	n/a
Point Hope	North Slope	Tigara Corporation	$1.90	15%	$4.25	0%	No	n/a
Wainwright	North Slope	Olgoonik Corporation	$1.45	-14%	$4.63	7%	No	n/a
Akutan	South Coastal	City of Akutan	$4.78	74%	$4.38	35%	Yes	Yes
Chignik	South Coastal	City of Chignik	$4.29	28%	$4.32	52%	Yes	No
Clark's Point	South Coastal	City of Clark's Point	n/a	n/a	n/a	n/a	n/a	n/a
Goodnews Bay	South Coastal	Mumtram Pikkai Village Corp.	$6.14	54%	$5.10	0%	Yes	HF Only
Kokhanok	South Coastal	Kokhanok Tribal Council	$9.25	48%	$8.83	31%	Yes	Yes
Larsen Bay	South Coastal	City of Larsen Bay	$6.68	54%	$6.11	49%	No	n/a
Nelson Lagoon	South Coastal	Nelson Lagoon Enterprises	$5.96	45%	$5.71	18%	Yes	No

Community	Region	Community Retailer:	Heating Fuel #1 7/2008 Retail:	Percent +/- 11/2007 Retail:	Gasoline 7/2008 Retail Price:	Percent +/- 11/2007 Retail:	Spring Fuel Arrived?	Spring Pricing Instituted?
New Stuyahok	South Coastal	New Stuyahok Village Corp.	$4.99	6%	$6.10	12%	No	n/a
Akiak	Western	Kokarmiut Corporation	n/a	n/a	n/a	n/a	n/a	n/a
Atmautluak	Western	Atmauthluak Limited	$5.69	18%	$5.75	20%	Yes	Yes
Brevig Mission	Western	Brevig Mission Native Store	$4.45	0%	$5.10	0%	Yes	No
Deering	Western	Deering IRA	$3.86	-3%	$5.15	21%	No	n/a
Gambell	Western	ANICA (Gambell Native Store)	$4.75	0%	$5.85	0%	No	n/a
Golovin	Western	Golovin Public Utilities	$8.23	106%	$7.50	76%	Yes	Yes
Hooper Bay	Western	Crowley Marine	$7.37	46%	$7.24	36%	Yes	Yes
Kaltag	Western	Kaltag Cooperative	$6.25	39%	$6.00	20%	No	n/a
Kiana	Western	Kiana Traditional Council	$6.45	25%	$7.00	18%	Yes	Yes
Kotzebue	Western	Crowley	$6.09	45%	$5.80	33%	Yes	Yes
Koyuk	Western	Koyuk Native Corporation	$3.98	0%	$3.98	0%	Yes	No
Marshall	Western	Maserculiq Inc.	$7.25	49%	$6.98	45%	No	n/a
Noorvik	Western	Morris Trading Post	$4.60	0%	$5.05	3%	Gas Only	No
Nunapitchuk	Western	Nunapitchuk LTD.	$5.69	20%	$5.74	15%	Yes	Yes
Pilot Station	Western	Pilot Station Native Corp.	$7.13	19%	$6.55	8%	Yes	Yes
Saint Michael	Western	Saint Michael Fuel Company	$7.75	67%	$7.50	51%	Yes	Yes
Savoonga	Western	ANICA (Savoonga Native Store)	$4.69	0%	$5.59	0%	No	No
Scammon Bay	Western	Askinuk Corporation	$6.96	39%	$6.81	40%	Yes	Yes
Shishmaref	Western	Shishmaref Native Store	$5.09	0%	$5.25	0%	No	n/a
Stebbins	Western	Tapraq Fuel Company	$7.98	61%	$7.71	43%	Yes	Yes
Teller	Western	Teller Native Corporation	n/a	n/a	n/a	n/a	n/a	n/a
Unalakleet	Western	Unalakleet Native Corporation	$6.49	42%	$4.65	0%	Yes	HF Only
Upper Kalskag	Western	City of Upper Kalskag	$5.25	5%	$5.15	0%	No	n/a
Wales	Western	Wales Native Store	$4.70	-1%	$4.80	-3%	Yes	No

The Community Fuel Survey was conducted by the Alaska Department of Commerce, Community, and Economic Development, Division of Community & Regional Affairs (DCRA). If you have questions or comments regarding the survey or report, please contact:

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Institute of Social and Economic Research

RESEARCH SUMMARY

R.S. No. 68

University of Alaska Anchorage • May 2008

DOLLARS OF DIFFERENCE: WHAT AFFECTS FUEL PRICES AROUND ALASKA?

By Meghan Wilson, Ben Saylor, Nick Szymoniak, Steve Colt, and Ginny Fay

The spike in oil prices has hit rural Alaskans especially hard, because they rely mostly on fuel oil for heating. But some rural residents are paying much more than others—at times 100% more.

The Alaska Energy Authority asked ISER to analyze what determines the prices rural households pay for fuel oil and gasoline. The agency hopes this research can help identify possible ways of holding down fuel prices in the future. In this summary we report only fuel oil prices, but the full report (see back page) also includes gasoline prices.

We studied 10 communities that reflect, as much as possible, the forces driving fuel prices. We collected information in November 2007, and fuel prices have gone up a lot since then. Crude oil sold for $120 a barrel in mid-May, up from about $80 in fall 2007.

But the factors that influence fuel prices haven't changed—and it's those factors that are most important, rather than prices at a specific time.

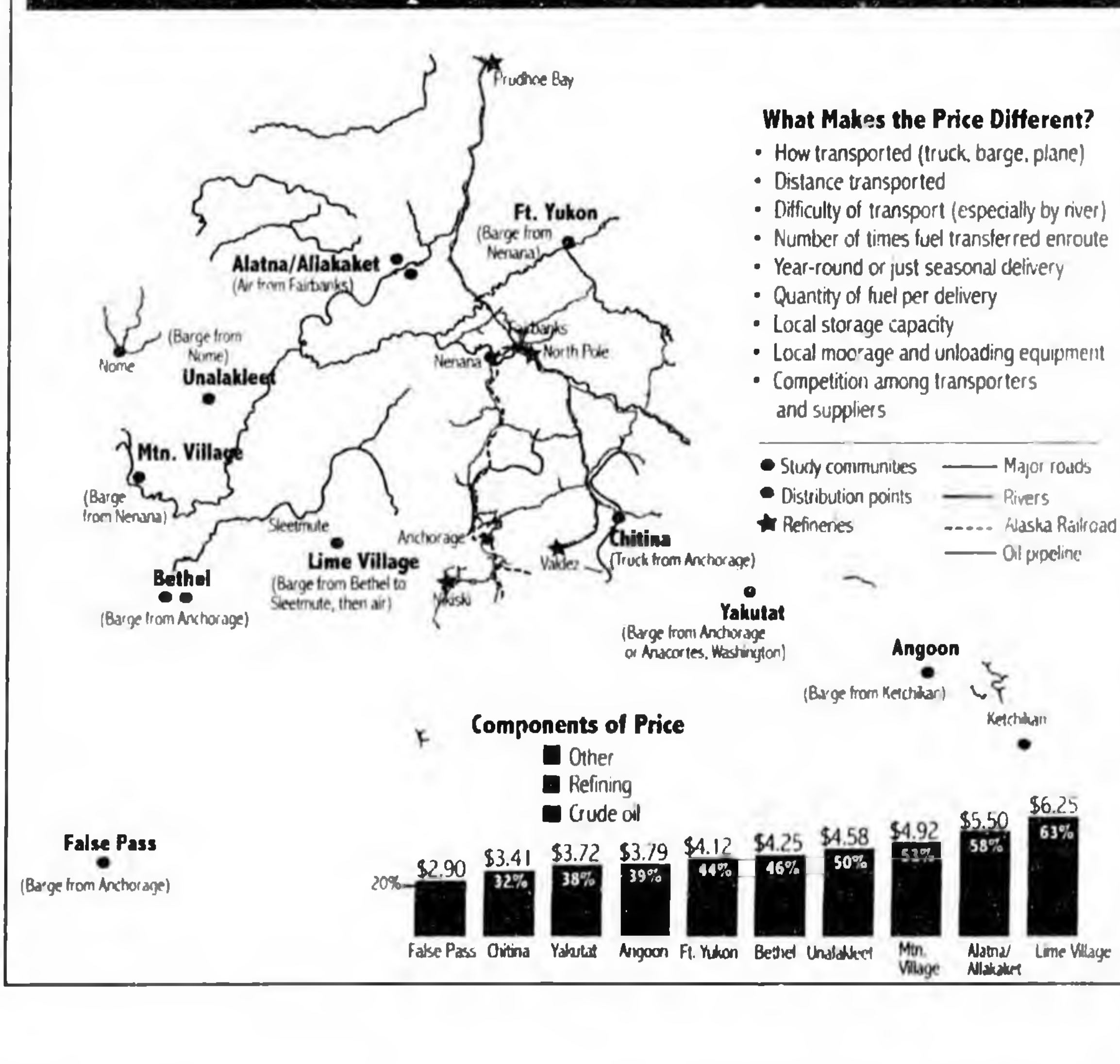
The map tells a big part of the story. The 10 study communities are scattered across Alaska. They include places that get fuel by truck, barge, and air. Some are much closer to refineries and distribution hubs than others. Some can get fuel through fairly simple transportation routes, and others get fuel only after it has been loaded and unloaded several times.

All those things influence prices. But so do less obvious factors, like the condition of local docks and fuel-handling equipment, the amount of competition among both suppliers and transportation companies, and community storage capacity. Sometimes small remote communities can take advantage of economies of scale, if commercial operators maintain large local storage tanks.

At the base of fuel prices are the costs of buying and refining crude oil (the blue and green bars in the map). In November 2007 those costs together accounted for an estimated $2.31 of the price Alaska households paid for a gallon of fuel oil. Transportation and other costs added 59 cents to $3.94 to the price in various study communities—making up from 20% to 63% of the final price for a gallon of fuel oil.

Inside we discuss all the factors that make fuel prices so different around Alaska—and the possibilities for influencing those prices.

$2.90 to $6.25 Per Gallon: Price of Fuel Oil in Study Communities, November 2007



What Affects the Price of Fuel Oil?

Fuel oil (also often called diesel) is one of several products distilled from crude oil and used for heating fuel or engine fuel. Fuel used for home heating is exempt from federal and state taxes, but not from local sales taxes.[1] Many but not all rural communities have sales taxes.

When we refer to fuel oil prices, we specifically mean the price *households* pay. Most rural Alaskans rely on fuel oil for heating houses and other buildings and generating electricity. Anchorage and a few nearby towns—and Barrow on the North Slope—have access to natural gas. Some places in southeast Alaska have hydro-powered electricity.

All communities have special characteristics that influence prices, but there are a few common contributing factors:

- *Crude oil and refining costs.* For this analysis, we assumed these costs were the same for fuel sold in all communities. In reality they vary, depending on when the fuel was purchased and other factors. But we couldn't get enough data to assign crude-oil costs to fuel in each community. Instead we based our estimates on costs the Energy Information Administration reported for September 2007.
- *Cost of transporting, storing, and distributing fuel.* These costs make up most of the difference in price among communities, but they are very difficult to segregate.
- *Other factors*, like the effects of competition (or lack of competition) are hard to quantify but also affect prices.

World Price of Crude Oil

Crude oil is processed into fuel oil, gasoline, jet fuel, and other fuels. Petroleum is also used in hundreds of other products, including tires, medicines, and plastics. The price of crude oil is driven by worldwide demand for petroleum products, but it's also influenced by political events and natural disasters that disrupt or threaten oil flows.

Oil from the North Slope has made Alaska a top U.S. oil producer since the late 1970s, and some oil is also still produced in Cook Inlet, where it was first discovered in the 1950s.

Refining Crude Oil into Fuel Oil

Fuel oil for most of Alaska is produced in Alaska. The big exception is southeast Alaska, where communities are strategically located to take advantage of the best prices available from either Alaska or West Coast refineries. Alaska's refineries are at North Pole in the Interior, Nikiski on the Kenai Peninsula, and Valdez, the terminal of the oil pipeline (see map, page 1). Oil companies also operate two refineries on the North Slope—but their production is only for North Slope operations, and we don't include it in this discussion.

Much of the oil for Alaska refineries comes from the North Slope, some from Cook Inlet, and some from other countries. Alaska refineries currently produce something in the range of 127,000 barrels (or 5.3 million gallons) of petroleum products daily. Production varies during the year, with demand for jet fuel and gasoline higher in the summer and demand for fuel oil higher in the winter.

As the figure at the bottom of the page shows, fuel for home heating and for vehicles makes up on average about 11% of the production at Alaska refineries. Even though winters are long and cold, the state population is small, at about 675,000. Also, the city of Anchorage (where 40% of Alaskans live) and nearby communities have access to natural gas for home heating.

Gasoline, the main product of many U.S. refineries, makes up only about 15% of Alaska's refinery production. Again, that's because the in-state market is small. Jet fuel is the main product of state refineries, making up about 60% of total production but 70% or more at individual refineries during the summer season. Anchorage's international airport creates much of the demand for jet fuel, but the Fairbanks airport and Air Force bases in the state also buy jet fuel.

Refineries in Alaska can compete with other U.S. refineries because transporting fuel the long distance to Alaska usually eliminates whatever price advantage the Outside refineries might have. From 2000 to 2007, average wholesale prices (adjusted for inflation) for a gallon of fuel oil in Alaska were comparable to those in the West Coast and Rocky Mountain regions and somewhat higher than the U.S. average.

Average U.S. Wholesale Prices, Gallon of Fuel Oil,* 2000-2007
(In 2007 Dollars)

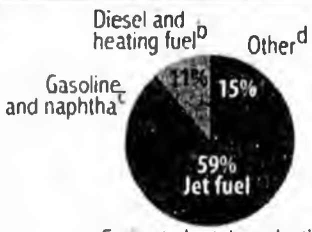
Gulf Coast	$1.30
U.S. average	$1.34
Midwest	$1.36
Alaska	$1.42
West Coast	$1.43
Rocky Mountain	$1.45

*# 2 fuel oil

Source: U.S. Energy Information Administration

Estimated Production by Petroleum Refineries in Alaska, 2008[a]

(Based on average production. Seasonal production varies.)



- Jet fuel is the main product of Alaska's refineries, varying from 50% to 70% of production at individual refineries.
- In other states, gasoline is the main refinery product. But in Alaska the market for gasoline is small (because the population is small) and the market for jet fuel is large, mostly because of traffic at Anchorage's international airport. The Fairbanks airport and Air Force bases in Alaska also use locally produced jet fuel.
- The level and composition of production varies substantially by season and with demand. Demand for jet fuel and gasoline climbs in the summer and demand for heating fuel drops.

Estimated total production:
Approximately 127,250 barrels (5.3 million gallons) per day[a]

[a]This estimate is based on information available from Alaska refineries, which have different mixes of products and report their production at different levels of detail. It includes production at the Flint Hills refinery at North Pole, the Tesoro refinery at Nikiski, and the Petro Star refineries — Valdez and North Pole. It does not include production at the two refineries on the North Slope, operated by BP Alaska and Conoco Phillips, which produce about 2,700 to 3,800 barrels per day of Arctic heating fuel for industry needs on the North Slope.

[b]Includes various products distilled from oil that can be used as a fuel for heating homes and other buildings or for vehicles, boats, generators, and other machinery.

[c]Naphtha is a byproduct of gasoline production and is used as a feedstock for the manufacture of chemicals and other products. Most naphtha produced in Alaska is exported. A small amount of light naphtha produced in Alaska is used to power generators.

[d]Includes asphalt, propane, and various other products, some of which are exported. Also includes the share of production the Flint Hills refinery uses to fuel its own needs.

Sources: Alaska Division of Oil and Gas; Flint Hills Resources; Tesoro Refineries; and Petro Star Inc.

Getting Fuel to Communities

Fuel buyers typically have contracts with transportation companies, specifying fuel delivery charges. We weren't able to learn current contract delivery prices, because companies keep that information confidential. Instead, we looked at all the factors that contribute to the costs of getting fuel to communities.

Sometimes fuel oil goes directly to Alaska communities from the refinery. But most often, fuel is first transported by rail, pipeline, truck, or barge to distribution hubs and then on to small rural communities.

Almost all rural Alaska communities are along the coast or on rivers or lakes. Some, mostly in southcentral and interior Alaska, are on the road system. So most rural places get fuel by barge and perhaps a couple of dozen by truck. A very small number—typically on rivers too shallow for fuel barges to navigate—routinely get fuel by air.

Trucking fuel is generally cheapest. Road communities are usually closer to distribution hubs, can get more frequent deliveries, and have lower storage and inventory costs. But so many factors affect fuel prices—for example, the timing of a fuel purchase—that even road communities don't always have the lowest prices.

Flying fuel is the most expensive, and communities will only get fuel by air if they have to because of their location or if they face a fuel shortage at a time when barges can't deliver.

Barging fuel is complex and risky, and in many places barges can only deliver during a short ice-free season. So while barging is cheaper than flying, it's still expensive, for many reasons. Those include:

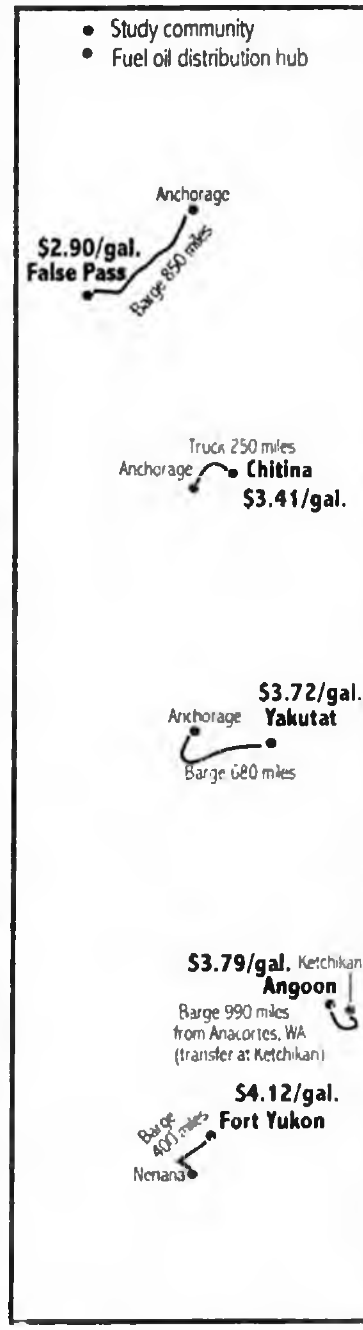
- *Distance from the refinery.* The further away the community, the higher the cost. Also, communities closer to more than one refinery can choose among sources and take advantage of any lower prices.
- *Quantity of fuel purchased.* Communities can save money by buying fuel in larger quantities, because the fixed delivery costs are spread over more gallons of fuel. But to buy more fuel, communities must have the money not only to buy the fuel but also to increase their storage capacity.
- *Short seasons.* Ice prevents deliveries in many western and northwestern communities during the winter—so fuel transporters have to recover their capital costs during the short shipping season.
- *Fuel transfers.* Fuel for some small communities has to be transferred several times on its way from the refinery. Loading and unloading the fuel, storing it at hub communities, and incurring other transfer costs all add to the price at the final destination.
- *Navigational hazards.* Many stretches of Alaska rivers are risky, increasing running time and insurance and crew costs. Also, navigating rivers requires a lot of local knowledge—making it hard for inexperienced firms to compete.
- *Custom-built barges.* Barges operating in Alaska's western rivers must be custom-built to draw no more than 3.5 feet of water.
- *Small and shallow ports.* In many communities, fuel from has to be lightered ashore in smaller vessels, increasing the handling costs.
- *Inadequate moorage and fuel-pumping equipment*—making it more difficult, time consuming, and risky to unload fuel in some locations.

Storing and Distributing Fuel

Communities across Alaska also face the costs of storing fuel once it arrives. Fuel tanks are expensive to buy and maintain and have to meet government environmental regulations. And finally, distributing fuel to individual customers also adds to the price. A few communities allow customers to pick up the fuel themselves.

Study Communities

The maps on this page and the next show transportation routes to the 10 study communities and community fuel oil prices (in order from the lowest to the highest) as of November 2007.



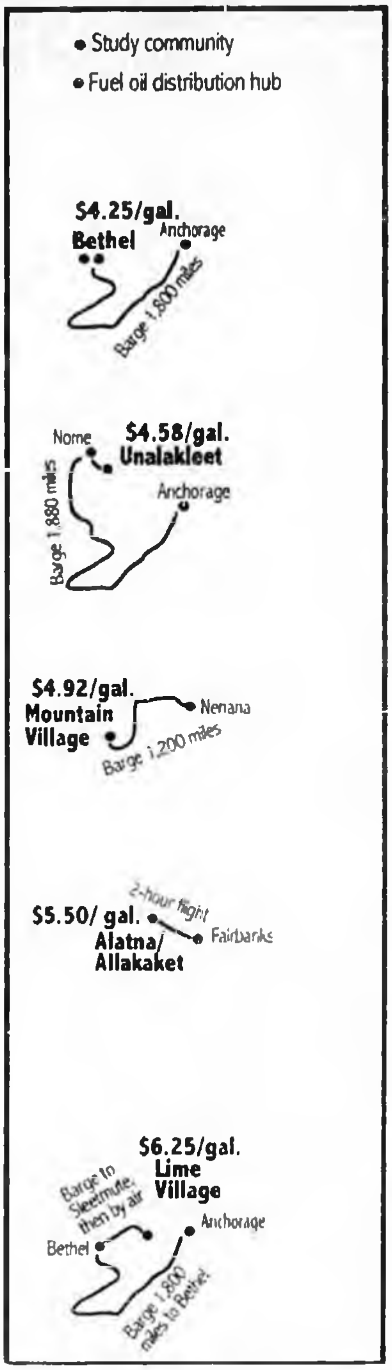
- *False Pass* (population 54) is in the Aleutians. Fuel is barged 850 miles from Anchorage (or Dutch Harbor) once a year—which can have price benefits, depending on the timing of the fuel purchase. A seafood processor maintains 330,000-gallon storage tanks there; local residents can also buy that fuel. Local sales tax on fuel is 3%.
- *Chitina* (population 110) benefits from being on the road, 250 miles from Anchorage. But storage is limited, and frequent fuel purchases mean the community is quickly affected by rising prices. There is no local sales tax on fuel.
- *Yakutat* (population 620) is on the Gulf of Alaska and has an ice-free, deep harbor. Fuel is barged from Anchorage (680 miles) or Anacortes, Washington (1,300 miles). Very large storage tanks (6.5 million-gallon) owned by a transportation company and a major airline benefit residents. Local sales tax on fuel is 4%.
- *Angoon* (population 500) is on Admiralty Island. Fuel can be barged year-round from Anacortes (or Anchorage), which helps reduce prices. But the fuel has to be transferred at Ketchikan and lightered ashore at Angoon. Also, the community has little storage. There is no local tax on fuel.
- *Ft. Yukon* (population 570) is on the upper Yukon River. Fuel has to be barged 400 miles upriver from Nenana and lightered ashore. Ice prevents winter deliveries. But there is relatively large (660,000-gallon) storage capacity. The local tax on fuel sales is 3%.

• *Bethel (population 5,800) is a fuel distribution hub on the Kuskokwim River* in southwest Alaska. It benefits from large (14.8 million-gallon) storage tanks a transportation company owns there. But fuel is barged 1,800 miles from Anchorage, ice prevents winter deliveries, and fuel has to be lightered ashore. There is no local tax on fuel.

• *Fuel for Unalakleet (population 710) on Norton Sound* is first barged nearly 1,900 miles from Anchorage to the Nome fuel hub. Ice prevents winter deliveries, and fuel is lightered ashore. Local sales tax on fuel is 3%.

• *Fuel for Mountain Village (population 790) on the lower Yukon River* is usually barged nearly 1,200 miles downriver from Nenana. Fuel can be delivered only during a short season, in a shallow-draft barge. The community has limited storage capacity. Local sales tax is 3%.

• *Allakaket and Alatna (population about 125) are neighboring villages* on the upper Koyukuk River, where barges can't navigate. They get fuel by air from Fairbanks. They also have small (16,000 gallon) storage tanks. There is no local sales tax.



• *Lime Village (population 25) is on the Stony River* in the Kuskowim Delta. Barges can't reach the community. Fuel comes 1,800 miles by barge from Anchorage to Bethel, where it is transferred and shipped up the Kuskokwim River to Sleetmute, then flown to Lime Village. The storage tank holds only 1,800 gallons. There is no local sales tax.

Conclusions

We weren't able to break out all the factors driving fuel prices, because we couldn't distinguish some distribution costs from profits. Also, some of the study communities are so small and hard to reach that typically just one or two companies compete for their business. It's impossible to specify the price effects of that limited competition.

Still, we learned a lot about what drives fuel prices and have thought about what the state might do to help hold down prices. It's important to point out that the state has already created or expanded programs to help communities buy fuel or pay fuel companies and to help low-income households having trouble paying their energy bills.

The Alaska Energy Authority and the Denali Commission are also working together to improve fuel-storage capacity in many rural communities. Being able to store more fuel should help reduce community fuel prices. Other potential policies include:

• Consider selling state royalty oil to Alaska refineries at below-market prices, since the price of crude oil has a big effect on fuel prices. But the state wouldn't be able to control the downstream costs, and it's not clear how much benefit households would see after the fuel had passed through the entire distribution chain.

• Investigating the extent of cooperative buying in communities among utilities, schools, the state (which buys fuel for state facilities), and others would be worthwhile. Our research didn't include that assessment, but we heard anecdotally that deliveries may not be well-coordinated. Taking advantage of economies of scale could have price benefits.

• Having non-profit brokers to coordinate and fund collective fuel purchases could help reduce prices. We know that lack of cash frequently limits how much fuel small communities can buy at one time.

• Investigating possibilities for improving barge landings in small communities. Delivering fuel in places with inadequate infrastructure is harder and more expensive. But building barge landings is expensive for small communities, and there are also potential liability issues in the event of fuel spills. If there were a way to improve barge landings and resolve liability questions, both the delivery costs and the risk of fuel spills might be reduced.

Fuel will always cost more in small, remote places than in bigger, more accessible places. Public policies can't change that. But there are a number of points along the chain of fuel distribution where policymakers might find ways to help alleviate high fuel oil prices.

And in the long run, rural Alaskans may have other energy choices. The North Slope has one of the largest accumulations of natural gas in the U.S., and the state and oil companies are considering options for building a pipeline to carry that gas to market. The Alaska Natural Gas Development Authority is also examining ways to make the gas available in-state. The Alaska Legislature has appropriated money for a variety of renewable energy projects and studies. But it's still uncertain when rural Alaskans might have access to natural gas or other less-expensive energy sources.

Note

1. Although fuel oil is not subject to state or federal taxes, diesel for motor fuel—a virtually identical product—is taxed. In other states, fuel oil is dyed to distinguish it from the taxable motor fuel. But because Alaska markets are so small, Alaska is not required to dye fuel oil, and the two products can be shipped together. Because the taxable and non-taxable fuels are typically mixed for shipment, it is possible that at times households may in fact pay taxes on fuel oil—because the taxes have been levied at some earlier point. In that case, households can apply for refunds on those taxes. But our research indicates that in most cases households do not pay federal and state taxes on fuel oil. Instead, wholesale or retail sellers (depending on the circumstances of the sale) determine which sales are exempt from federal and state taxes, and apply for refunds of any such taxes they paid on fuel ultimately sold for home heating.

This summary is based on the report, *Components of Delivered Fuel Prices in Alaska*, by the same authors. That full report will be available in summer 2008 and will be posted on ISER's Web site:

Web site: www.iser.uaa.alaska.edu

Editor: Linda Leask • Graphics: Clemencia Merrill

Institute of Social and Economic Research

RESEARCH SUMMARY

R.S. No. 67

University of Alaska Anchorage • October 2006

Effects of Rising Utility Costs on Alaska Households

By Ben Saylor and Sharman Haley

Households in remote rural places face utility costs 50% higher now than in 2000. In Anchorage those costs are up 35% and in other large or road-system communities about 39%, as Figure 1 shows.

The share of household income going to utilities is also up. Utility costs in urban and rural areas are now anywhere from about 3% to 10% of income for the typical household.

Those are median figures for all households. Utilities take a much bigger share of income among low-income households. Utility costs now amount to more than a third of income among low-income households in remote places.

These are among the findings of an ISER analysis of how rising energy prices have increased utility costs for Alaska households since 2000. By "utility costs" we mean costs for heat, electricity, and water and sewer systems. We divided Alaska communities into three regions, based on their size and location. A map on the back page shows the areas in each region.

The 2000 costs we use are annual out-of-pocket costs Alaska households reported in the spring 2000 U.S. census. The spring 2006 figures are ISER estimates for the same households, based on increases in energy prices since the census.

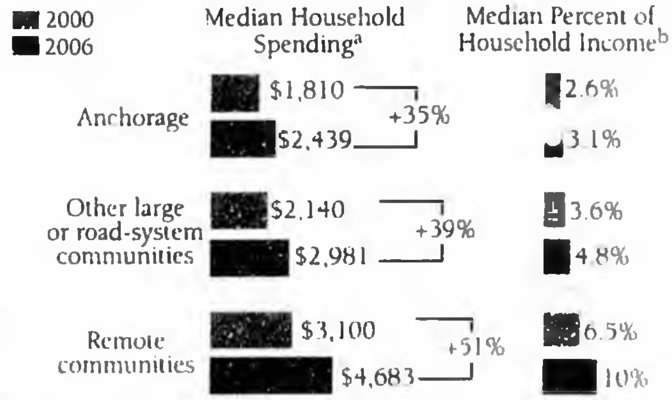
Utility costs were higher to start with and have increased more in remote places because they rely mostly on diesel for heating houses and generating power. Anchorage and a few other places have access to natural gas. (See map, page 2.) Both diesel and natural gas prices are up sharply, but diesel is still more expensive. Households paid on average four times more for diesel than for gas in 2005, measured by energy content (Figure 2).

Incomes in remote areas are also lower, which exacerbates the effect of higher utility costs. So it's not surprising that Alaskans in remote places use less household energy—roughly half as much per person as places with natural gas (Figure 3).

The inside pages show more about energy and utility costs. But to put utility costs in perspective, remember they're only a part of total housing costs—and total housing costs are significantly higher in urban Alaska (see back page). Also, higher energy prices directly affect transportation costs and indirectly affect many other costs. We only report effects on utility costs.

And "income" here includes only cash. Public programs that help households pay medical, housing, or other costs also effectively add to household incomes. So do the wild fish and game many Alaskans harvest. But the value of such non-cash contributions doesn't show up in traditional income measures.

Figure 1. Utility Costs for Alaska Households, Spring 2000 and Spring 2006

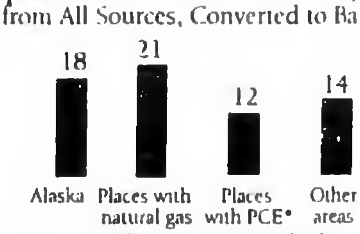


[a]Spring 2000 costs are out-of-pocket costs for previous year, reported by Alaska households in the 2000 U.S. census. Spring 2006 costs are ISER estimates for previous year, based on changes in energy prices from 1999 through 2005.
[b]Based on 1999 cash incomes Alaska households reported in 2000 U.S. census and estimated 2005 household cash incomes, adjusted for Permanent Fund Dividends not reported in the census.
Sources: See list of sources on page 4.

Figure 2. Prices Households Pay for Natural Gas and Diesel, 2005
(In Dollars per Million BTUs*)

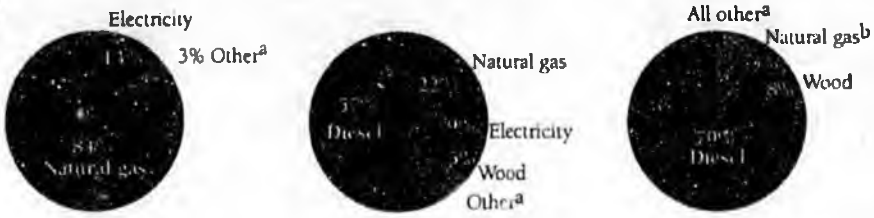
*British thermal units, a standard measure of energy content.
Source: ISER calculations with data from Alaska Housing Finance Corporation and Regulatory Commission of Alaska

Figure 3. Estimated Annual Energy Consumption for Household Uses, Per Person
(Energy from All Sources, Converted to Barrels of Oil)



*The state Power Cost Equalization program subsidizes part of electricity costs in rural communities that generate electricity mainly with diesel.
Sources: Power Cost Equalization data base; Scott Goldsmith, *Alaska Power Statistics, 1960-2001*, ISER 2003; Steve Colt estimates, ISER, revised September 2006.

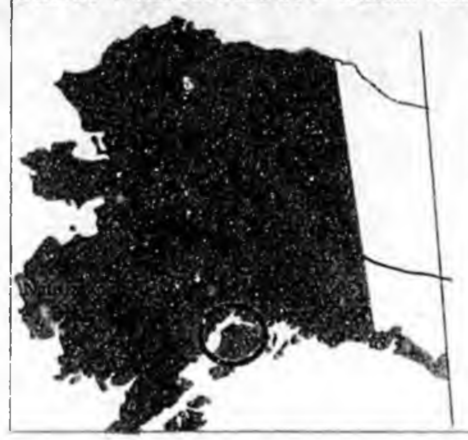
Figure 4. How Do Alaskans Heat Their Houses?
(Share of Households Using Various Energy Sources)



[a]Any fuel type not specified. Sources of heat include natural gas, propane, electricity, diesel, coal, wood, and solar energy. [b]Barrow has access to natural gas from local wells

Source: 2000 U.S. census

Places with Access to Natural Gas



Analysis Regions and Data Sources

Our baseline data are from the 2000 federal census, and we defined utilities the way the U.S. Census Bureau does: electricity, heating fuels, and water and sewer systems. But analysts don't all agree about what should be considered as "utilities."

Our analysis regions are based on five Alaska regions the U.S. Census Bureau uses for reporting detailed household information—Public Use Microdata Areas, which group communities based on size and proximity to road systems. We combined the five into three: (1) Anchorage; (2) other large or road-system communities; and (3) remote communities. A map on the back page shows the regions.

We report median household utility costs—that is, the midpoint figure, with half of households spending more and half spending less. We report those medians for all households and for the wealthiest and the poorest households. Our data on energy prices come from a number of sources, cited in the figures and listed on the back page.

We used figures from the 2000 U.S. census and the 2005 American Community Survey to estimate changes in household income.

Sources of Energy

Natural gas and diesel are the two big sources of energy Alaskans use. For heating, households use gas or diesel directly. Electricity is mostly generated either with gas or diesel, depending on which is available. (For some towns, mostly in southeast Alaska, hydropower generates electricity.) Water and sewer utilities also get the power they need from gas or diesel.

Natural gas from Cook Inlet fields is available in Anchorage and some (but not all) places on the Kenai Peninsula to the south and the Mat-Su Borough to the north. Some Fairbanks households use liquified natural gas (LNG), which is trucked in, and Barrow has access to gas from local wells.

Other Alaska communities rely mainly on diesel. Figure 4 shows how households heat their houses. Only in Anchorage do most heat with gas. In remote places about 80% of households use diesel, as do more than half the larger or road-system communities.

The majority of Alaskans—about 85%—live in Anchorage and other large or road-system communities and 15% in remote places (Figure 5).

Figure 5. Where Do Alaskans Live?

2005 Alaska population: 663,661

Source: Alaska Department of Labor

Figure 6. Increase in Natural Gas Prices For Anchorage Households, 2000-2006

	2000	2006	Increase
Price per 100 cubic feet	$.32	$.61	91%

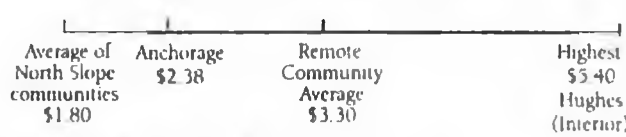
Sources: Regulatory Commission of Alaska and Enstar Natural Gas

Figure 7. Increase in Prices of Diesel for Home Heating, Per Gallon, Fall 2000 - Winter 2005

Anchorage	57%
Other large or road-system communities	70%
Remote communities	83%

Source: Population-weighted average prices, based on Alaska Housing Finance Corporation surveys.

Figure 8. Range of Diesel Prices for Home Heating, Per Gallon, Winter 2005



Source: Alaska Housing Finance Corporation

Rising Energy Costs

Natural gas prices in Anchorage and diesel prices in remote places increased roughly the same percentage in recent years. Anchorage households paid nearly twice as much for natural gas in early 2006 as in 2000 (Figure 6). Diesel prices increased 83% in remote areas from fall 2000 through winter 2005 (Figure 7). Data on September 2006 diesel prices, collected by the Alaska Division of Community Advocacy in a number of remote places, showed continuing increases in diesel prices.

And diesel prices have gone up more in remote places than in places closer to roads, because prices customers pay include the additional costs of transporting fuel and maintaining community storage tanks.

Fuel prices also vary a lot among remote places. In winter 2005, prices varied from a low of $1.80 per gallon among North Slope communities to $5.40 in Hughes, in the Interior (Figure 8). The average price in remote places was $3.30.

North Slope villages are among the state's most remote communities, but they pay lower prices because the borough government subsidizes residential fuel costs. In other places considered "remote," some are much more remote than others —so the costs of getting fuel to them are higher. Also, the price households pay varies by when the fuel was purchased and how long the community supply bought at a specific time lasts.

Figure 9. Increase in Electricity Prices, Rural Communities and Anchorage

Effective Rate for PCE residential customers (Median price per kWh for first 500 kWh[a])

2000	2006	Increase
17¢	24¢	41%

Rate for Anchorage Households[b] (Per 1,000 KWh)

March 2000	March 2006	Increase
$94.79	$121.00	28%

[a]Weighted by number of Power Cost Equalization customers per community

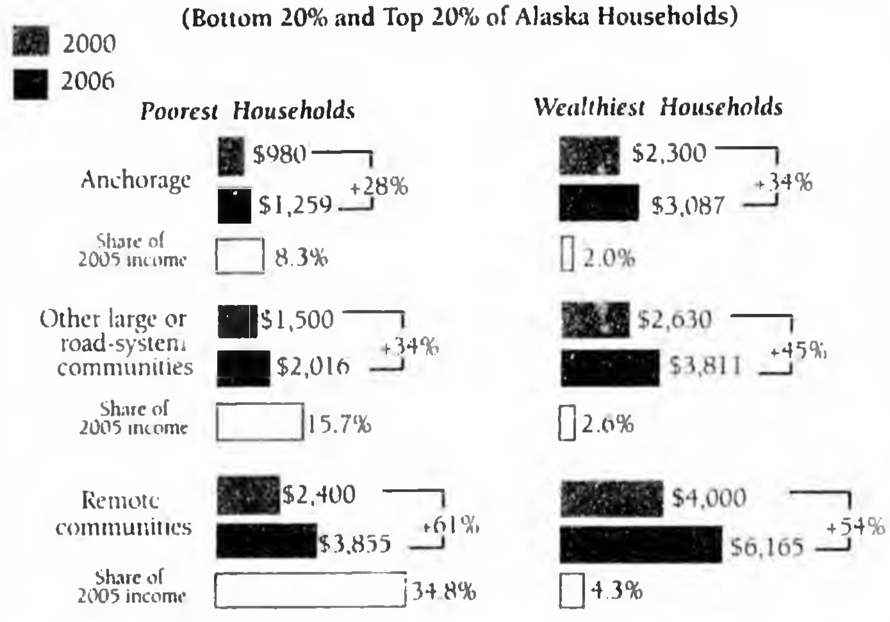
[b]For customers of Chugach Electric Association

Sources: Alaska Energy Authority and UA Cooperative Extension Service

Electricity rates have also increased, but not as much. The rate for customers of Anchorage's largest electric utility was up 28% between March 2000 and March 2006. Many remote communities receive Power Cost Equalization—a state program that subsidizes electricity costs in places that generate electricity mainly with diesel. In those places, rates went up 40% between 2000 and 2005, even taking the subsidy into account.

Figure 10. Median Utility Costs for Poorest and Wealthiest Households, 2000 and 2006

(Bottom 20% and Top 20% of Alaska Households)



Source: See list of sources, page 4

Poor and Wealthy Households

Figure 10 looks at how utility costs and shares of income going to utilities changed since 2000 among the state's wealthiest and poorest households—the 20% of households at the top of the income range and the 20% at the bottom.

Alaskans with lower incomes spend less for utilities than wealthier residents, because they live in smaller houses or apartments with fewer amenities.

In Anchorage and other urban places, many poor households rent and are more likely to heat with electricity. That's an expensive way to heat—but since prices for electricity didn't increase as much as prices of natural gas, utility costs for poor households in urban areas didn't increase as much as for wealthy households.

In remote areas, people with lower incomes are often homeowners who heat with diesel. In those places, poor households saw their annual utility costs increase 60%.

Costs for wealthier households statewide were higher to start with and went up more—because Alaskans with more money generally live in bigger houses that require more heat and electricity. Dollar costs for the wealthier households in urban areas went up 34% to 45% and in remote areas 54%.

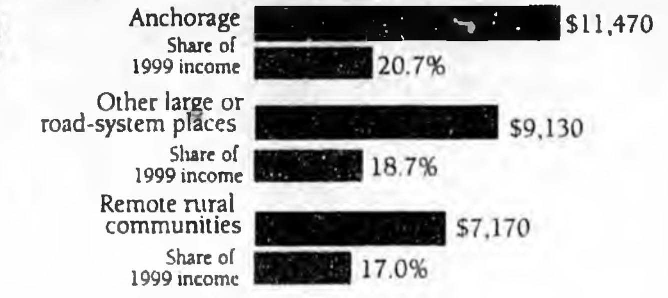
But even though dollar costs for utilities are higher among wealthy households, utility costs take a much bigger share of the smaller incomes of poor households. That's especially true in remote places, where incomes are lowest. Utility costs take from 8% to 35% of the income of poor households but about 2% to 4% among wealthy households.

Total Housing Costs

This analysis looks just at changing utility costs, but there are of course other housing costs—mortgages and rent payments being the biggest. Utility costs are higher in remote areas, but total housing costs are higher in urban areas. Most urban homeowners have mortgages, while many homeowners in remote places don't. Land values are higher in larger towns, and houses tend to be bigger and have more amenities.

Figure 11 shows that as of 2000, total housing costs were 60% higher in Anchorage than in remote places. We didn't estimate how total housing costs have changed since 2000, but we know they've gone up—since house prices, property taxes, and other costs are also up.

Figure 11. Total Household Housing Costs, 2000
(Median of Utility and All Other Housing Costs*)



*Housing costs reported in the 2000 U.S. census.

What's Ahead?

It's not news to Alaskans that they're paying more to heat their houses and run their freezers than they did a few years ago. Many have probably done things like lowering their thermostats and increasing the insulation in their houses. We weren't able to estimate how household energy use may have changed as energy prices rose.

But economic studies tell us that Americans' energy use is relatively inelastic—that means they typically don't cut their energy use much, even when prices are rising. So to pay their energy bills, some may try to reduce what they spend on other things, or work longer hours.

Some just aren't paying their utility bills—which has a cascading effect on utilities and businesses they owe money. The largest utility in rural Alaska said in late 2006 that it was considering cutting off electricity for hundreds of customers who hadn't paid their bills.

Higher energy prices have also directly increased transportation costs (and increased many other costs indirectly)—which we haven't talked about in this summary. Higher utility and transportation costs affect budgets not only of households but of businesses, local governments, and schools too.

There are state, federal, and private programs that provide municipal grants, community loans, and other energy assistance to households and communities. But such aid programs come and go and funding changes from year to year—and in any case they can't resolve the persistent issue for small communities where cash incomes are low and costs are high. A few rural communities are investigating the use of wind power to generate electricity.

Where energy prices will go from here is unpredictable. By fall 2006, worldwide prices of oil and natural gas had dropped considerably from their recent highs. But energy prices are notoriously volatile—as Alaskans have seen many times—and the link between world energy prices and consumer prices for products like diesel are neither direct nor instantaneous. It seems unlikely that utility costs are going to drop much any time soon.

This summary is part of an ongoing ISER study of the effects of higher utility costs on Alaska households. The work is being funded by the Rural Development section of the U.S. Department of Agriculture, Palmer office.

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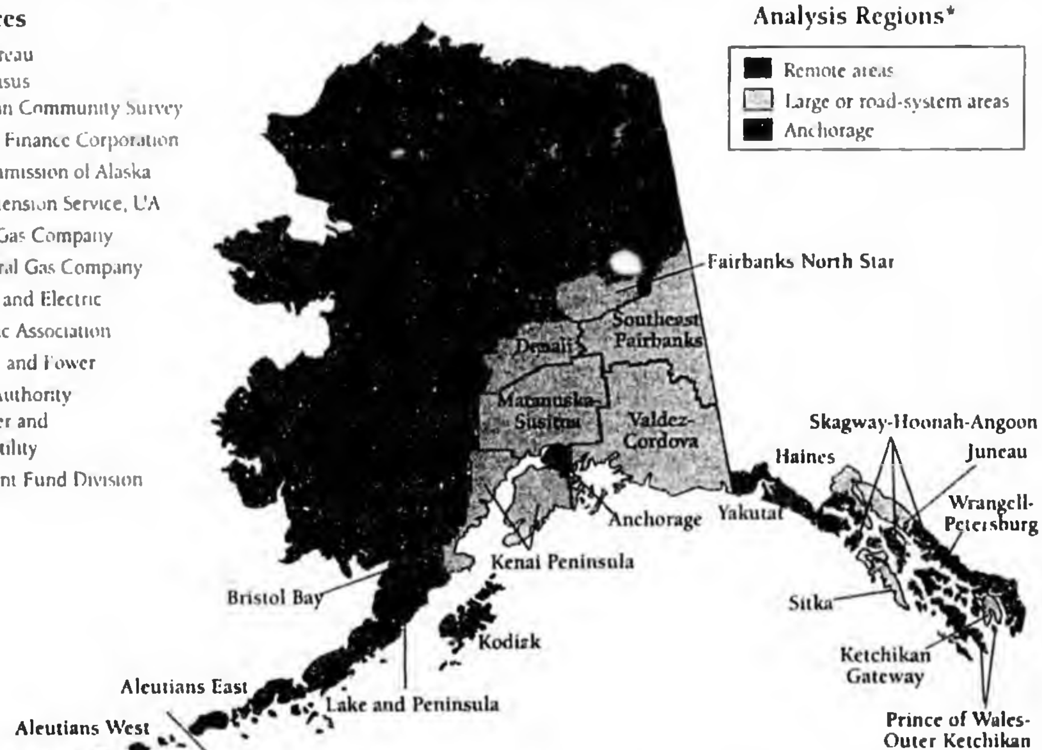
For more information about energy and many other issues of interest to Alaskans, visit ISER's Web site at:

www.iser.uaa.alaska.edu

Data Sources

U.S. Census Bureau
2000 U.S. census
2005 American Community Survey
Alaska Housing Finance Corporation
Regulatory Commission of Alaska
Cooperative Extension Service, UA
Enstar Natural Gas Company
Fairbanks Natural Gas Company
Barrow Utilities and Electric
Chugach Electric Association
Municipal Light and Power
Alaska Energy Authority
Anchorage Water and Wastewater Utility
Alaska Permanent Fund Division

Analysis Regions*



*Analysis regions based on U.S. Census Bureau's Public Use Microdata Areas

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ALASKA PETROLEUM PRODUCTS PRICING INVESTIGATION:

CLOSING REPORT

Prepared by the Alaska Department of Law

November 21, 2002

Introduction

At my direction, the Alaska Department of Law conducted an extensive three-year investigation into the pricing of petroleum products in Alaska. The investigation was initiated in 1999 in response to public complaints about the high price of gasoline in Alaska in comparison to other states. I am closing the investigation because there is insufficient evidence indicating a violation of the antitrust laws.

Conditions Prompting the Investigation

Historically, the price of gasoline on the West Coast of the United States averaged 11 cents per gallon (cpg) higher than the average retail price throughout the 50 states, excluding taxes,[1] and the price of gasoline in Alaska has tended to be higher than the price of gasoline on the West Coast by about 9 cpg. Between 1995 and 1998, however, gasoline prices in Alaska were as much as 17 cpg higher than West Coast prices. This was the impetus for the investigation. Immediately after I initiated the investigation, beginning in 1999, the spread between prices in Alaska and the West Coast narrowed dramatically, more closely tracking the historical spread between Alaska and the other states.

Legal Standards

In order to establish a violation of Alaska's antitrust statute, AS 45.50.562 and AS 45.50.564 (or the comparable federal law), there must be evidence that two or more companies entered into an express or "tacit" agreement to fix petroleum prices. A showing that companies charged prices in excess of the competitive level, or raised and lowered prices in a parallel fashion, is not enough to establish the existence of a tacit agreement. Instead, evidence of uniform pricing must be accompanied by additional evidence demonstrating that two or more parties had a "meeting of the minds" to engage in cooperative pricing behavior, such as: (1) actions contrary to an entity's independent economic interests; (2) departure from normal business practices; (3) motive to conspire; (4) opportunity to conspire; (5) high level of inter-company communications; and (6) past antitrust violations involving collective action.[2]

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[1] Retail gasoline prices at the pump include federal, state, and local taxes. Since Alaska has one of the lowest gasoline taxes in the nation, retail price comparisons understate the differences between prices in Alaska and elsewhere unless taxes are deducted.

[2] *See, In re Baby Food Litigation*, 166 F.2d 112, 122 (3d Cir. 1999) (proof of plus factors is a "prerequisite to finding that parallel action amounts to a conspiracy").

The Investigation

The investigation began in the summer of 1999 when my staff issued Civil Investigative Demands (CIDs) to refiners and distributors of petroleum products in the state. Hundreds of boxes of documents were produced in response to the demands. The investigation involved the review of thousands of pages of internal company documents, detailed analysis of pricing data, interviews of witnesses and potential witnesses, and formal depositions of several current and former oil company employees and executives.

Findings

My staff provided a summary of the investigation in a report entitled "Alaska Petroleum Price Fixing Investigation: Update and Status," December 21, 2001, http://www.law.state.ak.us/civil/oil-gas-mining/AKPPPI-1a_final.pdf. That report describes the economic conditions and market forces present in Alaska that affect the pricing of petroleum products. All of the information and data provided to me in response to the CIDs is, by statute, confidential. AS 45.50.592(e).

The investigation found that Alaska's gasoline industry is highly concentrated, in that four marketers accounted for the vast majority of gasoline sales during the relevant time period. When there are few sellers in a market, like Alaska, it is easier for them to observe how competitors react to decisions regarding output and prices, and each may take into account the potential impact of its own actions on market prices and the potential responses from other sellers. This type of interdependent behavior on the part of sellers often leads to parallel pricing, but that is not, in the absence of an express or implied agreement to set prices, a violation of the antitrust laws so long as each business develops and implements its pricing and output decisions independently. The investigation has not produced evidence of an express or implied agreement to set prices or to otherwise violate antitrust laws.

For the reasons set forth above, I am closing this investigation without further action. However, I expect the Department of Law to continue to monitor gasoline prices in Alaska.

ALASKA PETROLEUM PRODUCTS PRICING INVESTIGATION:
UPDATE AND STATUS
Prepared by the Alaska Department of Law
December 21, 2001

Introduction

The Office of the Attorney General for the State of Alaska began an investigation of Alaska petroleum prices in 1999 by issuing Civil Investigative Demands to petroleum refiners and product distributors. The investigation was begun because of public complaints and inquiries to the Attorney General about the high price of gasoline in Alaska in comparison to other states. The purpose of the investigation is to determine whether Alaska petroleum product pricing is the product of illegal price fixing or other anticompetitive behavior in violation of state or federal statutes.

The Attorney General's investigation is ongoing. The Department of Law is reviewing the documents and data provided by the state's gasoline marketers. The Department of Law has not made a determination regarding whether there is sufficient evidence to warrant bringing an antitrust or other enforcement action.

Background

To bring an action under Section One of the Sherman Act (the federal antitrust law) or under AS 45.50 (Alaska's antitrust law), there must be evidence of an illegal agreement. This could be an actual written agreement, testimony, or other evidence of an agreement to fix prices, divide the market, or otherwise restrain competition.

Under existing law, the State of Alaska does not attempt to regulate wholesale or retail gasoline prices. A business is free to set its own price, but it is illegal for a business to collude with competitors to set prices.

The state has reviewed thousands of pages of documents, conducted interviews, and reviewed market data to determine whether there is direct evidence of an illegal agreement.

All material and data provided to the state in response to the civil investigative demands of the Attorney General are confidential by statute. AS 45.50.592(e). The following is a summary of the non-confidential portions of the analysis prepared by the department to date.

Price Differences Between Alaska and the Lower 48

Retail prices of gasoline in Alaska have more closely followed prices in other West Coast states than prices in the rest of the U.S. Given Alaska's relative proximity to the West Coast, this probably is to be expected. Though Alaska's refineries supply much of the petroleum products required in the state, jet fuel, diesel, and gasoline have regularly been shipped from West Coast refineries to Alaska during the past decade. (Alaska's sources of supply for petroleum products are discussed in greater detail below.) In addition, gasoline and other products have been exported from Alaska to the West Coast. Because West Coast refineries are the closest alternative source of refined petroleum products outside Alaska, and because refined products move from Alaska to the West Coast, Alaska prices are influenced by West Coast prices.

Unfortunately, gasoline prices on the U.S. West Coast have, historically, been higher than prices in the rest of the U.S. Over the past seven years, the average retail price for gasoline, excluding taxes[1], on the West Coast has been 11 cents per gallon ("cpg") higher than the average retail price throughout the 50 states.

Concerns expressed by consumers and others about West Coast gasoline prices prompted the Federal Trade Commission ("FTC") to initiate an investigation. The FTC studied West Coast gasoline pricing practices for almost three years, but ultimately concluded that there was nothing unlawful about the manner in which West Coast wholesalers priced gasoline.

The FTC closed its West Coast investigation in May 2001. In doing so, it concluded that the West Coast has several important characteristics that set it apart from much of the rest of the U.S. gasoline market. One of the most important characteristics is the West Coast's relative distance from the Gulf Coast. The Gulf Coast is the largest refining center in the U.S. and an important source of supply of gasoline and other refined products. Refined products move to much of the U.S. from Gulf Coast refineries through a network of pipelines. There are no pipeline connections, however, between the Gulf Coast's refineries and the West Coast. This means that products like gasoline moving from the Gulf Coast's refineries to the West Coast must be shipped through the Panama Canal on marine tankers. This may explain in part why gasoline and other products refined on the West Coast command higher prices.

Unique product requirements, such as those imposed by the California Air Resources Board ("CARB"), also tend to raise the price of gasoline. In addition, there are a limited number of gasoline refiners and wholesalers on the West Coast, and all refiners and wholesalers do not compete in all metropolitan areas.

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[1] Retail gasoline prices at the pump include federal, state, and local taxes. Since Alaska has one of the lowest gasoline taxes in the nation, retail price comparisons understate the differences between prices in Alaska and elsewhere unless taxes are deducted.

Apart from the CARB standards, the West Coast market characteristics identified above are also present in Alaska. Compared to the West Coast, however, Alaska is even more distant from Gulf Coast product markets, has fewer refiners, and has even greater wholesale market concentration. This may explain in part why Alaska prices tend, on average, to be higher than those in other western states.

Yet these market characteristics, by themselves, do not explain why the price difference between Alaska and the West Coast grew sharply between 1995 and 1998. During this period, Anchorage-area prices were on average 17 cpg above retail prices in the Seattle area, a level nearly double the 9 cpg difference seen in the prior four years. This is curious given that Alaska refiners produced more gasoline during this period than was consumed here, and exported the surplus to the West Coast and Far East at prices lower than those offered in Alaska. Beginning in 1999, however—after the Attorney General initiated this investigation—the spread narrowed dramatically. Between January 1999 and December 2000, Anchorage-area retail prices averaged just 3 cpg above Seattle-area retail prices.

Supply and Demand of Petroleum Products

In addition to gasoline, the other major petroleum products sold in Alaska are jet fuel and diesel (No. 2 heating oil and No. 2 diesel fuel). These products and gasoline constitute more than 95% of the total volume of petroleum products sold in the state.

The Tesoro and Williams refineries produce gasoline, jet fuel, and diesel. The PetroStar refinery produces jet fuel and diesel, but no gasoline.

The Williams refinery, near Fairbanks, and the PetroStar refineries, near Fairbanks and in Valdez, all take Alaska North Slope crude ("ANS") directly from the TAPS line. Both companies reinject the unrefined portion of ANS back into the TAPS line.

Alaska's current demand for refined petroleum products is approximately 100 thousand barrels per day (MBD), or 1.5 billion gallons per year. Jet fuel consumption is just over 60 MBD, accounting for a little more than 60% of total demand for refined product in the state. Consumption of diesel and gasoline in Alaska runs approximately 16 MBD, or 245 million gallons per year, for each product.

More gasoline is produced in Alaska than is consumed. The excess is exported to the West Coast and foreign destinations. Nevertheless, gasoline, diesel, and jet fuel are barged into southeastern Alaska from Seattle-area refineries.

Historically, Alaska's refineries have not produced enough jet and diesel fuel to supply the state. These products are imported from the Far East or the West Coast.

Tesoro's refinery supplies the majority of gasoline consumed in Alaska, but Williams supplies most of the gasoline sold in Fairbanks and interior Alaska. Williams also ships gasoline and jet fuel by rail to Anchorage.

The Anchorage metropolitan area accounts for about 60% of the state's retail gasoline sales while Fairbanks, Juneau, the Kenai Peninsula, and Western Alaska account for roughly 10% of retail sales each. There are approximately 300 service stations in Alaska. About one-third of Alaska's 300 retail gasoline stations are located in the Anchorage area. The average retail station in Anchorage is larger and sells much higher volumes than stations in the rest of the state.

Alaska's Gasoline Industry Is Highly Concentrated

Williams, Tesoro, Chevron, and Texaco[2] account for the vast majority of gasoline marketed in Alaska. The state's two gasoline refiners, Williams and Tesoro, were also its largest gasoline marketers, accounting for nearly 65% of Anchorage-area sales between them in 1999. Chevron and Texaco accounted for approximately 32% of Anchorage volumes. These same four marketers have accounted for nearly all of Alaska's gasoline sales over the past decade.

For purposes of analyzing competition within a market, the U.S. Justice Department and the Federal Trade Commission categorize markets into the following three groups: Unconcentrated, Moderately Concentrated, Highly Concentrated. Alaska's gasoline industry is Highly Concentrated at both the refining and wholesale distribution levels. Wholesale gasoline markets in Alaska are more concentrated than in most other wholesale gasoline markets in the U.S. and on the West Coast. Analysis of the available market share data shows that with the exception of the southeast part of the state, concentration levels are much higher in regions outside of Anchorage.

Competition, Oligopoly, and Illegal Behavior

Unconcentrated markets are characterized by a large number of sellers offering the same or similar products to consumers who can shop for the best value. Unconcentrated markets are generally assumed to be competitive. The more sellers, the more likely competition will thrive. In a competitive situation, no single seller has market power; the

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[2] Since the late 1990's, in the West and Midwest, Texaco brand gasoline has been marketed by Equilon, a joint venture between Texaco and Shell. As a condition to approving the recent merger of Chevron and Texaco, Alaska, other states, and the Federal Trade Commission required Texaco to divest its interest in Equilon to Shell or another buyer. Therefore, the Chevron-Texaco merger should not reduce competition in the Alaska gasoline market.